

CHARTER SCHOOL AGREEMENT

DATED AS OF APRIL 3, 2001

BETWEEN

DISTRICT OF COLUMBIA PUBLIC
CHARTER SCHOOL BOARD

AND

THURGOOD MARSHALL ACADEMY

CHARTER SCHOOL AGREEMENT

This CHARTER SCHOOL AGREEMENT (this "Agreement") is dated as of April 3, 2001 and entered into by and between the DISTRICT OF COLUMBIA PUBLIC CHARTER SCHOOL BOARD (the "Board") and Thurgood Marshall Academy (the "School Corporation").

RECITALS

WHEREAS, pursuant to Section 2203 of the District of Columbia School Reform Act of 1995, as amended (as now and hereafter in effect, or any successor statute, the "Act"), the Board has the authority to approve petitions to establish charter schools in the District of Columbia;

WHEREAS, the School Corporation submitted a petition in accordance with Section 2202 of the Act to establish a public charter school (such petition, as amended through the date hereof, the "Application"; a copy is attached hereto as Exhibit A);

WHEREAS, the Board has (i) determined that the Application satisfies the requirements set forth in Subtitle B of the Act and (ii) approved the Application subject to the execution of this Agreement by the Board and the School Corporation; and

WHEREAS, the Board and the School Corporation hope to foster a cooperative and responsive working relationship;

NOW, THEREFORE, in consideration of the premises and the agreements, provisions and covenants herein contained, the Board and the School Corporation agree as follows:

SECTION 1. ESTABLISHMENT OF SCHOOL

1.1 Charter. The School Corporation shall establish a public charter school (the "School") in the District of Columbia and shall operate such school in accordance with the Act, this Agreement and the Application. The Application is incorporated in this Agreement and binding on the School Corporation. To the extent any provision in this Agreement conflicts with any provision of the Application, the provision in this Agreement shall govern. This Agreement and the Application shall constitute the School Corporation's charter for purposes of Section 2203(h)(2) of the Act.

1.2 Term; Renewal. **A.** This Agreement shall commence on the date hereof and shall continue for a term of fifteen years unless sooner terminated in accordance with Section 7.1 hereof.

B. The School Corporation may seek to renew its authority to operate the School as a public charter school in the District of Columbia pursuant to the terms of the Act and any rules established by the Board. If such renewal is granted by the Board, the Board and the School Corporation shall (i) renew this Agreement with amendments satisfactory to the Board

and the School Corporation or (ii) enter into a substitute agreement satisfactory to the Board and the School Corporation.

1.3 Location; Permits. The School shall be located at 421 Alabama Avenue, S.E., Washington, D.C. 20032 (the School Corporation's fee or leasehold interest in such property, the "School Property"). The School Corporation shall not operate the School at a location other than the School Property without the prior written consent of the Board. The Board reserves the right to delay or prohibit the School's opening until the School Corporation has provided the Board with each of the following items:

A. At least 30 days prior to the first day of the School's first academic year, the School Corporation shall submit to the Board (i) a report regarding the status of all Authorizations required for the School Corporation's use of the School Property, including occupancy permits and health and safety approvals, and (ii) a report identifying any lease, sublease, deed or other instrument authorizing the use or evidencing the ownership of the School Property by the School Corporation and summarizing any financing entered into in connection therewith, along with true, correct and complete copies of each of the documents referenced in the report. "Authorizations" shall mean (a) any consent, approval, license, ruling, permit, certification, exemption, filing, variance, order, decree, directive or other authorization of, by or with, (b) any notice to or from, (c) any declaration of or with, or (d) any registration with, any governmental authority, in each case relating to the operation of the School.

B. The School Corporation shall provide the Board a copy of the certificate of occupancy for the School Property certified by an officer of the School Corporation, a member of the Board of Trustees or the chief administrator of the School as true, correct and complete.

C. The School Corporation shall provide the Board the certificates of insurance required by Section 4.4, within the time periods set forth in Section 4.4.

D. The School Corporation shall provide the Board with true, correct and complete copies of any agreements entered into for the provision of food services at the School, or if no such agreements have been entered, a detailed description of how such food services will be provided at the School.

E. The School Corporation shall provide the Board with a certification from an officer of the School Corporation, a member of the Board of Trustees or the chief administrator of the School that the School Corporation has complied in all respects with Section 2204(c)(1) of the Act in connection with any procurement contracts entered into by or in the name of the School Corporation.

F. The School Corporation shall provide the Board with a certification from an officer of the School Corporation, a member of the Board of Trustees or the chief administrator of the School that the School Corporation has in place all health and safety procedures required by law, including a fire evacuation plan.

G. The School Corporation shall provide the Board with a certification from an officer of the School Corporation, a member of the Board of Trustees or the chief

administrator of the School that the School Corporation has conducted background checks on all employees and persons who volunteer 10 or more hours per week at the School.

H. The School Corporation shall provide the Board with a certification from an officer of the School Corporation, a member of the Board of Trustees or the chief administrator of the School that the School Corporation has sufficient books and other supplies for all students attending the School and that curriculum materials have been developed and provided to all teachers at the School.

I. The School Corporation shall provide the Board with a certification from an officer of the School Corporation, a member of the Board of Trustees or the chief administrator of the School that all signed employment contracts entered into by the School Corporation are on file at the School.

A copy of any information submitted to the Board or otherwise required by Clauses A-J of this Section 1.3 shall be kept on file at the School.

SECTION 2. EDUCATIONAL PROGRAM

2.1 Mission Statement. The School Corporation shall operate the School in accordance with the mission statement set forth in the Application.

2.2 Age: Grade. In its first academic year, the School shall instruct students in grade nine. In subsequent academic years, in accordance with Schedule I, the School may instruct students in grades nine to twelve. The School shall not instruct students of any other grade without the prior written consent of the Board.

2.3 Enrollment. A. Enrollment in the School shall be open to any pupil in the grade range set forth in Section 2.2 who resides in the District of Columbia. Students who are not residents of the District of Columbia may be enrolled at the School to the extent permitted by the Act. The School Corporation shall determine whether each pupil resides in the District of Columbia according to guidelines established by the Board. Subject to clause B below, the School Corporation shall maintain an enrollment of no more than 100 pupils in its first academic year and no more than 400 pupils in subsequent academic years substantially in accordance with Schedule I attached hereto.

B. No later than April 1, 2006 and April 1, 2011, the School Corporation may petition the Board in writing to change the maximum enrollment of the School for the five academic years succeeding the deadline applicable to such petition. The Board shall review the petition and determine the maximum enrollment of the School for such five-year period. The School Corporation shall provide promptly to the Board any additional information requested by the Board in connection with such petition. Notwithstanding the foregoing, prior to the end of any five-year period, the School Corporation may petition the Board to increase the maximum enrollment of the School by up to 5% from the original maximum enrollment for such five-year period provided that the School Corporation delivers to the Board (i) evidence that (a) the School Property has sufficient capacity to accommodate the increased enrollment, (b) the financial position of the School Corporation will improve as a result of such increase, (c) the

quality of the educational program at the School is satisfactory and will not deteriorate as a result of such increase and (ii) such other items as the Board may request.

C. If eligible applicants for enrollment at the School for any academic year exceed the number of spaces available at the School for such academic year, the School Corporation shall select students pursuant to the random selection process set forth as Exhibit B attached hereto. The School Corporation shall notify the Board in writing of any material change to the random selection process at least 60 days prior to the date (as set forth in the notice to the Board) of the proposed implementation thereof. With respect to any such proposed change, the School Corporation shall consider any comments of the Board, its staff and its agents in connection with such change. The School Corporation shall not implement any material change to the random selection process unless after giving effect to such change the random selection process would (i) include (a) an annual deadline for enrollment applications that is fair and set in advance of such deadline and (b) a process for selecting students for each academic year (1) if applications submitted by the deadline exceed available spaces for such academic year, and (2) for spaces available after the beginning of such academic year, (ii) publicize the application deadline and the selection processes, and (iii) provide a procedure to determine whether applicants reside in the District of Columbia.

D. The School Corporation shall keep records of student enrollment and daily student attendance that are accurate and sufficient to permit preparation of the reports described in Sections 5.1E and Section 5.1F.

2.4 Curriculum. A. The School Corporation shall design and implement the educational program set forth in the Application, as modified in accordance with this Agreement. The School Corporation shall notify the Board in writing of any change in the curriculum or instructional method of the School that is a significant departure from the curriculum or instructional method in the plan set forth in the Application as amended in accordance with this Agreement at least 120 days prior to the date (as set forth in the notice to the Board) of the proposed implementation thereof (the "**Implementation Date**"). With respect to any such proposed change, the School Corporation shall consider any comments of the Board, its staff and its agents in connection with such change. The School Corporation shall provide promptly to the Board any materials requested by the Board in connection with such change in curriculum or instructional method.

B. The School Corporation shall not implement any material change in the curriculum or instructional method of the School without the prior written consent of the Board if:

- (i) the Board has previously notified the School Corporation in writing that the School Corporation is on probation for failure to satisfy performance targets set forth in the Accountability Plan and such notice has not been rescinded by the Board in writing; or
- (ii) the Board determines in consultation with the School Corporation that such change would constitute a significant departure from the mission and goals set forth in the Application, as previously amended in accordance with this

Agreement, and notifies the School Corporation of such determination in writing within 60 days after the Board receives notification of such change.

2.5 Standards. As part of its Accountability Plan, the School Corporation shall adopt student content and performance standards for all subject areas at all grade or other performance levels served by the School. The School's educational program shall be aligned with the School's content and performance standards.

2.6 Students with Disabilities. The School Corporation shall comply with all federal requirements concerning the education of students with disabilities and shall designate and notify the Board and the Director of the Office of Special Education of the District of Columbia Public Schools of the individual responsible for case management of the education of the School's students with disabilities. At least 30 days prior to the first day of the School's first academic year, the School Corporation shall notify the Board in writing of its election to act as either a local education agency or a District of Columbia Public School for purposes of Part B of the Individuals with Disabilities Education Act, as amended, and Section 504 of the Rehabilitation Act of 1973, as amended. The School Corporation shall notify the Board in writing by April 1 prior to any academic year for which the School Corporation shall change such election from the current academic year.

2.7 Student Policies; Expulsion and Suspension. A. No later than 30 days prior to the beginning of the School's first academic year, the School Corporation shall deliver to the Board in writing copies of the policies governing students at the School. The School Corporation shall notify the Board in writing of any material change to such policies within 30 days of the adoption of such change. The School Corporation shall consider the comments of the Board, its staff and its agents in connection with such policies. Notwithstanding the foregoing, the policies regarding the expulsion or suspension of students shall be as set forth in Exhibit C hereto. The School Corporation shall make the policies governing students at the School available in writing to parents and students.

B. The School Corporation shall notify the Board promptly of any expulsion or any suspension of more than 5 school days of any student enrolled in the School.

SECTION 3. EVALUATION

3.1 Accountability Plan. A. The School Corporation shall develop an accountability plan setting forth (i) goals, content and performance standards and performance indicators for the School, (ii) specific annual and long-term performance targets for such performance indicators related to each goal, (iii) a method to measure the School's achievement of such performance targets, (iv) timelines for achieving performance targets set forth in the Accountability Plan, (v) procedures for taking corrective action when the School's performance falls below such performance targets, (vi) strategies for reporting the School's performance and progress to parents, the community and the Board, and (vii) such other items as the Board may require. In developing or modifying an accountability plan, the School Corporation shall cooperate with the Board, its staff and its agents.

B. Within six months after the beginning of the School's first academic year, the School Corporation shall submit an accountability plan in writing to the Board. Upon notice to the School Corporation of the Board's approval of an accountability plan, such accountability plan (the "**Accountability Plan**") shall be attached to this Agreement and, without further action by the Board or the School Corporation, shall become a part hereof and be binding upon the School Corporation.

C. The School Corporation shall provide the Board written notice of any change in the Accountability Plan at least 120 days prior to the proposed implementation thereof. If such change significantly amends the performance goals, objectives, standards, indicators, targets or other basis against which the School Corporation has elected to have its performance judged, the School Corporation shall not implement such change without the prior written approval of the Board. With respect to any other proposed change in the Accountability Plan, the School Corporation shall consider any comments of the Board, its staff and its agents in connection with such change. With respect to any proposed change in the Accountability Plan requiring the Board's approval, the Board shall rule on such change within 90 days after the Board's receipt thereof.

3.2 Corrective Action. In connection with the Board's review of the School's performance, if the Board determines that the School is not progressing toward one or more performance goals set forth in the Accountability Plan or that the quality of the School's educational program is not satisfactory, then the Board, in consultation with the School Corporation, may require the School Corporation to develop and implement a corrective action plan. Nothing contained herein shall restrict the Board's ability to revoke the School Corporation's charter in accordance with the Act.

3.3 Standardized Testing. At a minimum, the School Corporation shall administer, in accordance with the policies of the governmental body responsible for the District of Columbia Public Schools (the "**Board of Education**"), any District-wide assessments used to measure student achievement required by the Board of Education to be administered in public schools in the District of Columbia covering the same grades or ages as the School and the results of which the Board of Education intends to make publicly available; provided that with respect to students receiving special education, the School Corporation shall only be required to administer tests related to such students' individual education plans.

SECTION 4. CONTRACTS

4.1 Contracts. A. Within 45 days after the end of each fiscal quarter, the School Corporation shall submit to the Board with respect to each contract (other than an employment contract) entered into, materially amended or terminated during such fiscal quarter that has (i) a value equal to or in excess of \$25,000, or (ii) a term that exceeds one Fiscal Year, a list of the following items: (a) the parties, (b) an indication of whether any party is an Affiliate (as defined in Section 4.5) of the School Corporation, (c) the product or service that is the subject of such contract, and (d) whether the value of such contract equals or exceeds \$50,000 or such other threshold as the Board may determine in writing.

B. By October 1 of the School's first academic year and by October 1 of each subsequent year in which there is a change, the School Corporation shall submit to the Board a range of salaries and benefits in effect for each category of employees identified by the School Corporation. Within 45 days after the end of each fiscal quarter, the School Corporation shall submit to the Board a list of each employment contract entered into, materially amended or terminated during such fiscal quarter which provides an annual salary and benefits package in excess of the relevant range delivered to the Board pursuant to the preceding sentence.

C. Each contract described in clause A or B above shall be referred to herein as a "**Material Contract.**" Upon the request of the Board, the School Corporation shall deliver to the Board copies of any Material Contract.

4.2 Contracts for School Management. A. Without the prior written consent of the Board, the School Corporation shall not (i) enter into any contract (a "**School Management Contract**") for the management of the School by another entity, (ii) cancel or terminate or provide a notice of cancellation or termination of any School Management Contract or consent to or accept any cancellation or termination thereof, or (iii) enter into any material amendment, modification or supplement of any School Management Contract.

B. If the Board has previously notified the School Corporation in writing that the School Corporation is on probation for failure to satisfy performance targets set forth in the Accountability Plan or for fiscal management reasons and such notice has not been rescinded by the Board in writing, the School Corporation shall notify the Board in writing 5 business days prior to taking any of the following actions: (1) waiving any material default under, or material breach of, any School Management Contract or waiving, failing to enforce, forgiving, compromising, settling, adjusting or releasing any material right, interest or entitlement, howsoever arising, under, or in respect of any School Management Contract, or giving any consent, waiver or approval under any School Management Contract, or in any way varying, or agreeing to the variation of, any material provision of any School Management Contract or of the performance of any material covenant or obligation by any other party under any School Management Contract, or (2) providing any notice, request or other document permitted or required to be provided pursuant to any School Management Contract affecting any material rights, benefits or obligations under any such School Management Contract in any material respect. If the Board so notifies the School Corporation in writing prior to the intended date of such action, the Board shall have the right to approve such action, and the School Corporation shall not take such action without the prior written consent of the Board.

4.3 Insurance Coverage. A. The School Corporation shall procure and maintain in full force and effect at all times insurance policies with an independent insurance broker with a license in the District of Columbia providing at least the limits and coverage provisions set forth below:

(i) Workers' compensation insurance as required by applicable Law. "**Law**" shall mean any statute, law, constitutional provision, code, regulation, ordinance, rule, judgment, order, decree, permit, concession, grant, franchise, license, agreement, directive, binding guideline or policy or rule of common law, requirement of, or other governmental restriction of or determination by, or any

interpretation of any of the foregoing by, any governmental authority, whether now or hereafter in effect.

(ii) General liability insurance on an occurrence basis against claims for personal injury (including bodily injury and death) and property damage. Such insurance shall provide coverage with a \$1,000,000 minimum limit per occurrence for combined bodily injury and property damage, a maximum deductible of \$2,500 per occurrence and aggregate limits of liability of at least \$2,000,000.

(iii) Automobile liability insurance against claims for personal injury (including bodily injury and death) and property damage covering all owned, lease non-owned and hired motor vehicles, including loading and unloading, with a \$1,000,000 minimum limit per occurrence for combined bodily injury and property damage and containing appropriate no-fault insurance provisions wherever applicable.

(iv) Excess liability insurance on an occurrence basis covering claims in excess of the underlying insurance described in the foregoing clauses (ii) and (iii), with (a) if the School provides transportation for any of its students, a \$5,000,000 minimum limit per occurrence and (b) otherwise, a \$3,000,000 minimum limit per occurrence; provided that aggregate limits of liability, if any, shall apply separately to each location.

(v) Property damage insurance on an "all risk" basis, boiler and machinery insurance on a comprehensive basis and providing coverage for (a) the School Corporation in a minimum aggregate amount equal to the "full insurable value" of the School Property, and (b) attorneys' fees, engineering and other consulting costs, and permit fees directly incurred in order to repair or replace damaged insured property in a minimum amount sufficient to cover 100% of the cost to reconstruct the School Property. For purposes of this clause (v), "full insurable value" shall mean the full replacement value of the School Property, including any improvements, equipment, fuel and supplies, without deduction for physical depreciation and/or obsolescence; all such policies may have deductibles of not greater than \$2,500 per occurrence; provided that to the extent such policies do not have such deductibles, the School Corporation shall establish adequate reserves or other appropriate provisions, if any, as shall be required by the Board. Such insurance shall (x) not include any coinsurance provision, (y) provide for increased cost of construction and loss to undamaged property as a result of enforcement of building Laws with sub-limits not less than 10% of the "full insurable value" of the School Property, and (z) include debris removals with a sub-limit of not less than \$50,000. The property damage coverage shall not contain an exclusion for freezing, mechanical breakdown, loss or damage covered under any guarantee or warranty, or resultant damage caused by faulty workmanship, design or materials.

(vi) Directors and officers liability insurance and professional liability insurance with a \$1,000,000 minimum limit per occurrence. The policies for such insurance shall name the Board of Trustees, the School Corporation, School employees and School volunteers as insureds.

(vii) Educators legal liability insurance with a \$1,000,000 minimum limit per occurrence.

B. If the School Corporation has entered into a School Management Contract, the School Corporation shall require the Person managing the School pursuant to that School Management Contract (the “**School Manager**”) to maintain management professional liability insurance with a \$1,000,000 minimum limit per occurrence.

C. The School Corporation may satisfy its obligations under this Section 4.3 by being an additional named insured on insurance policies of an Affiliate of the School Corporation or the School Manager, if any, providing the School Corporation the coverage required pursuant to this Section 4.3 to the same extent as if the School Corporation obtained such required insurance itself.

D. All policies of insurance required to be maintained pursuant to clause A (except subclauses (vi) and (vii)) shall be endorsed to name the Board and its directors, officers, employees and agents as additional insureds. All policies of insurance required to be maintained pursuant to this Section 4.3 shall be endorsed to provide that the insurer is required to provide the Board with at least 30 days’ prior notice of substantial reduction in coverage or amount (other than a reduction in coverage or amount resulting from a payment thereunder), cancellation or non-renewal of any policy. The Board may from time to time, by written notice to the School Corporation, amend the amount and scope of insurance coverage required by this Section 4.3 to include such additional insurance coverage which, in the reasonable opinion of the Board, is generally maintained with respect to schools by prudent school management, subject to the availability of such insurance in such amounts on commercially reasonable terms.

4.4 Insurance Certificates. No later than August 1, 2001 and no later than August 1 of each subsequent year, the School Corporation shall deliver to the Board a certificate of insurance with respect to each insurance policy required pursuant to Section 4.3. Such certification shall be executed by each insurer providing insurance hereunder or its authorized representative and shall (1) identify underwriters, the type of insurance, the insurance limits and the policy term and (2) specifically list the special provisions enumerated for such insurance required by Section 4.3. Concurrently with the furnishing of the certification referred to in this Section 4.4, the School Corporation shall furnish the Board with a report of an independent insurance broker satisfactory to the Board, signed by an officer of such broker, stating that all premiums then due have been paid. In addition, the School Corporation will notify the Board in writing promptly of any default in the payment of any premium and of any other act or omission on the part of the School Corporation or the School Manager, if any, which may invalidate or render unenforceable, in whole or in part, any insurance being maintained pursuant to Section 4.3. Upon request by the Board, the School Corporation will promptly furnish the Board with copies of all insurance policies, binders and cover notes or other evidence of insurance relating to the insurance required to be maintained pursuant to Section 4.3.

4.5 Transactions with Affiliates. The School Corporation shall not, directly or indirectly, enter into or permit to exist any transaction (including the purchase, sale, lease or exchange of any property or the rendering of any service) with any Affiliate of the School Corporation, any member of the board of trustees of the School Corporation (the “**Board of Trustees**”) or any employee of the School Corporation unless the terms of such transaction (considering all the facts and circumstances) are no less favorable to the School Corporation than those that could be obtained at the time from a Person that is not such an Affiliate. “**Affiliate**” shall mean, as applied to any Person, any other Person directly or indirectly controlling, controlled by, or under common control with, that Person and, if such Person is an individual, any member of the immediate family (including parents, spouse, children and siblings) of such individual and any trust whose principal beneficiary is such individual or one or more members of such immediate family and any Person who is controlled by any such member or trust; for purposes of the definition of “Affiliate,” “control” (including, with correlative meanings, the terms “controlling,” “controlled by” and “under common control with”), as applied to any Person, means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of that Person, whether through the ownership of voting securities or by contract or otherwise. “**Person**” shall mean and include natural persons, corporations, limited liability companies, limited liability partnerships, limited partnerships, general partnerships, joint stock companies, joint ventures, associations, companies, trusts, banks, trust companies, land trusts, business trusts or other organizations, whether or not legal entities, governments and agencies or other administrative or regulatory bodies thereof.

4.6 Costs. The School Corporation shall be responsible for all costs associated with its operation and the operation of the School including the costs of goods, services and the assessments administered pursuant to Section 3.3 hereof.

4.7 No Agency. The School Corporation shall disclose to all third parties entering into contracts with the School Corporation that the Board has no responsibility for the debts or actions of the School Corporation. The School Corporation shall not purport to act as the agent of the Board or the government of the District of Columbia with respect to any contract.

4.8 Inventory. The School Corporation shall maintain an inventory of all assets of the School Corporation purchased with District of Columbia public funds or federal funds. The School Corporation shall make such inventory available to the Board from time to time upon the Board’s request.

SECTION 5. REPORTS

5.1 Reporting Requirements. The School Corporation shall deliver to the Board:

A. **Annual Reports:** no later than November 1 of each year, beginning November 1, 2002, an annual report in a format acceptable to the Board which shall set forth the financial status, academic program and performance of the School Corporation as of the close of the prior academic year including all items required by Section 2204(c)(11)(B) of the Act, the results of any standardized tests not contained in the prior annual report delivered to the Board pursuant to this clause A (or in the case of the first annual report, any such results obtained prior to the submission of such report), an assessment of compliance with the performance goals, objectives, standards, indicators or targets or any other basis for measuring the School's performance set forth in the Accountability Plan and such other items as the Board may reasonably request; such report shall be delivered to the Board in a paper format and transmitted electronically in a format acceptable to the Board; such report shall be made available to the public upon request;

B. **Audited Financial Statements:** as soon as available but no later than 120 days after the end of each Fiscal Year, audited financial statements for such Fiscal Year prepared in accordance with generally accepted auditing standards and the *Government Auditing Standards* issued by the Comptroller General of the United States, by an independent certified public accountant licensed in the District of Columbia and reasonably acceptable to the Board; such audited financial statements shall be made available to the public upon request; "Fiscal Year" shall mean the fiscal year of the School Corporation ending on June 30 of each calendar year;

C. **Interim Financial Reports:** as soon as available and in any event within 45 days after the end of each Interim Period starting with the Interim Period beginning July 1, 2001, (i) the balance sheet of the School Corporation as at the end of such Interim Period and the related statements of income and cash flows of the School Corporation for such Interim Period and for the period from the beginning of the then current Fiscal Year to the end of such Interim Period, all in reasonable detail and certified by the treasurer or chief financial officer of the School Corporation that they fairly present, in all material respects, the financial condition of the School Corporation as at the dates indicated and the results of their operations and their cash flows for the periods indicated, subject to changes resulting from audit and normal year-end adjustments, and (ii) notes to the balance sheet describing the financial status of the School Corporation including contributions (monetary or in-kind) in excess of \$500 and fundraising efforts for such Interim Period and for the period from the beginning of the then current Fiscal Year to the end of such Interim Period; "Interim Period" shall mean (x) initially, month and (y) from time to time thereafter, upon written notice by the Board to the School Corporation, the period designated by the Board in such notice; the Board may require the School Corporation to submit the financial reports to be delivered pursuant to this Section 5.1C on a computer disk or in another electronic format compatible with software designated by the Board from time to time; notwithstanding the foregoing, the School Corporation may deliver the reports required pursuant to this clause C for July and August 2001 on October 15, 2001;

D. Budget; Fiscal Year: no later than June 1 of each year starting June 1, 2001, an annual operating budget, an annual capital budget and cash flow projections (collectively, a "**Budget**") for the next succeeding Fiscal Year; the School Corporation's operating budget for the period from July 1, 2001 to June 30, 2003 is set forth in Exhibit D hereto; the School Corporation shall deliver to the Board no later than October 30, 2001 a revised operating budget for the period from July 1, 2001 to June 30, 2003; the School Corporation shall consider the comments of the Board, its staff and its agents with respect to each Budget; if the Board has previously notified the School Corporation in writing that the School Corporation is on probation for fiscal management reasons and such notice has not been rescinded by the Board in writing, the School Corporation may only implement such Budget with the prior written approval of the Board;

E. Enrollment Census: on dates identified by the Board in writing, a report (i) identifying the number of students (including nonresident students and students receiving special education) currently enrolled in the School in each of (a) preschool, (b) prekindergarten, (c) grades kindergarten through 12, (d) adult, community and vocational programs and (e) nongrade level programs, (ii) identifying the number of students enrolled in the School and their grade levels who are any of the following: (a) nonresident students, (b) students receiving special education, (c) emergency migrants, (d) new or leaving students, (e) eligible for free or reduced meals or (f) students with limited English proficiency, (iii) setting forth the amount of fees and tuition assessed and collected from nonresident students currently enrolled in the School and (iv) certified by the chair of the Board of Trustees and the principal or other chief administrator of the School that such report is true and correct in all material respects; unless the Board notifies the School Corporation otherwise in writing, such report shall be in the format required by the Board of Education for similar reports from public schools in the District of Columbia and such count shall be conducted in a manner comparable to that required by the Board of Education for enrollment counts by District of Columbia Public Schools;

F. Attendance: no later than 15 days after the end of each month during the academic year, a report listing the average daily attendance for the School during such month;

G. Key Personnel Changes: promptly upon the chair of the Board of Trustees or an officer of the School Corporation obtaining knowledge of the departure or anticipated departure of a person from his or her position with the School Corporation who is a member of the Board of Trustees or an officer of the School Corporation or holds a key personnel position identified on Exhibit E hereto (but no later than the time the School Corporation announces such departure publicly), a notice identifying the person, the position such person is leaving, the date of such departure and the actions the School Corporation has taken or intends to take to replace such person;

H. Events of Default, Etc.: promptly upon the chair of the Board of Trustees or an officer of the School Corporation obtaining knowledge of any event or circumstance that could reasonably be expected to have a material adverse effect on the operation, properties, assets, condition (financial or otherwise), prospects or reputation of the School Corporation or the School including (i) any material breach of any covenant or agreement contained in this Agreement (including the Application or Accountability Plan) or any Material Contract, (ii) any notice given to the School Corporation or any other action taken with respect to a claimed default

under any financing obtained by the School Corporation, or (iii) the failure of the School Corporation to comply with the terms and conditions of any Authorization, a report in reasonable detail of the nature and date, if applicable, of such event or circumstance and the School Corporation's intended actions with respect thereto;

I. Litigation: (i) promptly upon a member of the Board of Trustees or an officer of the School Corporation obtaining knowledge of (a) the institution of or nonfrivolous threat of any action, suit, proceeding, governmental investigation or arbitration against or affecting the School Corporation or any property thereof (collectively, "Proceedings") not previously disclosed in writing by the School Corporation to the Board, or (b) any material development in any Proceeding to which the School Corporation is a party or the School Corporation's property is subject, written notice thereof; (ii) no later than February 14 and August 14 of each year, a schedule of all Proceedings involving an alleged liability of, or claims against or affecting, the School Corporation or, if there has been no change since the last such report, a statement to that effect, and (iii) promptly after request by the Board, such other information as may be reasonably requested by the Board to enable the Board and its counsel to evaluate any of such Proceedings;

J. Authorizations: (i) within 45 days after the end of each Fiscal Year starting in Fiscal Year 2002, a certification by an officer of the School Corporation, a member of the Board of Trustees or the chief administrator of the School that all Authorizations required for the operation of the School and the lease or sublease, if any, of the School Property remain in full force and effect; and (ii) within 7 days after the School Corporation receives notice (whether formal or informal, written or oral) of any alleged failure of the School Corporation to comply with the terms and conditions of any Authorization, a report in reasonable detail of the nature and date, if applicable, of such notice and the School Corporation's intended actions with respect thereto; and

K. Board of Trustees Meeting Minutes: Within 15 days after the end of each fiscal quarter, the School Corporation shall submit to the Board copies of all minutes of meetings of the Board of Trustees of the School Corporation (including any actions of the Board of Trustees taken by unanimous written consent in lieu of a meeting) during such fiscal quarter. Documents submitted to the Board pursuant to this clause K shall be accompanied by a certification by an officer of the School Corporation or a member of the Board of Trustees as to the completeness and accuracy of such documents; and

L. Other Information: such other reports, financial statements and information as the Board shall reasonably request.

5.2 Reports Required by the Act. The School Corporation shall comply with all reporting requirements set forth in the Act and shall provide the Board with a copy of each such report at the time the School Corporation provides such report to the Person required to receive such report under the Act.

SECTION 6. ORGANIZATION

6.1 Organization. A. The School Corporation is and shall remain a District of Columbia nonprofit corporation in accordance with the District of Columbia Nonprofit Corporation Act, as now and hereafter in effect, or any successor statute.

B. Copies of the School Corporation's articles of incorporation and bylaws are attached hereto as Exhibit F and Exhibit G, respectively. The School Corporation shall notify the Board in writing of any material change to its articles of incorporation or bylaws within 30 days after the effective date of such change. The School Corporation shall consider any comments of the Board, its staff and its agents in connection with such change.

6.2 Tax-Exempt Status. The School Corporation shall obtain tax-exempt status from the federal government and the District of Columbia within two years from the date hereof and shall maintain such tax-exempt status.

6.3 Powers. The School Corporation shall have the powers set forth in the Act.

6.4 Accreditation. The School Corporation shall comply with the accreditation requirements set forth in the Act.

6.5 Nonsectarian. The School Corporation and the School are and shall remain nonsectarian and are not and shall not be affiliated with a sectarian school or religious organization.

6.6 Financial Management. The School Corporation shall operate in accordance with generally accepted standards of fiscal management and shall maintain a system of accounting established and administered in accordance with sound business practices to permit preparation of the audited financial statements described in Section 5.1B.

6.7 Board of Trustees. A. The School Corporation shall have a Board of Trustees that complies with the requirements set forth in the Act. The Board of Trustees shall (i) set the policy for the School Corporation, (ii) be responsible for overseeing the academic and fiscal integrity of the School Corporation and assuring the School Corporation's compliance with this Agreement and the Act and (iii) select and evaluate the performance of the School Corporation's senior management.

B. Each member of the Board of Trustees shall act in an ethical manner consistent with its fiduciary obligations to the School.

6.8 Hiring. The School Corporation shall perform an initial background check with respect to each employee and each person who regularly volunteers at the School more than 10 hours a week prior to the commencement of such employment or volunteer assignment. The School Corporation shall conduct such other background checks as the Board may direct in accordance with such timetable as the Board may establish. The School Corporation shall consider the results of such background checks in its decision to employ or utilize such persons.

6.9 Employee Handbook. The School Corporation shall develop and maintain an employee handbook in compliance with Law.

6.10 Complaint Process. No later than 30 days prior to the beginning of the School's first academic year, the School Corporation shall deliver to the Board in writing a copy of the complaint resolution process that the School Corporation is required to maintain pursuant to the Act. The School Corporation shall notify the Board in writing of any proposed material change to the complaint resolution process at least 45 days prior to the implementation of such change. The School Corporation shall consider any comments of the Board, its staff and its agents in connection with such complaint resolution process or any material change thereto.

SECTION 7. TERMINATION

7.1 Termination. A. This Agreement may be terminated and the charter of the School Corporation revoked:

- (i) by the Board in accordance with Section 2213 of the Act; or
- (ii) by mutual agreement of the parties hereto; or
- (iii) by the Board if, in the reasonable judgment of the Board, any circumstance or condition shall exist at the School which jeopardizes the safety, health or welfare of any students at the School, and the School Corporation shall fail to remedy such circumstance or condition within 90 days after the Board delivers written notice to the School Corporation that the Board has determined such circumstance or condition exists; or
- (iv) by the Board, if the School Corporation fails to secure use of the School Property by August 1, 2002; or
- (v) by the Board, if the School fails to begin instructing students by December 31, 2002.

If the School has begun operation, any such termination shall be effective at the end of the academic year unless the Board determines compelling circumstances require otherwise.

B. This Agreement shall be terminated:

- (i) upon invalidation or termination of the statutory authority for the School to exist as a public charter school in the District of Columbia; or
- (ii) upon termination of the Board or the Board's authority to oversee public charter schools in the District of Columbia unless the Board has assigned its rights and obligations under this Agreement pursuant to Section 9.2.

7.2 Actions Upon Expiration or Termination. Upon expiration or termination of this Agreement (the date upon which such charter expires or terminates, the “**Termination Date**”), the School Corporation shall:

A. if the School ceases operations on the Termination Date,

(i) promptly but no later than 60 days after the Termination Date, deliver all student records, reports, documents and files to the Board;

(ii) promptly but no later than 60 days after the Termination Date, transfer all other assets of the School Corporation purchased with District of Columbia public funds or federal funds as directed by the Board; and

(iii) for 5 years after the Termination Date, maintain all its other records, reports, documents and files of the School Corporation and shall not dispose of such records, reports, documents and files without first offering them in writing to the Board;

B. if the Board of Education (or any other entity permitted by the Act to assume the management of the School) assumes management of the School pursuant to the terms of the Act, take such actions as the Board of Education (or such entity) shall reasonably require (subject to any rights of grantors, donors or creditors of the School Corporation);

C. if the Board of Education places the School in a probationary status pursuant to Section 2212(d)(5)(B) of the Act, take such actions as the Board of Education shall reasonably require;

D. if the School continues operations but not as a public school,

(i) promptly but no later than 60 days after the Termination Date, deliver to the Board all student records, reports, documents and files created during or covering periods during which the School was a public charter school;

(ii) promptly but no later than 60 days after the Termination Date, transfer all other assets of the School Corporation purchased with District of Columbia public funds or federal funds as directed by the Board; and

(iii) for 5 years after the Termination Date, maintain all its other records, reports, documents and files of the School Corporation created during or covering periods during which the School was a public charter school and shall not dispose of such records, reports, documents and files without first offering them in writing to the Board.

SECTION 8. COMPLIANCE

8.1 Laws. The School Corporation shall comply with all applicable Laws (including the Act) and Authorizations and shall from time to time and on a timely basis obtain,

renew and comply with all Authorizations as shall now or hereafter be necessary under applicable Laws.

8.2 Cooperation. The School Corporation shall, and shall cause its trustees, officers, employees and contractors to, cooperate with the Board, its staff and its agents in connection with the Board's obligations to monitor the School Corporation.

8.3 Access. The School Corporation shall authorize and permit the Board, its staff and its agents to have access to the extent permitted by law, upon reasonable notice and in such manner as will not unreasonably interfere with the conduct of the School, to all of the School Corporation's properties, books, records, operating instructions and procedures, curriculum materials and all other information with respect to the operation of the School and the School Corporation that the Board may from time to time request, and to make copies of such books, records and other documents and to discuss the operation of the School and the School Corporation with such third persons, including, without limitation, the School Corporation's trustees, officers, employees, students, accountants, counsel, contractors and creditors, as the Board considers necessary or appropriate for the purposes of evaluating the operation and performance of the School and the School Corporation in accordance with this Agreement and the Act. The School Corporation shall, and shall cause its trustees, officers, employees and contractors to, cooperate with the Board, its staff and its agents in connection with the foregoing activities.

8.4 School Emergency. If the Board determines (i) any event or circumstance could have a material adverse effect on the operation, properties, assets, condition (financial or otherwise), prospects or reputation of the School Corporation or the School, (ii) any action or failure to act by the School Corporation could threaten the health, safety, welfare or education of the students of the School, (iii) the School Corporation has failed to act in a fiscally responsible manner, or (iv) there has been a sudden and significant decrease in enrollment at the School (each of clause (i) through (iv), a "School Emergency"), then the Board of Trustees, upon the request of the Board, shall meet with the Board to discuss the School Corporation's response to such School Emergency. The School Corporation shall cooperate with the Board to resolve such School Emergency to the reasonable satisfaction of the Board.

SECTION 9. MISCELLANEOUS

9.1 Administrative Fee. The School Corporation shall pay annually to the Board, no later than November 15 of each year, the maximum amount permitted by the Act to cover the administrative responsibilities of the Board. Notwithstanding the foregoing, the Board shall not seek any remedy against the School Corporation for failure to timely pay such fee if the School Corporation shall not have received the fall allocation of its annual academic year funding from the government of the District of Columbia by such date provided that the School Corporation pays the Board such fee within 5 business days of the School Corporation's receipt of such funding.

9.2 Assignment. This Agreement shall not be assignable by either party; provided that if the Board shall no longer have authority to charter public schools in the District

of the Columbia, the Board may assign this Agreement to any entity authorized to charter or monitor public charter schools in the District of Columbia.

9.3 Definitional Provisions. Words used herein, regardless of the number and gender specifically used, shall be deemed and construed to include any other number, singular or plural, and any other gender, masculine, feminine or neuter, as the context indicates is appropriate. When a reference is made in this Agreement to an introduction, recital, section, appendix, exhibit or schedule, such reference shall be to the introduction, a recital, a section or a paragraph of, or an appendix, an exhibit or a schedule to, this Agreement unless otherwise indicated. The words "hereof", "herein" and "hereunder" and words of similar import shall be deemed to refer to this Agreement as a whole and not to any particular provision of this Agreement. The headings contained in this Agreement are for reference purposes only and shall not affect in any way the meaning or interpretation of this Agreement. Whenever the words "include," "includes" or "including" are used in this Agreement, they shall be deemed to be followed by the words "without limitation." Accounting terms not expressly defined in this Agreement shall have the respective meanings given to them under generally accepted accounting principles.

9.4 Entire Agreement; Amendments. This Agreement, together with all the attachments hereto (including the Application and Accountability Plan as amended hereby), constitutes the entire agreement of the parties and all prior representations, understandings and agreements are merged herein and superseded by this Agreement. This agreement may not be amended or modified other than by a written agreement executed by the Board and the School Corporation; provided that the Board shall have the right to require that any amendment to this Agreement changing the curriculum, instructional method, grades, student ages or management of the School that differs substantially from the curriculum, instructional method, grades, student ages or management as set forth in the Application shall occur only in accordance with the procedures set forth in the Act.

9.5 Dispute Resolution. Subject to the last sentence of this Section 9.5, neither the School Corporation nor the Board shall exercise any legal remedy with respect to any dispute arising from this Agreement without (i) first providing a notice to the other party hereto setting forth a description of the dispute and (ii) thereafter, causing representatives of the School Corporation and the Board to meet and attempt in good faith to negotiate a resolution of such dispute. Nothing contained herein shall restrict the Board's ability to terminate this Agreement and revoke the School Corporation's charter in accordance with the terms of the Act.

9.6 Notices. Unless otherwise specifically provided herein, any notice or other communication herein required or permitted to be given shall be in writing and shall be deemed to have been given when (a) delivered by hand (with written confirmation of receipt), (b) sent by telecopier (with written confirmation of receipt), provided that a copy is mailed by certified or registered mail, postage prepaid, return receipt requested, or (c) when received by the addressee, if sent by a nationally recognized overnight delivery service (receipt requested) or certified or registered mail, postage prepaid, return receipt requested, in each case to the appropriate addresses and telecopier numbers set forth below (until notice of a change thereof is delivered as provided in this Section 9.6) shall be as follows:

If to the Board:

District of Columbia Public Charter School Board
1717 K Street, N.W.
Suite 802
Washington, D.C. 20006
Attention: Chairperson
Telephone: (202) 887-5011
Telecopier: (202) 887-5026

If to the School Corporation:

Thurgood Marshall Academy
421 Alabama Avenue, S.E.
Washington, D.C. 20032
Telephone: (202) 662-9617
Telecopier: (202) 662-9681

9.7 Failure or Indulgence Not Waiver; Remedies Cumulative. No failure or delay on the part of the Board in the exercise of any power, right or privilege hereunder shall impair such power, right or privilege or be construed to be a waiver of any default or acquiescence therein, nor shall any single or partial exercise of any such power, right or privilege preclude other or further exercise thereof or of any other power, right or privilege. All rights and remedies existing under this Agreement are cumulative to, and not exclusive of, any rights or remedies otherwise available.

9.8 Severability. In case any provision in or obligation under this Agreement shall be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions or obligations, shall not in any way be affected or impaired thereby.

9.9 Applicable Law. THIS AGREEMENT AND THE RIGHTS AND OBLIGATIONS OF THE PARTIES HEREUNDER SHALL BE GOVERNED BY, AND SHALL BE CONSTRUED AND ENFORCED IN ACCORDANCE WITH, THE LAWS OF THE DISTRICT OF COLUMBIA, WITHOUT REGARD TO CONFLICTS OF LAWS PRINCIPLES.

9.10 No Third Party Beneficiary. Nothing in this Agreement expressed or implied shall be construed to give any Person other than the parties hereto any legal or equitable rights under this Agreement.

9.11 Counterparts; Effectiveness. This Agreement and any amendments, waivers, consents or supplements hereto or in connection herewith may be executed in any number of counterparts and by different parties hereto in separate counterparts, each of which when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument; signature pages may be detached from multiple separate counterparts and attached to a single counterpart so that all signature pages are physically attached to the same document. This Agreement shall become effective upon the

execution of a counterpart hereof by each of the parties hereto and receipt by the School Corporation and the Board of written or telephonic notification of such execution and authorization of delivery thereof.

[Remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed and delivered by their respective officers thereunto duly authorized as of the date first written above.

THURGOOD MARSHALL ACADEMY

John M. Kern
By:
Title: Executive Director

**DISTRICT OF COLUMBIA PUBLIC
CHARTER SCHOOL BOARD**

Josephine A. Baker 4/30/01
By:
Title: Chairperson

SCHEDULES

SCHEDULE I -- Maximum Enrollment

EXHIBITS

EXHIBIT A -- Application

EXHIBIT B -- Random Selection Process

EXHIBIT C -- Expulsion/Suspension Policies

EXHIBIT D -- Initial Budget

EXHIBIT E -- Key Personnel

EXHIBIT F -- Articles of Incorporation

EXHIBIT G -- Bylaws

SCHEDULE I

Maximum Enrollment

Grade	Academic Year 1 2001-2002	Academic Year 2 2002-2003	Academic Year 3 2003-2004	Academic Year 4 2004-2005	Academic Year 5 2005-2006
Nine	100	100	100	100	100
Ten		100	100	100	100
Eleven			100	100	100
Twelve				100	100
Total	100	200	300	400	400

EXHIBIT A
APPLICATION

Application of

**Thurgood Marshall Academy
Public Charter School**

to the

**District of Columbia
Public Charter School Board**

Submitted February, 2001

EXECUTIVE SUMMARY

Thurgood Marshall Academy, proposed and developed by a group of Georgetown University law students and faculty members, is founded upon the belief articulated by U.S. Supreme Court Justice Thurgood Marshall that all children have the right to a first-class education and the opportunity to reach their full potential. All children must be afforded equal educational opportunities in order for our democracy to live up to its promise, and Thurgood Marshall Academy is committed to providing public high school students in the District of Columbia with an outstanding educational opportunity.

Thurgood Marshall Academy will strive to prepare its students for civic participation through education about law, democracy, and human rights. Thurgood Marshall Academy will have a focus on law-related education, in addition to providing students with a comprehensive high school curriculum. By working in partnership with the America's Choice School Design network to implement a rigorous standards-based curriculum, and by modeling classrooms on the democratic ideals of fairness, participation, and respect for diverse perspectives, Thurgood Marshall Academy will empower students to make a difference in their communities and to succeed in life.

Thurgood Marshall Academy's educational program will center on both curricular performance standards and the critical thinking skills that lead to individual empowerment. Thurgood Marshall Academy will be a law-related charter school focusing not only on teaching substantive law and human rights, but also on incorporating a due process model of instruction that promotes democratic awareness and critical thinking. Law-related education is a unique blend of substance and strategy. Students will learn substantive information about laws, human rights, conflict resolution and democracy. The due process pedagogy employs strategies that promote fair and cooperative learning, student-centered classrooms, engaged participation, experiential learning, and, when needed, activism for positive change.

Thurgood Marshall Academy will hold out high academic expectations for all of its students and hire faculty who employ a variety of innovative teaching methodologies. Furthermore, in recognition of the need for both student enrichment and remediation, the

Academy will feature small class sizes and individualized instruction and will provide daily extra-curricular one-on-one tutorials and a Saturday Academy program. In recognition of the importance of parental and community involvement to the school's success, the Academy will also host numerous community information and planning forums, monthly parent and community workshops, and evening adult education programs.

Thurgood Marshall Academy will open in September 2001, in Southeast, Washington, D.C., and will serve students in the 9-12th grades. During its first year, the Academy will open with 9th grade only, but will expand by a grade each year it serves all four high school grade levels. The Academy will open with approximately 80 students in the ninth grade and eventually, at full capacity, will serve a maximum of 400 students. The Academy has budgeted for a pupil--teacher ration of no more than 20:1 and will have both a Principal as the educational leader and an Executive Director as the business manager to co-lead the school administratively.

The founders of Thurgood Marshall Academy recognize the significant educational needs of the students the Academy plans to serve. In 1999, approximately 93% of students in Southeast D.C. scored below basic proficiency on the Stanford 9 in math and 70% scored below basic in reading. Additionally, 40% of these students drop out of school before obtaining a high school diploma, and roughly 17% of students are in special education. Furthermore, an average of 83% of Southeast students qualify by their family income for free or reduced-price lunch. It is because of the challenges implied by these statistics that the founders of Thurgood Marshall Academy are committed to developing a school which will implement a rigorous, standards-based curriculum, maintain a low pupil-teacher ratio, and use innovative teaching strategies to ensure that all students reach their full potential.

In the end, the mission of Thurgood Marshall Academy is simple: to create a community of young people who are academically able, confident, and empowered to engage in our democratic society. It is with a firm and enduring commitment to the realization of this mission that the founders of Thurgood Marshall Academy respectfully submit this application to establish a public charter school in the District of Columbia.

A. EDUCATIONAL PLAN

1. MISSION AND PURPOSES OF THE PROPOSED CHARTER SCHOOL

a. Educational Needs of the Target Student Population

Target Population

At full operation, Thurgood Marshall Academy (“the Academy”) will serve grades 9-12. In its first year, the school will aim to serve 80 9th grade students. Each year, another grade level will be added to the school until the Academy reaches full capacity at a total of approximately 400 students in grades 9-12. The Academy will actively recruit students with a diverse range of academic skills, family support and backgrounds, and previous educational experiences. Given the location of the Academy in Southeast Washington, the school will enroll average and high-achieving students who seek an inspirational and challenging educational environment, as well as lower-achieving students who require intensive educational remediation. While many Academy students will suffer from severe academic delays, poor literacy skills, and poverty, the Academy will aspire to enable every student to reach his or her full potential by engaging its students in critical thinking, interactive classrooms, and project-based learning.

Educational Needs

Students in Southeast Washington have dire educational needs. On standardized tests that measure student competency and academic performance, D.C. students lag significantly behind national averages of comparable poor, urban youth. For example, in 1999, 93% of students attending public high schools in Southeast Washington scored below basic proficiency on the Stanford 9 in Math and 70% scored below basic in Reading. “Below basic” means students have little or no mastery of the fundamental skills expected for that grade level. Additionally, on the SAT, taken only by select college-bound students from this same student population, students scored an average of 711 out of a possible 1600 on the combined Math and Verbal sections.

Dropout rates are high among all D.C. students. In Southeast, of the 4,627 students who begin 9th grade, a mere 60% graduate.

Additionally, poverty plagues most students and their families. An average of 83% of Southeast students qualify by their family income for free or reduced lunch (Anacostia High School: 98%, Ballou High School: 68%). Roughly 17% of Southeast students are in Special Education. However, many more have unidentified special education needs.

To meet their needs, Thurgood Marshall Academy students will receive:

- ◆ First-class education based on high standards and critical thinking;
- ◆ Low teacher-student ratios in the classroom;
- ◆ A safe learning environment;
- ◆ Engaged, professional teachers and faculty who care about their success in school and in life;
- ◆ Interactive classrooms and project-based learning;
- ◆ Multicultural curriculum that values diverse perspectives and is meaningful to their lives;
- ◆ A student-centered environment where their academic and emotional needs are met; and
- ◆ Individualized academic programs and intensive math and literacy remediation.

b. Mission and Philosophy

Mission

Thurgood Marshall Academy's mission is to create a community of young people who are academically able, confident, and empowered to engage in our democratic society. Through an educational focus on law, democracy, and human rights, the Academy will instill in its students a respect for human dignity and civic participation. Through a rigorous standards-based curriculum and classrooms modeled on the democratic ideals of fairness, participation, and respect for diverse perspectives, students will be empowered to make a difference in their communities and to succeed in life.

Philosophy

The Thurgood Marshall Academy proposal is founded upon the belief that all children have the right to a first-class education and the opportunity to reach their full potential. In order for our democracy to live up to its promise, the Academy's Board of Trustees believes all children must be afforded equal educational opportunities and learning environments in which their voices are heard and valued.

The Board chose to name the school after U.S. Supreme Court Justice Thurgood Marshall to honor his distinguished legal career fighting for equality and justice for all persons regardless of race, ethnicity, or class. As legal director of the NAACP and as a Justice on the Supreme Court, he consistently demonstrated his commitment to increasing educational opportunities for underprivileged children. In his famous dissenting opinion in *San Antonio Independent School District v. Rodriguez*, Marshall questioned "who can

ever measure for such a child the opportunities lost and the talent wasted for want of a broader, more enriched education?" The Board aims to honor and sustain Thurgood Marshall's legacy by offering children in the District of Columbia a more enriched education that will enable them to reach their full potential (see Appendix E, "About Thurgood Marshall").

Our Objectives:

1. To create an educational environment that fosters critical thinking and requires high academic performance among all students.
2. To develop students with strong character and ethical values capable of responding to life's challenges.
3. To involve parents and community as partners in ensuring the success of their children.
4. To prepare students, through knowledge and understanding of the law and human rights, to be actively engaged in our democratic society.
5. To educate children with diverse backgrounds and abilities in a respectful, learner-centered environment.

c. Educational Focus

Thurgood Marshall Academy will provide its students with a strong academic background and a comprehensive understanding of the law and its impact on our society. The Academy will collaborate with America's Choice to implement a high quality standards-based curriculum to ensure that students master all secondary academic subject areas.

The Academy will be a law-related charter school, not only focusing on teaching substantive law and human rights but also incorporating a due process model of instruction that promotes democratic awareness and critical thinking. Law-related education is a unique blend of substance and strategy. Students will learn substantive information about laws, human rights, conflict resolution, and democracy. The due process pedagogy employs strategies that promote fair and cooperative learning, student-centered classrooms, engaged participation, experiential learning, and, when needed, activism for positive change.

In conjunction with Georgetown University Law Center's D.C. Street Law Clinic and its affiliated organization, Street Law, Inc., the Academy will develop a comprehensive four-year high school curriculum on law and human rights. The curriculum will give youth a balanced and realistic look at how the law affects them and, in turn, how they can affect the law.

Using a series of core questions modeled on Educator Ted Sizer's Essential School, students will grapple with fundamental conflicts and tensions such as those between liberty and equality, unity and diversity, power and justice, freedom and order, and rights and responsibilities. In addition, students will address how they fit into their community, nation, and world and what kind of society they want to live in. By elucidating fundamental concepts of our constitutional democracy—including justice, liberty, power, and equality—students will consider their rights and responsibilities under the law, confront and resolve disputes, and discuss and analyze public issues. This will foster the development of life-long skills all students need, including the ability to think critically and participate effectively in our law-based society.

Law-related education will be infused into subjects such as social studies and language arts as well as into after school, extra-curricular, and summer programming. Law-related education can also be achieved through learning experiences such as mock trial competitions and mock legislative sessions, special events such as Youth Summits and field trips to Congress and the Supreme Court, internships in the courts and at law firms, and school governance with Youth Court and peer mediation. With its vast government resources and position as the nation's capital, Washington, D.C. can serve as a ready laboratory for law-related education. The Academy's unique community resources will enable it to make the learning process relevant, experiential, and interactive.

d. Goals

The major goals of Thurgood Marshall Academy can be broken down into three broad categories that flow directly from its Mission and Philosophy:

- 1) Student Academic Achievement;
- 2) Student Civic Participation; and
- 3) Institutional Excellence.

As the Academy strives to attain its major goals, it will also formulate secondary goals that will evolve as the school expands to full capacity. In its first operating years, the secondary goals under each major goal will be as follows:

See Accountability Plan and Accountability Matrix for TMA's amended goals.

Student Academic Achievement

It is important to note that many of Thurgood Marshall Academy's performance goals will be honed after the Academy assesses the students' baseline achievement. While the Board has thought extensively about the academic goals the Academy should hold for its future students, it is difficult to set specific and realistic performance goals before knowing the students who will attend the school. This being said, the Academy will set the following preliminary performance goals:

- ◆ Students will reach standard grade level skill ability, and many students will achieve above-average capability in all academic subjects throughout the high school years.
- ◆ Over 50 percent of students testing below basic on the Stanford 9 Aptitude Test administered in eighth grade will be at or above basic by the end of tenth grade.
- ◆ Over 25 percent of all students will score above the national average on the SAT and at least 50 percent will score at the national average.
- ◆ Over 75 percent of the students entering the Academy will graduate in five years or less.
- ◆ Over half of all students will enroll in a post-secondary institution after graduation, including at a two- or four-year college, trade school, technical college, or conservatory.
- ◆ Graduating students will have achieved proficiency or mastery in all subject areas, proven by meeting the America's Choice national performance standards, as determined by the America's Choice developed reference exams.
- ◆ Students will have an appreciation for the value of education, including the motivation and desire to better oneself through learning.

Student Civic Participation

- ◆ All students will spend at least one month each year in an internship or externship with a public interest or private organization.
- ◆ Students will demonstrate active participation in their community by voting, volunteering, and serving as mentors or tutors to elementary students.
- ◆ Students will develop non-academic task-related capabilities, including problem-solving skills, interpersonal skills, and collaboration skills through their work in internships, externships, and community service.
- ◆ Students will build strong character and moral values and will learn to treat fellow students, faculty, and family with respect.
- ◆ Students will learn to take responsibility for themselves and their actions.

Institutional Excellence

- ◆ Thurgood Marshall Academy will achieve on-going viability in terms of fundraising, cash flow, number of students, and attraction of high-quality faculty.

- ◆ The Academy will develop a unique four-year law-related education curriculum with high academic standards to serve as a national model.
- ◆ The Academy will attract committed faculty members and volunteers from a variety of backgrounds to foster the educational mission of the school, including locally and nationally renowned educators, advocates, and professionals.
- ◆ Parents and community members will be involved in the long-term success of both the school and the students and will participate in informational forums, monthly community meetings, and on the Academy's Board of Trustees.
- ◆ The Academy will create an educational environment that fosters student success and inspires the faculty.
- ◆ The Academy will have a positive impact on the lives of its students, their families, and the community.

2. ACADEMIC DESIGN

a. Student Content and Performance Standards

Thurgood Marshall Academy will work with the America's Choice School Design network to implement a high quality, comprehensive, standards-based curriculum. America's Choice standards are internationally benchmarked and are the result of nine years and \$60 million dollars of research. The hallmark of the America's Choice School Design is its focus on performance standards, which are built directly on the content standards developed by the national professional organizations for the academic disciplines.

The America's Choice standards are built on the following concepts:

- ◆ All students are capable of achieving high standards.
- ◆ Standards should be rigorous and world-class.
- ◆ Standards should be useful, developing what is needed for citizenship, employment and life-long learning.
- ◆ Standards should be focused and clear.
- ◆ Standards should be adaptable to the local culture.
- ◆ Standards should be reflective of broad consensus and the product of thorough research by educators.

The Academy's Board of Trustees (Board) explored many other school reform models, including Expeditionary Learning/Outward Bound, the Modern Red

School House, and other models endorsed by New American Schools Development Corporation. After extensive research, the Board decided that the focus which America's Choice places upon high standards, quality assessment, innovative curricular materials and instructional methods, and community engagement was best aligned with the vision for the Academy.

In addition to the curricular guidance that the Academy will receive from America's Choice, the Academy will also work with local partners, such as Georgetown University Law Center's longstanding D.C. Street Law Clinic to employ a teaching methodology which stresses not only legal understanding, but the more fundamental skills of problem solving and critical thinking. Infused into all areas of the standards-driven curriculum will be an emphasis on process, collaborative and project-based learning, and interactive pedagogy. (See Appendix C for a description of the Georgetown University Law Center's D.C. Street Law Clinic and the teaching methodology it employs.)

Ultimately, the Academy will ensure that *all* students meet the adopted standards, including limited English proficient students and students with disabilities, by providing intensive remediation and individualized assistance to students. Furthermore, in addition to regularly and thoroughly assessing all students to determine their areas of educational need, the school will also have smaller classes than a traditional public school and will coach its teachers in language sheltering and inclusive teaching techniques. See Accountability Plan.

b. Curriculum

Thurgood Marshall Academy will work with an America's Choice team to implement a curriculum based on high standards, critical thinking, and problem solving. Where the America's Choice model is less developed, notably in Social Studies, the Academy will base its curriculum on DCPS standards and receive technical assistance from local partners. Further, the Academy will have a curricular focus on law and civic engagement and will work with the Georgetown University Law Center's D.C. Street Law Clinic and its national umbrella organization, Street Law, Inc., to develop this aspect of the school curriculum.

Additionally, another unique feature of Thurgood Marshall Academy's curriculum will be the alignment of its English and Social Studies/Law curricula. While students are studying local history and government, they will also be reading complementary texts in their English classes. For example, in the tenth-grade year, when students are studying American History, the English teachers will focus on American authors that complement the Social Studies curriculum. The Board believes that by integrating English and Social Studies/Law, student learning will be enriched.

When the Academy opens, with approximately 80 students, its curriculum will include English, Mathematics, Social Studies/Law, and Science and will integrate technology, critical thinking, and problem solving into all courses. Social Studies/Law will include history, civics, government, and rudimentary economics. As the school

expands in size, more courses will be included in the school's curriculum, so as to offer students increased curricular choices.

Curricular Standards

ENGLISH LANGUAGE ARTS

Thurgood Marshall Academy will base its English Language Arts curriculum on the America's Choice model and will include the following components:

A. Reading

- X The student reads twenty-five books or book equivalents each year. The quality of the materials to be read should be illustrated in the sample reading list, and should include traditional and contemporary literature, as well as magazines, newspapers, textbooks, and on-line materials. This reading should be of a diverse nature, representing at least five different writers and at least three different literary forms.
- X The student reads and comprehends at least four books about the same issue or by a single writer, or written in the same genre.
- X The student reads informational material in order to develop an understanding and expertise about topics they investigate.

B. Writing

The student demonstrates accomplishment in five types of writing:

- X Report writing;
- X Responses to literature;
- X Fictional or autobiographical narrative accounts;
- X Persuasive essay; and
- X Reflective essay.

C. Speaking, Listening, and Viewing

- X The student participates in one-to-one conferences with teachers, paraprofessionals, and adult volunteers.
- X The student participates in group meetings.
- X The student prepares and delivers individual presentations.

X The student makes informed judgements about television, radio, and film productions.

X The student listens to and analyzes public speaking performances.

D. Mastering Grammar and Usage of the English Language

X The student demonstrates an understanding of the rules of the English language in written and oral work and selects the structures and features appropriate to purpose, audience, and context of the work.

X The student analyzes and revises work to clarify or make it more effective in communicating the intended message or thought.

E. Analysis of Literature, Public Documents, and Functional Documents

(A public document is one that focuses on civic issues or matters of public policy at the community level or beyond. Such documents include speeches, editorials, and radio and television transcripts. A functional document is a document that exists in order to get things done in a limited setting, such as a business, social club, or agency. Examples of functional documents include memoranda, letters, and instructional documents.)

X The student responds to non-fiction, fiction, poetry and drama using interpretive, critical, and evaluative processes

X The student produces work in at least one literary genre that follows the conventions of the genre.

X The student critiques public and functional documents with an eye to strategies common in public discourse and common to effective functional documents.

X The student produces public documents and functional documents appropriate to audience and purpose.

This is a sample reading list, taken in part from America's Choice research on quality reading materials for high school students, from which the students and teachers could select. The list is not exclusive, and other titles may be added:

Fiction

Allende, *House of the Spirits*
Cisneros, *The House on Mango Street*
Clark, *The Ox-Bow Incident*
Golding, *Lord of the Flies*
Gordimer, *My Son's Story*
Hawthorne, *The Scarlet Letter*
Hemingway, *The Old Man and the Sea*
Huong, *Paradise of the Blind*
Knowles, *A Separate Peace*
Lee, *To Kill a Mockingbird*
Morrison, *The Bluest Eye; Beloved*
Orwell, *1984*
Salinger, *Catcher in the Rye*
Sinclair, *The Jungle*
Tan, *The Joy-Luck Club*
Walker, *The Color Purple*
Wright, *Native Son*

Non-Fiction

Angelou, *I Know Why the Caged Bird Sings*
Ashe, *Days of Grace*
Beal, *"I Will Fight No More Forever": Chief Joseph and the Nez Pierce War*
Bishop, *The Day Lincoln Was Shot*
Campbell, *The Power of Myth*
Frank, *The Diary of Anne Frank*
Galarza, *Barrio Boys*
Hershey, *Hiroshima*
Houston, *Farewell to Manzanar*
Kennedy, *Profiles in Courage*
King, *Why We Can't Wait*
Kingston, *Warrior Woman*
McBride, *The Color of Water*
Momaday, *The Way to Rainy Mountain*
Rodriguez, *Hunger of Memory*
Wright, *Black Boy*

Poetry

Angelou, *I Shall Not Be Moved*
Bly, *News of the Universe*
Carruth, ed., *The Voice That Is Great Within Us*

Cummings, *Selected Poems*
Dickenson, *Complete Poems*
Hughes, *Selected Poems*
Knudson, and Sweson, eds., *American Sports Poems*
Longfellow, *Evangeline*
Randall, ed., *The Black Poets*
Wilbur, *Things of This World*

Drama

Christie, *And Then There Were None*
Hansberry, *A Raisin in the Sun*
McCullers, *A Member of the Wedding*
Miller, *Death of a Salesman*
O'Neil, *Long Day's Journey Into Night*
Pomerance, *The Elephant Man*
Rose, *Twelve Angry Men*
Rostand, *Cyrano de Bergerac*
Shakespeare, *Romeo and Juliet, Julius Caesar*
Van Druten, *I Remember Mama*
Wilder, *The Skin of Our Teeth*
Williams, *A Streetcar Named Desire*
Wilson, *The Piano Lesson; Ma Rainey's Black Bottom*

Folklore/Mythology

Burland, *North American Indian Mythology*
Coelho, *The Alchemist*
Evslin, *Adventures of Ulysses*
Pinsent, *Greek Mythology*
Stewart, *The Crystal Cave*
White, *The Once and Future King*

Modern Fantasy and Science Fiction

Adams, *Watership Down*
Asimov, *Foundation*
Bradbury, *The Martian Chronicles*
Clarke, *2001, A Space Odyssey*
Frank, *Alas, Babylon*
Herbert, *Dune*
Lewis, *Out of the Silent Planet*
McCaffrey, *Dragonflight*
Twain, *A Connecticut Yankee in King Arthur's Court*
Verne, *20,000 Leagues Under the Sea*

Magazines and Newspapers

Literary Cavalcade (Scholastic)
National Geographic
Newsweek
Omni
Smithsonian
Sports Illustrated
Time

MATHEMATICS

Thurgood Marshall Academy will base its Mathematics curriculum on the America's Choice model and will include the following components:

A. Number and Operation Concepts

- X The student uses subtraction, multiplication, division, exponentiation, and root-extraction in forming and working with numerical and algebraic expressions.
- X The student understands and uses operations such as opposite, reciprocal, raising to a power, taking a root, and taking a logarithm.
- X The student has facility with the mechanics of operations as well as understanding of their typical meaning and uses in application.
- X The student understands and uses number systems: natural, integer and real.
- X The student represents numbers in decimal or fraction form and in scientific notation and graphs numbers on the number line and number pairs in the coordinate plane.
- X The student compares numbers in decimal or fraction form and in scientific notation, graphs numbers on the number line, and number pairs in the coordinate plane.
- X The student carries out proportional reasoning in cases involving part-whole relationships and in cases involving expansions and contractions.
- X The student understands dimensionless numbers, such as proportions, percents, and multiplicative factors, as well as numbers with specific units of measure, such as numbers with length, time, and rate units.
- X The student carries out counting procedures such as those involving sets and arrangements.

- X The student uses concepts such as prime, relatively prime, factor, division, multiple, and divisibility in solving problems involving integers.
- X The student uses a scientific calculator effectively and efficiently in carrying out complex calculations.
- X The student recognizes and represents basic number patterns, such as patterns involving multiples, squares, or cubes.

B. Geometry and Measurement Concepts

- X The student models situations geometrically to formulate and solve problems.
- X The student works with two- and three-dimensional figures and their properties, including polygons and circles; cubes and pyramids; and cylinders, cones, and spheres.
- X The student uses congruence and similarity in describing relationships between figures.
- X The student visualizes objects, paths, and regions in space, including intersections and cross sections of three-dimensional figures, and describes these using geometric language.
- X The student knows, uses, and derives formulas for perimeter, circumference, area, surface area, and volume of many types of figures.
- X The student uses the Pythagorean theorem in many types of situations and works through more than one proof of his or her theorem.
- X The student works with similar triangles and extends the ideas to include simple uses of the three basic trigonometric functions.
- X The student analyzes figures in terms of their symmetries using, for example, concepts of reflection, rotation, and translation.
- X The student compares slope (rise over run) and angle of elevation as measures of steepness.
- X The student investigates geometric patterns, including sequences of growing shapes.
- X The student works with geometric measures of length, area, volume, and angle and non-geometric measures such as weight and time.
- X The student uses quotient measures, such as speed and density, that give “per

unit” amounts, and uses product measures, such as person-hours.

- X The student understands the structure of standard measurement systems, both SI and customary, including unit conversions and dimensional analysis.
- X The student solves problems involving scale, such as in maps and diagrams.
- X The student represents geometric curves and graphs functions in standard coordinate systems.
- X The student analyzes geometric figures and proves simple things about them using deductive methods.
- X The student explores geometry using computer programs, such as CAD software, Sketchpad programs, or LOGO.
- C. Function and Algebra Concepts**
- X The student models given situations with formulas and functions and interprets given formulas and functions in terms of situations.
- X The student describes, generalizes, and uses basic types of functions: linear, exponential, power, rational, square, and square root, and cube and cube root.
- X The student utilizes the concepts of slope, evaluation, and inverse in working with functions.
- X The student works with rates of many kinds, expressed numerically, symbolically, and graphically.
- X The student represents constant rates as the slope of a straight line graph, and interprets slope as the amount of one quantity (y) per unit amount of another (x).
- X The student understands and uses linear functions as a mathematical representation of proportional relationships.
- X The student uses arithmetic sequences and geometric sequences and their sums and sees these as the discrete forms of linear and exponential functions, respectively.
- X The student defines, uses, and manipulates expressions involving variables, parameters, constants, and unknowns in work with formulas, functions, equations, and inequalities.
- X The student represents functional relationships in formulas, tables, and graphs, and translates between pairs of these.

- X The student solves equations symbolically, graphically, and numerically, especially linear, quadratic, and exponential equations, and knows how to use the quadratic formula for solving quadratic equations.
- X The student makes predictions by interpolating or extrapolating from given data or a given graph.
- X The student understands the basic algebraic structure of number systems.
- X The student uses equations to represent curves such as lines, circles, and parabolas.
- X The student uses technology such as graphics calculators to represent and analyze functions and their graphs.
- X The student uses functions to analyze patterns and represent their structure.

D. Statistics and Probability Concepts

- X The student organizes, analyzes, and displays single-variable data, choosing appropriate frequency distribution, circle graphs, line plots, histograms, and summary statistics.
- X The student organizes, analyzes, and displays two-variable data using scatter plots, estimated regression lines, and computer generated regression lines and correlation coefficients.
- X The student uses sampling techniques to draw inferences about large populations.
- X The student understands that making an inference about a population from a sample always involves uncertainty and that the role of statistics is to estimate the size of that uncertainty.
- X The student formulates hypotheses to answer a question and uses data to test hypotheses.
- X The student interprets representation of data, compares distributions of data, and critiques conclusions and the use of statistics, both in school materials and in public documents.
- X The student explores questions of experimental design, use of control groups and reliability.
- X The student creates and uses models of probabilistic situations and understands the role of assumptions in this process.
- X The student uses concepts such as equally likely, sample chance, outcome, and

event in analyzing situations involving chance.

- X The student constructs appropriate sample spaces and applies the addition and multiplication principles for probabilities.
- X The student uses the concept of probability distribution to discuss whether an event is rare or reasonably likely.
- X The student chooses an appropriate probability model and uses it to arrive at a theoretical probability for a chance event.
- X The student designs simulations including simulations to estimate probabilities.
- X The student works with the normal distribution in some of its basic applications.

E. Problem Solving and Mathematical Reasoning

- X The student participates in the formulation of problems.
- X The student makes the basic choices involved in planning and carrying out a solution.
- X The student provides closure to the solution process through summary statements and general conclusions.
- X The student demonstrates mathematical reasoning by using logic to prove specific conjectures, by explaining the logic inherent in a solution process, by making generalizations and showing that they are valid, and by revealing mathematical patterns inherent in a situation. The student not only makes observations and states results, but also justifies or proves why the results hold in general.

F. Mathematical Skills and Tools

- X The student carries out numerical calculations and symbol manipulations effectively, using mental computations, pencil and paper, or other technological aids, as appropriate.
- X The student uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications, and round numbers used in applications to an appropriate degree of accuracy.
- X The student evaluates and analyzes formulas and functions of many kinds, using both pencil and paper and more advanced technology.
- X The student uses basic geometric terminology accurately, and deduces information about basic geometric figures in solving problems.

- X The student makes and uses rough sketches, schematic diagrams, or precise scale diagrams to enhance a solution.
- X The student uses a number line and Cartesian coordinates in a plane and in space.
- X The student creates and interprets graphs of many kinds, such as function graphs, circle graphs, scatter plots, regression lines, and histograms.
- X The student sets up and solves equations symbolically (when possible) and graphically.
- X The student knows how to use algorithms in mathematics, such as the Euclidean Algorithm.
- X The student uses technology to create graphs or spreadsheets that contribute to the understanding of a problem.
- X The student writes a simple computer program to carry out a computation or simulation to be repeated many times.
- X The student uses tools such as rulers, tapes, compasses, and protractors in solving problems.
- X The student knows standards methods to solve basic problems and uses these methods in approaching more complex problems.

G. Mathematical Communication

- X The student will use the language of mathematics, its symbols, notation, graphs, and expressions to communicate through reading, writing, speaking, and listening, and communicates about mathematics by describing mathematical ideas and concepts and explaining reasoning and results.

H. Putting Mathematics to Work

The student will conduct at least one large scale investigation or project each year drawn from the following kinds and, over the course of high school, conducts investigations or projects drawn from at least three of the kinds below:

- X Data study;
- X Mathematical model of a physical system or phenomenon;
- X Design of a physical structure;
- X Management and planning analysis;

- X Pure mathematics investigation; and
- X History of a mathematical idea.

SCIENCE

A. Physical Sciences Concepts

The student produces evidence that demonstrates understanding of:

- X Structure of atoms, such as atomic composition.
- X Structure and properties of matter, such as elements and compounds; bonding and molecular interaction; and characteristics of phase changes.
- X Chemical reactions, such as everyday examples of chemical reactions; electrons, protons, and energy transfer; and factors that affect reaction rates such as catalysts.
- X Motions and forces, such as gravitational and electrical; net forces and magnetism.
- X Interactions of energy and matter, such as waves, absorption and emission of light, and conductivity.

B. Life Sciences Concepts

The student produces evidence that demonstrates an understanding of:

- X The cell, such as cell structure and function relationships; regulation and biochemistry; and energy and photosynthesis.
- X Molecular basis of heredity, such as DNA, genes, chromosomes, and mutations.
- X Biological evolution, such as specialization, biodiversity, natural selection, and biological classification.
- X Interdependence of organisms, such as conservation of matter, cooperation and competition among organisms in ecosystems, and human effects on the environment.
- X Matter, energy, and organization in living systems, such as matter and energy flow through different levels of organization; and environmental constraints.
- X Behavior of organisms, such as nervous system regulation; behavioral responses; and connections with anthropology, sociology, and psychology.

C. Earth and Space Sciences Concepts

The student produces evidence that demonstrates understanding of:

- X Energy in the Earth system, such as radioactive decay, gravity, the Sun's energy, convection, and changes in global climate.
- X Geochemical cycles, such as conservation of matter, chemical resources and movement of matter between chemical reservoirs.
- X Origin and evolution of Earth system, such as geologic time and the age of life forms; origin of life; and evolution of the Solar System.
- X Origin and evolution of the universe, such as the "big bang" theory, formulation of stars and elements, and nuclear reactions.
- X Natural resource management.

D. Scientific Connections and Applications

The student produces evidence that demonstrates understanding of:

- X Big ideas and unifying concepts, such as order and organization; models, form, and function; change and constancy; and cause and effect.
- X The designed world, such as the reciprocal relationship between science and technology; the development of agricultural techniques; and the reasonableness of technological designs.
- X Health, such as nutrition and exercise; disease and epidemiology; personal and environmental safety; and resources, environmental stress, and population growth.
- X Impact of technology, such as constraints and trade-offs; feedback; benefits and risks; and problems and solutions.
- X Impact of science, such as historical and contemporary contributions; and interactions between science and society.

E. Scientific Thinking

The student demonstrates skill in scientific inquiry and problem solving by using thoughtful questioning and reasoning strategies, common sense and diverse conceptual understanding, and appropriate ideas and methods to investigate science; that is, the student:

- X Frames questions to distinguish cause and effect and identifies or controls variables in experimental and non-experimental research settings.

- X Uses conceptions from the previously listed science standards to explain a variety of observations and phenomena.
- X Uses evidence from reliable sources to develop descriptions, explanations, and models and makes appropriate adjustments and improvements based on additional data or logical arguments.
- X Proposes, recognizes, analyzes, considers, and critiques alternative explanations and distinguishes between fact and opinion.
- X Identifies problems, proposes and implements solutions and evaluates the accuracy, design, and outcomes of investigations.
- X Works individually and in teams to collect and share information and ideas.

F. Scientific Tools and Technologies

The student demonstrates competence with the tools and technologies of science by using them to collect data, make observations, analyze results, and accomplish tasks effectively; that is, the student:

- X Uses technology and tools (such as traditional laboratory equipment, video, and computer aids) to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely, with appropriate consideration of accuracy and precision.
- X Records and stores data using a variety of formats, such as data bases, audiotapes, and videotapes.
- X Collects and analyzes data using concepts and techniques from the Mathematics Standards, such as mean, median, and mode, outcome probability and reliability; and appropriate data displays.
- X Acquires information from multiple sources, such as print, the Internet, computer data bases, and experimentation.
- X Recognizes and limits sources of bias in data, such as observer and sample biases.

G. Scientific Communication

The student demonstrates effective scientific communication by clearly describing aspects of the natural world using accurate data, graphs, or other appropriate media to convey depth or conceptual understanding in science; that is, the student:

- X Represents data and results in multiple ways, such as numbers, tables, and graphs, drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.

- X Argues from evidence, such as data produced through his or her own experimentation or data produced by others.
- X Critiques published materials, such as popular magazines and academic journals.
- X Explains a scientific concepts or procedure to other students.
- X Communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.

H. Scientific Investigation

The student demonstrates scientific competence by completing projects drawn from the following kinds of investigation, including at least one full investigation each year and, over the course of high school, investigations that integrate several aspects of all the Science Standards and represent all four of the kinds of investigation:

- X Controlled experiment;
- X Fieldwork;
- X Design; and
- X Secondary research.

SOCIAL STUDIES / LAW-RELATED EDUCATION

The America's Choice School Design network has not yet developed a set of final performance standards for high school social studies. To fill this gap, the Academy will collaborate with the Georgetown University Law Center's D.C. Street Law Clinic, which has worked in the D.C. public high schools for over twenty years, and its national umbrella organization, Street Law, Inc., to develop a four-year comprehensive law and social studies curriculum.

During the Academy's opening year, law will be integrated into the ninth grade social studies class. The ninth grade social studies curriculum will focus, in large part, on the history and government of the District of Columbia. Rather than beginning the social studies sequence with Global Studies and moving to more local studies in the upper grades, the Academy will begin its social studies sequence with a year-long local studies course, advance to a year of American History, and culminate with a year and a half of Global Studies. By beginning the Social Studies sequence on such a local level, the Academy will tap into student interest and make history come alive and be immediately relevant to the students' lives. Ninth grade students will be able to visit many of the sites they study and will be able to connect their local community in the present to their local community in the past. Perception and awareness of the local community's past and present will help frame student inquiry into broader American history and Global Studies.

After the year and a half Global Studies sequence, the final semester of the senior year social studies course will require development of an exit portfolio and exhibition in which students are asked to draw on their knowledge of domestic and world cultures to envision and develop a model of what their ideal society would look like. Part of the portfolio component of this exit project will include a student-created constitution that governs the society that the individual student envisions. This final project will serve as the ultimate integration of the social studies and law pieces of the curriculum and will be displayed for the local community and school parents.

The legal values that underlie this aspect of the curriculum will be infused into all classes through the teaching methodology employed at Thurgood Marshall Academy. The methodology is one based on interactive pedagogy, student participation, project-based and collaborative learning, and respect for divergent viewpoints. In addition to these general legal values, there will be specific law-related electives, projects, and internships made available to students as the school grows.

c. Methods of Instruction

Thurgood Marshall Academy will use a variety of instructional strategies to teach its students with a particular focus on getting students to participate actively in their own learning. The school will be founded on the belief that all students can learn, albeit in different ways; therefore teachers must be given the flexibility to devise and use the instructional methods that bring about the highest level of student achievement. The underlying goal of all the instructional methods is to ensure that all students reach their highest academic potential.

As previously stated, the Academy's methodology will be primarily based on interactive pedagogy in which classrooms are learner-centered, where teachers serve as coaches to facilitate student learning. Through on-going assessments of student work, teachers will revise and tailor their instruction to address student academic needs (see Accountability Plan).

Individualized Classroom Instruction in Learner-Centered Classrooms

The Board of Trustees recognizes that every child learns differently and is committed to ensuring that Thurgood Marshall Academy teaches students using whatever method most promotes their learning. Each class, regardless of the academic content, will provide instruction via visual, auditory, and kinesthetic means and will present concepts in a variety of different ways to reach different students' learning modalities. The Academy will be committed to challenging every student to grow intellectually and personally and will encourage all students to achieve their highest potential at all times.

The Academy's intimate learning environment is designed to enable teachers to respond to students' individual and personal needs, and individualized instruction will be offered to help students struggling to overcome particular academic challenges. If despite extra attention from instructors, students continue to display greater difficulty learning than most of their classmates, they will be referred for assessments to identify

potential learning disabilities and, if appropriate, an Individual Education Plan (IEP) will be prepared.

Additionally, every Academy classroom will focus on student-centered learning. Teachers will make their classrooms a forum where students can openly discuss fundamental concepts and conflicting ideas and express different opinions and perspectives on issues. Students will be encouraged to bring their existent knowledge and experience to bear in both designing the classroom and participating in discussions, showing that not only teachers come to school with knowledge. This model of instruction aims to get students to invest in their own learning and achievement.

Experiential and Project-Based Learning

During its Friday Forums (see Section A.4.g, below, for further explanation), the Academy will utilize an experiential learning model in which the students will enhance their knowledge and experience with the opportunity immediately to apply what they have learned in the classroom. By participating in class projects, fieldwork, community service, and community forums, students will be engaged in real-life studies both inside and outside of school. This type of hands-on learning is geared to inspire critical thinking and other essential skills, personal development, cooperative learning, and confidence in students' ability to learn and achieve.

The experiential learning approach entails students' taking of responsibility for their own learning. Students will be encouraged to inquire into and collectively deliberate over controversial issues and then demonstrate their understanding through individual and group performance. For example, a science unit on water solubility and pollution might culminate in a trip to the Anacostia River to conduct field tests on the level of pollutants in the District's key water source. While out in the community, students could discover where pollutants and other solvents enter the water sources and brainstorm ways to stop the pollution in their community. This requires students to synthesize information and experiences to come up with their own solutions to problems rather than simply regurgitating facts and figures. It strives to engage students in high-level thinking and to empower them with confidence in their skills and abilities.

This experiential learning will be implemented largely through project-based learning, where students work individually or in small groups to complete projects to apply their academic knowledge. Students will be required to participate in all phases of the project including defining objectives, methodology, and writing. Students will also share responsibility for organizing and collecting the resources necessary to accomplish the research and to develop the final project. By actively participating in every stage of the project's development, students will enhance their analytical and quantitative skills, hone their oral and written communication skills and, most important, learn how to work together and use their collective abilities to address an important problem or issue. When a project is completed, it will be put on display at a public exhibition where parents and other community members can observe and learn from students' work. This will inspire students to reach their highest level of academic performance and meet the schools standards for excellence.

Thematic and Integrated Instruction

The Academy will also make efforts to integrate the content and key concepts of different academic subject areas to enable students to see and identify the interconnectedness of various disciplines. As stated in the Curriculum section, the Academy will integrate law into its social studies curriculum, to develop a four-year Social Studies/Law curriculum. Additionally, the English and Social Studies/Law curricula will be aligned with one another so that while students are studying a given topic in their English classes, they will also be examining some aspect of that topic in their Social Studies/Law class. Teachers in this “Humanities Block” of classes will be given time in common to plan together and develop thematic units that unify the Humanities classes.

Additionally, specific “essential questions” (as developed by Ted Sizer’s Coalition of Essential Schools Model), will be asked of the students in *all* of their classes. Teachers will be asked to develop these “essential questions” collaboratively at the beginning of every school year, post them in classrooms, and these overarching questions will be those that guide the students throughout that year.

Use of Technology

All Academy students will become proficient in the use of computers. During the Saturday Academy, students will have the opportunity to learn how to use word processing, graphics design, graphing, statistical analysis, and spreadsheet software, and will be required to utilize these skills in their course work throughout the school year.

Computers will also be utilized as learning tools. All students will be taught and required to use the Internet. They will learn how to use various search engines and information-gathering tools that will enhance their research capabilities. This will also help students become aware of, and make connections to, the outside world. Once they are more familiar with the Internet, they will also be given the responsibility of maintaining and updating the Academy’s web site. This project will allow students to apply their technical knowledge in a way that makes a valuable contribution to the Academy and the community.

To support this utilization of technology in learning, all of the Academy’s teachers will be computer literate, and professional development training will include teacher computer literacy.

d. Students with Disabilities

Thurgood Marshall Academy will operate as an independent local educational agency (LEA) under a fully inclusionary model of education for students with disabilities. The Academy’s Students with Special Challenges Program will have three components:

1. Information;

2. Identification; and
3. Services provision.

Information

A school program serving students with special challenges cannot be fully effective unless parents, students, and faculty know and understand the warning signs of physical, learning, behavioral, and emotional disabilities, laws prescribing the rights of students, and any other individual school policies regarding this issue.

Prior to the opening of the Academy, administrators and teachers will be trained and informed about the various types of disabilities and about how to identify students in need of special care. They will be further informed of school evaluation and service provision procedures and applicable laws such as the Individuals with Disabilities Education Act (IDEA), federal regulations, and municipal regulations.

Extensive efforts will be made to increase parental knowledge. As part of the Academy's initial parental group information sessions, it will inform parents about its inclusionary model and what it means for special education students. The Academy's monthly parental workshops will provide a continued forum to address these issues. At least one workshop will be dedicated to special education issues (identification and service provision). Additional workshops in this area will be scheduled based upon parental interest and the needs assessments of faculty. Furthermore, individual parents of special education students will meet with faculty to discuss the needs and progress of their child. Parents will be provided with information that will assist them in identifying the special needs of their child and they will be strongly encouraged to share any potential concerns about their child with the school staff.

Students will also grow to understand these issues and be encouraged to alert staff members of their own potential special education needs. Within their first year law classes they will learn about the law and how it relates to students with disabilities. A Street Law textbook, "Law In Your Life," will assist in their education with appropriate chapters focused on disabled student law.

Identification

During its first year of operation, the Academy's faculty will include at least one member who also has expertise in special education issues. That person's responsibilities will include identifying candidates for special education services and insuring that student Individualized Educational Plans (IEPs) are kept in compliance. After the first year, additional full-time special education specialists will be hired.

Teachers, special education specialists, and parents will be encouraged to recommend assessments and/or an IEP review whenever they deem them to be necessary.

All assessments will be conducted by outside consultants and targeted towards the specific educational needs of the student. Additionally, the following procedures will be implemented:

- (1) Each student's teachers, the special education specialist, and appropriate outside specialists will review the individual's school files upon admittance to the Academy. Together, they will determine how best to implement current IEPs and how best to target any other apparent needs of the student. Since over-classification in special education programs is particularly prevalent among the Academy's targeted student population, special attention will be given to ensuring that students are reassessed to determine whether special education programs are truly necessary to satisfy their educational needs.
- (2) A strategy meeting attended by the student, a parent/guardian, the student's teachers, and a special education specialist, will be mandatory for students who maintain a C+ average or below for at least 45 school days. Strategy meetings may also be called at any time at the request of a parent, teacher, the Principal, or the student. The group will work together to determine the source of the student's academic difficulties and develop a plan to improve performance. At that time, the group may also consider whether any assessments are necessary for the student (i.e. language function or social/emotional tests).
- (3) If student performance show no signs of improvement during the 30 school days that follow the strategy session, potential assessments will once again be considered and an IEP meeting scheduled.
- (4) IEP meetings will be held no later than 10 school days after the end of the 30 day period. Participants will include the student, the parent, the student's teachers, specialists, and the special education specialist or Principal.
- (5) Where appropriate, the student will be referred to regular sessions with the appropriate outside special education specialists, who will review the new IEP and confer with the special education specialist about student history and IEP implementation.

Services Provision

In an effort to avoid the stigmatization effects of special education classrooms, the Academy will mainstream its special needs students under an inclusionary model. This program will comply with the IDEA requirements of a free and appropriate education in the least restrictive environment through its small class sizes, one-on-one tutoring, regular specialist sessions, extended school days, and extended school years.

The Academy will be joining the D.C. Charter School Cooperative, which will provide assistance in further special education decisions and a listing of approved service providers. The Students with Special Challenges Program will contract with these specialists who will come to the Academy site for regular sessions with those students who so require.

e. Strategies for Providing Intensive Academic Support

Intensive academic support is a key component of the vision behind the Thurgood Marshall Academy proposal. This vision will be realized through the following:

- ◆ **The America's Choice School Design.** This curriculum partner was chosen because remediation strategies are incorporated throughout its curriculum standards. The standards encourage student success and are designed for all students, despite variations in skill levels. Further, the America's Choice design team has tested, and has achieved positive results from, such remediation programs as the "Struggling Reader," which was created for high school students who are reading several grades below level.
- ◆ **Small class sizes.** A low student-to-teacher ratio will provide a great amount of individual attention to students experiencing academic delays.
- ◆ **Extended School Days/Extended School Year.** Longer school days within an extended school year will allow for more time spent on instruction, remediation and enrichment programs, and the general educational development of the student (see "Structure of the School Day and Year"- section A.4.g.)
- ◆ **Saturday Academy.** All students at the Academy will be required to attend the additional educational sessions on Saturdays. For students who are falling behind in their academic performance or exhibiting certain difficulties, the sessions will focus on remediation and skills-building strategies to bring them up to appropriate levels. Other students will take classes in computer skills, standardized test preparation (America's Choice and SAT), and career skills such as resume-writing and job-searching techniques.
- ◆ **Mandatory One-On-One Tutoring.** At the end of each school day, sessions will be held to assist students with basic reading, math, and other skills. Tutoring services will be provided by school staff, well-established volunteer organizations housed at Georgetown University's Law Center and main campus, and, potentially, from affiliated law firm volunteers.
- ◆ **Student-Assisted Learning.** Students who have reached certain standards will be encouraged to assist students who have not yet reached those same standards. The benefits of this technique are two-fold: students teaching others will reinforce their own knowledge and the confidence in their academic skills, while the students being assisted will gain greater insights into their tasks by experiencing them through a peer with whom they have much in common.
- ◆ **Parent-Involved Strategy Sessions.** Strategy sessions will be called for students who are achieving below their full potential by averaging a C+ or lower. Parents, teachers, the Principal, and the student will meet in order to brainstorm any other possible methods of improving their performance.

- ◆ **Intervention Model for Language Minority Students:** While the location of Thurgood Marshall Academy (Ward 8) makes it unlikely that the student population will include many language minority students, the Academy has developed an intervention model to assist such students and enable them to succeed in Thurgood Marshall Academy's rigorous academic program. For students whose home language is other than English, the Academy will assess their proficiency in English. For Limited English Proficient students, the Academy will provide intensive tutoring and academic assistance both to enable the student to more quickly become English proficient, and to support the student in his or her academic courses while attaining English proficient status. The Academy will train its teachers in language sheltering techniques so as to better enable them to teach to the needs of language minority students. For example, teachers will be encouraged to utilize teaching techniques that incorporate visual aids to complement text or conversation, both for the benefit of language minority students and for all of its students. The Academy will also make efforts to hire at least one bilingual teacher in its first year (likely a teacher who is bilingual in English and Spanish). Additionally, if the Academy attracts students who are non-native English speakers and are English proficient, these students would be encouraged to act as mentors and coaches for those students who are developing proficiency in English. Lastly, if a student needs specialized services beyond those outlined above and the Academy does not have enough such students to allow it to hire a specialist for language minority students, the Academy will contract with an outside service provider to assist the student.

3. STUDENT PERFORMANCE

a. Student Assessment

Thurgood Marshall Academy will thoroughly assess both student academic achievement and student progress in selected non-academic areas, such as student civic participation, collaboration, and student problem-solving skills (see attached Accountability Plan-Section A.1.d).

The primary reason for the Academy's significant focus on student assessment is that student assessment will inform the instructional program of the school. Student assessment tools will provide both the teachers and the students with feedback as to student learning and progress. As teachers assess students, they learn more completely what students' educational needs are and can tailor their instruction most effectively to assist students. For example, one of the Academy's goals is that all students will achieve mastery or proficiency in the core subject areas of English, Mathematics, Science, and Social Studies/Law. If, through program-embedded assessments, America's Choice Design Network reference examinations, or student exhibition work, it becomes clear that a student has not achieved proficiency in one of the core subject areas, the student's educational plan can be tailored to include additional focus on his or her area of weakness. The student could, for example, be provided with an individual tutor who could assist the student in this specific area of weakness. Without quality and comprehensive student assessment, this instructional tailoring would not be possible.

Below, the Thurgood Marshall Academy Board of Trustees has developed a basic student assessment chart, which indicates the student outcomes to which the Academy will hold students and the methods by which the Academy will determine if students are meeting the stated outcomes. Among the tools by which the Academy will assess student achievement are:

- X Standardized Assessments (Stanford 9 and SAT);
- X Standards-based reference exams (developed by America's Choice Design Network);
- X Program-embedded assessments (tests, quizzes, reports, etc.);
- X Performance-based assessments (exhibitions, demonstrations, etc.); and
- X Portfolio-based assessments (collections of student work showing growth over time- used to assess academic and non-academic achievement; scored by rubric).

(For additional description of many of these assessment tools, see Section D. Public Charter School Accountability Plan).

Outcome to be Achieved	Method of Measurement
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<p>Proficiency or Mastery in all subject-areas (English, Mathematics, Science, and Social Studies/Law).</p>	<p>1) Program-embedded assessments (tests, quizzes, reports, etc.)</p> <p>2) America's Choice Design Network reference examinations in English/Language Arts and Mathematics</p> <p>3) Student portfolio presentations, demonstrations, performances, exhibitions</p> <p>4) Stanford 9 Achievement Tests (SAT-9) in reading, mathematics, and science (<i>like all public charter schools, Thurgood Marshall Academy is required to participate in this district-wide assessment</i>)</p>
<p>75% of Thurgood Marshall Academy students will score at or above the national average on the SAT.</p>	<p>SAT exam results</p>
<p>Over 75% of Thurgood Marshall Academy students will graduate in 5 years or less.</p>	<p>Data systems to keep track of student entry and graduation dates.</p>
<p>Over half of all students will enroll in a post-secondary institution after graduation.</p>	<p>Data systems to keep track of the enrollment of former Thurgood Marshall Academy students in two- and four-year colleges, trade schools, technical colleges, or conservatories.</p>

<p>All students will demonstrate active participation in their communities.</p>	<p>1) All students will spend at least one month each year in an internship or externship, as determined by the logs and monthly journals which students are required to keep.</p> <p>2) Students must complete 25 hours of community service annually, as determined by community service logs and monthly journals which students are required to keep.</p> <p>3) Advisory teachers (“Advisory class” meets weekly) will assess student development in these areas, primarily through student portfolios, and other program-embedded assessment tools.</p> <p>4) Students will conduct a rubric-scored presentation at the end of the school year about their experiences outside the classroom over the course of the year.</p>
<p>Students will develop non-academic skills, including collaboration skills, problem-solving skills, interpersonal skills, and character development skills.</p>	<p>1) All students will spend at least one month each year in an internship or externship, as determined by the logs and monthly journals which students are required to keep.</p> <p>2) Students must complete 25 hours of community service annually, as determined by community service logs and monthly journals which students are required to keep.</p> <p>3) Advisory teachers (“Advisory class” meets weekly) will assess student development in these areas, primarily through student portfolios, and other program-embedded assessment tools.</p>

b. Basis for Promotion and Graduation

See Accountability Plan

The Academy will use both externally developed assessment measures and internally developed assessment measures in determining whether students are prepared for promotion and graduation. There will not be one high-stakes exam upon which a student’s promotion or graduation depends; rather there will be four primary tools that teachers will use in making their determination of a student’s ability to progress from one grade to the next. These assessment tools will be: America’s Choice developed reference examinations, Stanford-9 examinations, teacher-developed finals at the conclusion of all

courses, and student portfolios and project-based work.

At the end of both 9th and 11th grades, Academy students will take “reference examinations” developed by America’s Choice, so called because they provide a point of reference to national standards in English Language Arts and Mathematics. During the 9th, 10th, and 11th grade years, the students will also take the Stanford-9 examinations that all students in the District of Columbia must take. Results on these exams will be a factor in determining a student’s readiness to move on to a higher grade-level.

In addition to these externally-developed examinations, Academy teachers, in consultation with experts from America’s Choice, will develop subject-specific exit examinations that all students who have taken a given course must take at the conclusion of the course to demonstrate their mastery of the subject. Another internally developed assessment tool will be student portfolios, which be used extensively in the English and Social Studies classes and which will serve to measure both student achievement and growth.

Based on the results of all four of the aforementioned assessment tools, students will either be promoted or retained, but in no instance will a student who demonstrates unpreparedness be promoted to the next grade level or graduated from the Academy. Academy teachers will be expected to participate in end-of-year conferences together, so that they can make collaborative decisions as to whether students should be promoted or retained. All subject-area teachers (Mathematics, English, Social Studies/Law and Science) will be involved in these collaborative promotion and retention decisions.

c. Student Intervention

The Academy’s community learning environment will ensure that students who are not reaching the standards will receive assistance before remediation becomes necessary. All students are required to attend one-on-one tutoring sessions Monday through Thursday. This tutoring program will ensure that the educational needs of the students are isolated and addressed at their inception. Further, the smaller class sizes (no more than 20 students per class) and hour and a half block sessions will allow teachers to become familiar with their students, facilitate the identification of any difficulties, and allow time for the individual assistance. Additionally, the school staff will consist of a small, intimate group of professionals who will have opportunities to interact and meet regularly to discuss their students, thus allowing for identification of student achievement difficulties that appear across disciplines.

An additional early intervention procedure is outlined above in the Students with Disabilities section. Essentially, strategy meetings will be called for each student who maintains a C+ average or below for at least 45 school days. At these sessions, teachers, parents, and the Principal will endeavor to discover the root of the student’s academic difficulties and will then formulate any additional plans for eliminating those difficulties.

4. SUPPORT FOR LEARNING

a. Parent Involvement

At the heart of the proposed Academy approach to parent involvement is a recognition that parents become increasingly less participatory in students' education in higher grade levels. The Board of Trustees (Board) believes that it is important to create an institutional structure that fosters parental involvement in school activities and in the learning process. The Academy will extend this basic philosophy of due process and democratic decision-making to parents by providing family and parents with opportunities to participate directly in school governance as members of the Board of Trustees or as members of a Parent Advisory Council. At least two parents will serve on the TMA Board of Trustees.

Because the Academy will employ teaching strategies and a focus that may be unfamiliar to many parents, it will implement an aggressive and inclusive parent/family outreach and participation program. To this end, it will designate one faculty member as the Academy's Parent and Community Development Coordinator. As the Academy grows to scale, this function may be performed by a dedicated full- or part-time position, but until the budget allows TMA to hire this staff member, the Principal and/or Executive Director will fulfill this role. Working with the Principal and Executive Director, this Coordinator will pursue a strategy consisting of the following components: ~~The Coordinator will pursue a strategy comprising the following components:~~

- ◆ Informational sessions before and during the application process. In March 2001, TMA will begin hosting community information sessions on Saturdays and on weekday evenings to disseminate materials about the school and to get feedback from parents about school curriculum and design choices. ~~The application process will include public sessions at which specific information regarding the school structure and focus will be disseminated.~~ Students and parents interested in basic information about the school or in applying to the school must attend; applications may be submitted; and community feedback will be sought at the meetings. The needs and concerns of families and parents may be assessed through these meetings.
- ◆ Parent/Guardian/Family Advisory Committee Organization: The TMA parent Board of Trustees members will chair the Parent Advisory Committee that will have regular meetings with TMA's Executive Leadership. ~~The Parent and Community Development Coordinator will head an organization made up of parents and other interested family members.~~ This organization will conduct interviews with and surveys of other parents to form the basis for monthly parent workshops, arrange community partners for the workshops and other parent/family programs, and publish a newsletter to all parents. Finally, this committee organization will provide a sounding board for proposals TMA is considering and serve by the Academy's Board of Trustees and will be included as an integral part of the Academy decision-making process.
- ◆ Monthly parent/community workshops. Based on conversations with parents and direction from the Parent Advisory Committee, workshops will be designed to meet parents' interests and needs. ~~These workshops may will~~ range from informational speaker series to sessions for information gathering in order to assess parent satisfaction and community needs. The Academy will seek sponsors in the community (particularly the legal community) to fund occasional dinners and/or luncheons to which all parents will be invited. Topics for speakers may

include (among others): adolescent and young adult development; positive parenting; self-improvement and empowerment; college opportunities and financial aid; ~~educational and employment opportunities for students during and after high school~~, and explanations of the school's curriculum and methodology. ~~Other~~ Many workshops will be more interactive—providing parents with a means of voicing ideas, concerns, and suggestions.

- ◆ *Literacy, GED preparation, and financial management program.* The Academy will provide an adult literacy and GED preparation program, as well as classes in personal financial management and basic computer skills. Students' families will be invited to attend classes and to volunteer to assist in these programs. Staff and faculty will be encouraged to participate whenever possible. Furthermore, the Academy will use its special relationship with the Georgetown University Law Center to attract tutors and teachers to lead these programs.
- ◆ *Direct and indirect communication with parents and others in the community.* The Academy will maintain an updated and extensive website, providing parents, families, and others in the community with detailed information regarding activities at the school (including mock trials, extra-curricular activities, literacy programs, workshops, and open houses). The website will be maintained by the students themselves, with the assistance of the Parent and Community Development Coordinator and appropriate staff. ~~TMA~~ The Parent Family Organization will publish a bi-monthly newsletter to help keep parents abreast of school happenings. with relevant information for parents and families. TMA parents/guardians will receive their student's report card four times a year and have to sign that they reviewed the report. Faculty and staff will meet with parents at least four times a year and faculty will phone parents when students are absent from school. Parents will be personally invited to all major activities. ~~Finally, parents/guardians will receive their child's report card four times a year. Faculty and staff will also maintain informal communication with parents regarding their child's progress.~~

Every effort will be made to make all parent and family activities accessible to all parents. Parents will be welcome to come to the Academy to visit and observe classes and meet with school faculty and administration. Academy staff will seek to ensure that all activities, including parent-teacher conferences, take place at convenient times and are sufficiently publicized. Whenever possible, teachers and staff will help arrange transportation and child care.

Currently, the Board of TMA is setting up small meetings with groups of potential parents whose children are age/grade-eligible for the school to get feedback on the school design and proposed curriculum. To this end, the Board is meeting specifically with parents of Southeast Academy to recruit two parents for the TMA Board. A larger meeting with parents and potential students at Southeast Academy and from the community is being planned to get broader involvement in and support for the implementation of TMA. Finally, a small group of prospective parents and students were involved in our October 21, 2000, "Paint the School" day and luncheon to begin

preparing our new facility for its opening.

b. Community Participation

The Academy will seek to build a strong relationship with the community it serves. The Board sees the school's relationship with the community as reciprocal: the Academy will provide a first-rate education to students in the community, provide the community with such services as literacy and GED preparation programs, and act as a resource to community organizations, while soliciting the community for input into the design of its program and needs of the community. To this end, the current Board has met with and will continue to meet with key community and political leaders to involve them in the school, gain their support, and to solicit their input. Councilmembers Sandy Allen (Ward 8) and Kevin Chavous (Ward 7) are hosting a meeting on behalf of TMA for community leaders. Two-three representatives of Ward 8 will be invited to serve on the TMA Board by March 30, 2001.

In conjunction with community residents interested in TMA, TMA is planning on holding a series of informational neighborhood meetings in residents' homes beginning February, 2001. These meetings will help TMA build support and relationships at the grassroots level. Following these small neighborhood meetings and the Councilmember Sandy Allen community leaders meeting, TMA will host a larger public meeting for interested community members.

TMA has identified seven different categories of leaders in the community to involve in the school:

- Political Leaders (Councilmembers, ANC members, School Board Members, Ward 8 Democrats, other elected officials)
- Religious Leaders (Ministers, pastors, priests of major churches in Ward 8 and church council members)
- Leaders from the business community (Ward 8 Business Council, Anacostia Coordinating Committee, small business owners in Ward 8, and Community Development Corporations)
- Service Sector Leaders (Directors of non-profit direct service organizations)
- Community Activists (former political leaders and members of housing community resident councils [Wheeler Creek and others])
- Educational Leaders (leadership from other charter schools in Ward 7 & 8, principals, teachers at other schools in area, and retired educators)
- Parent Leaders

Local organizations will serve as resources for Academy students. At the same

time, Academy students and staff can provide information and assistance to the organizations. Community organizations will provide internships, mentors, guest teachers who specialize in certain areas, and community service opportunities. They will also provide speakers for monthly parent/family workshops. The Parent and Community Development Coordinator will coordinate efforts among staff, the Parent/Family Organization, and the local community to ensure that needs of the community and the school are met.

The Board has already started building partnerships with local organizations, as well as broader community groups and agencies.

c. School Organization and Culture

If this application is approved, Thurgood Marshall Academy will open its doors in the fall of 2001 in the heart of the community it is designed to serve. Although a facility has not yet been secured, the Academy will be an intimate learning environment where students will receive significant individual attention and where faculty will be able to tailor teaching strategies to meet individual needs. The school will be physically and temporally organized to facilitate a due process methodology based on fairness, student participation, interactivity, and project-based learning.

Ideally, every learning space at the Academy will be configured to accommodate non-traditional methods of instruction, such as mock-trials, mock-hearings, and mock-legislative sessions. The physical and temporal organization of the school will be designed to enable students and faculty to maximize their creative capacities as they consider rights and responsibilities, confront and resolve disputes, and discuss and analyze public issues. For example, one classroom might be laid out as a courtroom, while another may resemble a council chamber or a boardroom. Other spaces will be outfitted with numerous computers and/or video equipment.

Similarly, the class schedule will be tailored to meet the school's curriculum goals. Core subjects, including English, Math, and Social Studies/Law meet longer so that student learning and projects have the necessary time to develop. The extended school day is designed to accommodate students' academic and emotional needs—including extensive remediation if needed—and to allow faculty lesson plans to develop uninterrupted. Equally important, the extended school day is designed to counteract a variety of extra-curricular social risks that frequently accompany the urban environment.

Ultimately, the Board seeks to create a learning community in which students and faculty feel invested in the academic, emotional, and social outcomes of others. This can occur only if the culture of the Academy is reflective of its philosophical underpinnings: fairness, participation, and respect for diverse perspectives.

Fairness

Fairness is at the heart of the due process model of education, and as such will contribute significantly to the Academy's culture. As part of the Academy's unique, four-year law-based curriculum, students will be actively involved from the beginning in

making decisions about the Academy's future. The first year of the curriculum will focus on critical thinking concerning a student's position within a local community and to that end will require students to develop a model for student governance, including a charter of student rights and responsibilities and a budget for student activities. In this manner students will immediately feel invested in their physical and social environment, since it will reflect their own values and ideas.

Participation

Civic participation will also be manifest in the culture of the school. As students develop critical thinking capabilities in conjunction with studying the law, democracy, and human rights, they will grow to understand that their education does not begin or end with each school day, nor extend to the four walls of the classroom. Rather, students at the Academy will feel empowered to make a difference not only in their lives at the school, but within the greater community. Academy students' critical thinking capabilities will enable them to see and understand the bigger picture and feel compelled to have a voice in shaping it. Additionally, since internships, externships, and community service are important components of the curriculum, many of the Academy's eventual partners will contribute to the school's culture, whether by contributing volunteer capital, or by promoting the school's reputation within the larger community.

Respect for Diverse Perspectives

Finally, the natural by-product of innovative, project-based learning is the creation of large amounts of diverse student work, including displays, artwork, and computer-based work. In order to inspire all students and faculty to reach their highest level of performance, learning spaces, hallways, and foyers will accommodate public exhibitions of diverse student work so that all community members can observe and learn from student insight and growth.

Having taught at numerous public high schools in the District of Columbia, the members of the Board are of one mind that the development of a healthy school culture is paramount in fostering student learning and inspiring the talents of the faculty. To this end, the students and faculty of Thurgood Marshall Academy will be actively involved in collectively making important decisions about the school's educational and operational future.

d. Extracurricular Activities

Consistent with its focus on experiential-based learning, the Academy will feature a variety of extracurricular activities that will be phased in over the initial four years of operation. As an extension of the Academy's learner-centered approach, the students will play a key role in determining activity offerings.

Extracurricular activities will emerge at the Academy in the following areas:

- ◆ Academic Enrichment;

- ◆ Personal Enrichment;
- ◆ Social Enrichment; and
- ◆ Athletic Development.

Many of the extracurricular activities will be extensions of the Creative Arts and Physical Education components of the curriculum. In addition, the Academy will tap into its anticipated pool of community and professional organizations and individual volunteers in order to guide these activities.

Academic Enrichment activities will include:

- ◆ Peer tutoring in all subject matters;
- ◆ Subject matter clubs, including math, science, and law;
- ◆ College preparatory courses; and
- ◆ Career development courses.

Personal Enrichment activities will include:

- ◆ Mentoring opportunities within the community;
- ◆ Leadership opportunities through community outreach;
- ◆ Debate, Mock Trial, Speech Clubs and Projects; and
- ◆ Community service.

Social Enrichment activities will include:

- ◆ Student Government;
- ◆ School newspaper;
- ◆ School website;
- ◆ Yearbook; and
- ◆ Music, Arts, and Culture Clubs (Photography, Theater Sports, Poetry).

Athletic Development activities will include:

- ◆ Intramural and Club Sports (Basketball, Track, Tennis, etc.);
- ◆ Outdoor education programs; and
- ◆ Health and Fitness Training.

Ultimately, the Academy should be able to collaborate with other charter and DCPS public schools and community organizations in order to maximize these and other

student extracurricular opportunities.

e. Safety, Order, and Student Discipline

Thurgood Marshall Academy is committed to providing a safe and orderly environment in which all students can succeed academically and gain the personal and inter-personal skills to be active participants in society. Underlying our discipline policy is the belief that challenging curriculum and effective instruction is the best preventative measure against student misbehavior. Because our school emphasizes individual and collective civic responsibility, the student Code of Conduct reflects the high academic and behavioral expectations we have for students and the social contract that enables a learning community to thrive. The Code of Conduct functions within two over-arching tenants:

- 1) Every student must conduct themselves such that they are ready to learn
- 2) Each student must conduct themselves so as to enable other students to learn

The school's focus on law-related education and the empowerment of our students to be cooperative citizens will permeate the implementation of our Code of Conduct. First, the school will incorporate a number of pro-active approaches to encourage students to recognize the value of appropriate behavior in a society. An emphasis of the summer orientation and the advisories will be help students to learn the tools of self-control;

- to think before they act and take responsibility for their actions
- to become cognizant of their own feelings and feelings of others
- to delay gratification and learn to control impulses
- to express ideas and feelings through words and not physical action
- to transfer self-discipline within the school to outside-of-class problem situations.

Additionally, the first year's curriculum will integrate the concept of an individual's place in society and the social contract upon which a functioning society is dependent.

Second, the enforcement of the Code of Conduct will model the concepts of due process and fairness that is part and parcel of the overall curriculum. Students and their families have the procedural rights to:

- due process
- receive fair and equal treatment from the school personnel
- have all rules and expectations for student behavior explained to their satisfaction
- have all disciplinary actions explained to their satisfaction
- appeal suspensions and expulsions made by the school to the school's Board of Trustees
- be kept apprised of behavior progress through progress reports, report

cards, conferences with faculty, and as-needed meetings with teachers, the Principal, or school counselor

At the inception of the school, school personnel will clearly define what behavior will and what will not be tolerated to students and parents, and to explain the rationale behind those expectations as well as the procedure followed if a student violates the code of conduct. The Principal and teachers will vigorously and consistently enforce these expectations, and use the enforcement as learning opportunities for the individual student committing the transgression as well as the general student body when applicable. For example, if a student defaces part of the building, not only will there be a conference with the student to help the student to reflect upon the action and to explain the appropriate consequences, but the other members of the school community may choose to use the incident to discuss the social contract of communities and how to treat violations of that contract.

B. Content of Discipline Policy

There will be clear descriptions of appropriate behavior (and therefore, inappropriate behavior) during parent information sessions and in the student handbook. The following is an example of the content of student expectations and procedure for addressing violations as it will described in the Code of Conduct:¹

Students are expected to arrive on time to school and to each class. Students who arrive late to class not only fall behind in their school work but also disrupt the education of others and show disrespect for others in the TMA community. Students who are late to school or late to class—without prior notice from a parent/guardian or signed explanation from the parent/guardian—will have a conference with a member of the school staff to develop strategies to cure the problem. If the student continues to be tardy for class, a conference will be scheduled with the student, guardian, counselor, and principal to develop solutions satisfactory to all participants.

Other examples of expectations for student behavior with similar procedural consequences if transgressed will be:

Cutting school or class

Misbehaving in school, class, or on field trips

Showing disrespect toward faculty or staff

An example of a more serious violation of our expectations for student behavior, as well as the subsequent procedural consequences is the following:

Students are expected to show respect for themselves and for the safety and welfare of other members of the school community. Students who use or are found to possess drugs or alcohol at school or at school events violate the school's codes as well as local, state, and Federal laws. Students who use or possess drugs or alcohol will be automatically suspended and will not be permitted to return to

¹ See accompanying chart.

school until there has been a meeting with the student, the student's parent or guardian, school counselor and Principal, and the matter has been resolved to the satisfaction of all participants.

Other examples of expectations for student behavior with similar procedural consequences if transgressed will be:

Theft or destruction of personal or school property
Forgery

Finally, examples of school violations in which a student will be expelled are:

Using or possessing a dangerous weapon
Selling drugs or alcohol

Our intention is that by using proactive strategies, such as providing them engaging academic and extra-curricular activities and by teaching them self-discipline and self-worth within the broader health of the community, we will reduce the need for responsive strategies.

Procedure of Discipline Policy

If a student is found to be in minor violation of the code—committing an offense that results in actions other than suspension—the following steps will be taken:

1. The teacher or staff member will address the conduct in question with the student, discuss the inappropriate behavior with the student, and attempt to resolve the situation without formal disciplinary action.
2. If the problem cannot be appropriately resolved at that time and in that forum, the student will be asked to report to the main office or another designated school location until the matter can be appropriately addressed.
3. At an appropriate time as soon after the incident as practicable, the student's parent or guardian will be contact and informed of the incident, and if necessary, of potential or actual disciplinary action.
4. At an appropriate time as soon after the incident as practicable, the Principal will decide on an appropriate course of disciplinary action. Possible consequences include student behavior contracts, loss of school privileges, or tasks tailored to the nature of the violation (cleaning property if defacing property).
5. If the principal finds it necessary to become involved in the case, the details of the incident and the responsive action taken will be documented and placed in the student's school file.

If a student commits a major violation of the code—committing an offense that results in suspension—the following steps will be taken:

1. The student will be immediately removed from class and will be sent to the main office or another designated school location.
2. The parent or guardian will be contacted immediately by the Principal or a representative of the school administration, and requested to pick up their child from the school as soon as practicable.
3. The Principal will take all possible steps to ensure that the student and his or her parent or guardian are fully informed of their rights. If the parent/guardian picks up the student that day, they will be informed at that time. Otherwise, the Principal will contact them by phone to explain their rights. The details of the incident itself will not be a topic during this conversation.
4. A parent/guardian will receive written notice of the suspension and a hearing date by personal delivery, express mail delivery, or equivalent means reasonably calculated to assure receipt of such notice within 24 hours of the suspension.
5. During the hearing, the student will have the opportunity to present evidence and witnesses, and the student may bring an advocate on his/her behalf.
6. At the conclusion of the hearing, the Principal will decide the appropriate course of action. A written decision will be issued and copies will be forwarded to the student, the parent or guardian, and the school's Board of Trustees, with an additional copy placed in the student's permanent school file.
7. Any student suspended will have the right to appeal the Principal's decision in writing to the school's Board of Trustees within seven days of the school

hearing, have the right to have an advocate present on that student's behalf at the appeal. The appeal will take place at the next regularly-scheduled meeting of the school's Board of Trustees, as long as there are at least seven days between the receipt of the appeal and the date of that meeting.

8. If at any time during this process the Principal believes that the action of the student has a significant likelihood of resulting in criminal consequences, he will not speak to the student until a parent/guardian is present, a police officer is present, and the student has been adequately informed of his/her legal rights.

If a student commits an offense that calls for expulsion, the following steps will be taken:

1. The student will be removed immediately from school.
2. The parent or guardian will be contacted immediately by the Principal or a representative of the school administration, and requested to pick up their child from the school as soon as practicable.
3. The Principal will take all possible steps to ensure that the student and his or her parent or guardian are fully informed of their rights. The incident itself will not be a topic at this meeting.
4. A hearing date will be set by the Principal at that time and the student and their parent/guardian will be notified in writing at least seven days prior to the hearing.
5. During the hearing, the student will have the opportunity to present evidence and witnesses, and the student may bring an advocate on his/her behalf.
6. At the conclusion of the hearing, the Principal will decide the appropriate course of action. A written decision will be issued and copies will be forwarded to the student, the parent or guardian, and the school's Board of Trustees, with an additional copy placed in the student's permanent school file.
7. Any student expelled will have the right to appeal the Principal's decision in writing to the school's Board of Trustees within seven days of the school hearing, have the right to have an advocate present on that student's behalf at the appeal. The appeal will take place at the next regularly-scheduled meeting of the school's Board of Trustees, as long as there are at least seven days between the receipt of the appeal and the date of that meeting.
8. If at any time during this process the Principal believes that the action of the student has a significant likelihood of resulting in criminal consequences, he will not speak to the student until a parent/guardian is present, a police officer is present, and the student has been adequately informed of his/her legal rights.

The Student Court

By the end of the first year of operation, we intend to create a student court, a forum in which students found to have committed minor violations (non-suspendable) of the Code of Conduct will appear before their peers. Peer influence has proven to be an effective influence to hold youths accountable for their actions, as well as helping students develop valuable skills such as public speaking, critical thinking, and weighing competing concerns—all skills that will aid them to become more responsible students

and productive young citizens. The creation of the student court will be a natural extension of our law-related curriculum. Students will receive extensive training in the procedural and ethical aspects of a student court, and although they will not determine guilt or innocence, they will decide appropriate sentencing (subject to approval by the school administration) for violations.

C. Thurgood Marshall Academy Discipline Policy: Examples

<u>Behavior</u>	<u>Description</u>	<u>Proactive Strategies</u>	<u>Consequ</u>
<u>Inappropriate classroom conduct</u>	<u>Includes eating / drinking / chewing gum, as well as shouting out answers, talking while someone else is, etc.</u>	<ol style="list-style-type: none"> <u>1. Students are acculturated during Orientation about appropriate ("professional") classroom behavior.</u> <u>2. Teachers provide engaging lessons with clear instruction and guidelines for assignments.</u> 	<u>Immediate reprimand, minimal interruption. If chronic, teacher-student behavioral expectations prevent future misc</u>
<u>Tardiness</u>	<u>Not in the school or classroom at the appropriate time</u>	<ol style="list-style-type: none"> <u>1. Students are acculturated during Orientation about appropriate ("professional") classroom behavior, including promptness.</u> <u>2. Students are taught strategies of self-discipline</u> <u>3. Teachers provide engaging lessons that begin immediately when class starts.</u> 	<u>Immediate reprimand, minimal interruption. If chronic, student-parent importance of promptness include counselor and strategies to prevent</u>
<u>Chronic Absenteeism</u>	<u>Student has frequent absences (greater than 2x/month)</u>	<ol style="list-style-type: none"> <u>1. Students and parent/guardian sign a school "contract", pledging to have consistent attendance.</u> <u>2. Each morning, staff will contact parent/guardian of every child absent for notification and provide assistance to prevent future unnecessary absences.</u> 	<u>Conference schedule parent/guardian, develop strategies to</u>
<u>Fighting</u>	<u>Physical altercation between students</u>	<ol style="list-style-type: none"> <u>1. Students are acculturated during Orientation about tools of self-control:</u> <ul style="list-style-type: none"> <u>• to think before they act and take responsibility for their actions</u> <u>• to delay gratification and learn to control impulses</u> <u>• to express ideas and feelings through words and not physical action</u> <u>2. Selected students will become trained peer mediators to help their peers solve disputes verbally.</u> 	<u>Students who participate be automatically suspended. If chronic, student-parent meeting with the student guardian, school counselor matter has been resolved participants.</u>

D. Thurgood Marshall Academy Discipline Policy: Examples (p. 2)

<u>Behavior</u>	<u>Description</u>	<u>Proactive Strategies</u>	<u>Consequ</u>
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<u>Possession of dangerous weapons on school grounds</u>	<u>Includes knives, firearms, or other potentially dangerous items</u>	<ol style="list-style-type: none"> 1. <u>Students are acculturated during Orientation about the professional learning atmosphere of the school.</u> 2. <u>Classroom instruction, counselor-driven programs, mentoring, and community involvement programs all promote non-use of weapons.</u> 	<u>Referral to law enforcement suspension of student (in which case we as placement to an alter)</u>
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The Academy will develop a model of student conduct consistent with its due process model of instruction. The code of conduct will emanate from learning and behavior principles espoused and accepted by the school community. It will be a "responsibility" as compared with an "obedience" model. The core principle of the student conduct code will be its explicit connection to the positive learning values of the Academy, the first of which is that the primary function of the school is for learning. From this core idea follow the corollary ideas that the goal of the policy is to provide a safe, nurturing, and stimulating environment for students, staff, and faculty that is conducive to effective learning. In a school which values and seeks to model such concepts as the freedom of speech and respect for individual rights and the human personality, a code of conduct that sets high standards for open civic discourse and tolerance for differences is essential. The code of conduct will also be consistently applied. Because respectful conduct pursuant to meaningful educational goals is necessary not only for good student discipline but also for the success of the instructional process, student, staff, and faculty conduct consistent with the code will be integrated with the instructional process and school activities, rather than treated as a separate appendage of school operation.

— In addition to the code of conduct specifying positive behaviors, the Academy will develop a student discipline policy specifying undesired or prohibited behaviors. These behaviors will be set out in general terms and supplemented with an elaboration of proscribed behaviors, proactive strategies for minimizing the behaviors, responsive strategies for coping with violations, and consequences for violations. The following is an example of possible elements of the discipline policy for two degrees of inappropriate behavior:

Behavior	<u>Tardiness. Not in the classroom or in the appropriate location at the designated time.</u>	<u>Dangerous Weapons. Bringing any knives, firearms or other potentially or apparently dangerous items to schools (this includes toy weapons).</u>
Description	Not in the classroom or other location when the bell rings.	<ul style="list-style-type: none"> *Knives *Firearms *Items used in a threatening manner (scissors, pins, etc.) *Toy weapons

Proactive Strategies	<ul style="list-style-type: none"> *Student arrives on time *Maintain staff presence in halls at appropriate times *Promote active student participation in the curriculum *Use behavior management strategies *Student use of self monitoring *Teachers' use of positive reinforcement 	<ul style="list-style-type: none"> *Use classroom instruction, mentor groups, peer support, and community involvement to model and promote non-use of dangerous weapons *Not allow weapons in school
Responsive Strategies	<ul style="list-style-type: none"> *Discussion with student *Develop a student plan *Teacher/parent communication 	<ul style="list-style-type: none"> *Visual monitoring of students *Search of personal belongings or person if reasonable suspicion exists
Consequences	<ul style="list-style-type: none"> *Teacher/student conference *Parent/teacher conference *Counselor referral *Alternative structure of class *Administrative referral *Contact school counselor/social worker 	<ul style="list-style-type: none"> *Confiscation *Suspension as mandated by DCPS policy *Referral to police *Recommend expulsion

The code of student conduct and discipline policies will initially be established in draft form by the Principal, teachers, staff and interested parents in consultation with the Board prior to opening the school. Early in the first semester and throughout that semester, teams involving all students, staff, and faculty will study, discuss, evaluate, and revise the draft codes and policies. The code and discipline policies will then be approved by vote at school wide sessions during the first semester. Final approval of the code and discipline policies will be subject to ratification of the Board with advice from the Principal. Additionally, the code and policies will be consistent with and not less protective than Chapter 24, "Student Rights and Responsibilities," and Chapter 25, "Student Discipline," of Title 5 of the District of Columbia Municipal Regulations.

f. Professional Development for Teachers, Administrators, and Other School Staff

Key to the success of Thurgood Marshall Academy's academic program will be a strong professional development program for its staff and administration. America's Choice, the Academy's curricular partner, will provide a thorough professional development program.

The Academy teachers will participate in the seminar series conducted by America's Choice that trains teachers in the standards-driven curriculum model that the

Academy will adopt. Additionally, America's Choice will provide on-site technical assistance to the Academy, and further assist its teachers, administrators and school staff in creating a standards-driven school. Furthermore, Academy teachers will work with the Georgetown University Law Center's D.C. Street Law Clinic to receive training in the learner-centered and project-based methodology that the Clinic has successfully employed in the District of Columbia Public Schools for decades. The D.C. Street Law Clinic has years of expertise not only in law-related education, but also in innovative teaching methods (See Appendix C: "Street Law" for a description of the program).

In addition to working with these outside staff development providers, the Academy will enable teachers within the school to support and learn from one another by providing a common preparation time for all teachers in the middle of the day during its first year of operation. While it may not be possible for all teachers to have common-planning time as the student body grows, the Academy will work to ensure that teachers who teach the same subject-matter have common-planning time, so that they can work together to develop the academic program.

g. Structure of the School Day and Year

During its first few years of operation, the Academy will focus on the four primary subject areas: Mathematics, Science, English, and Social Studies. While critical thinking and problem solving will pervade all aspects of the curriculum, the unique law-related component of the curriculum will be integrated into the Social Studies classes.

In order to provide students, many of whom will arrive at the Academy significantly below grade-level, with ample time and opportunity to learn and master subjects, the school day will be structured around four block class periods, each of which will last for 90 minutes. These longer blocks of time, in addition to fewer classes per day than many traditional school schedules contain, will suit both the need of the anticipated student body, and the project-based methodology of the school.

Sample Student Schedule

Time Blocks	Monday	Tuesday	Wednesday	Thursday
9:00-10:40 (extra 10 mins for attendance)	Science	Science	Science	Science
10:45-12:15	Math	Math	Math	Math
12:20-12:50	Lunch	Lunch	Lunch	Lunch
12:55-1:50	Creative Arts/ Physical Education	Creative Arts/ Physical Education	Creative Arts/ Physical Education	Advisory

Time Blocks	Monday	Tuesday	Wednesday	Thursday
1:55-3:25	English	English	English	English
3:30-5:00	Social Studies / Law	Social Studies / Law	Social Studies / Law	Social Studies / Law
5:00-6:30 <i>(5:00-6:00 Teachers available for extra-help)</i>	Mandatory Tutoring/ Mentoring/ Remediation* *exemption for students working with teacher or involve in school- sponsored extra- curricular activity	Mandatory Tutoring/ Mentoring/ Remediation*	Mandatory Tutoring/ Mentoring/ Remediation*	Mandatory Tutoring/ Mentoring/ Remediation*

Time Blocks	Friday
9:00-9:50	Science
9:55-10:45	Math
10:50-11:40	English
11:45-12:35	Social Studies / Law
12:35-5:00	Lunch and "Friday Forum" (Each Friday, the Academy will have either Field Trips, or speakers brought into the school)

Time Blocks	Saturday
10:00-1:00	<i>Saturday Academy (mandatory)</i> -Remediation and Enrichment -Computer Training -Test Preparation

School Year Schedule:

The academic year calendar at Thurgood Marshall Academy will essentially track that of the DCPS, except that classes will begin one week earlier and will end one week

later. In addition, the Academy will most likely conduct student and parent orientation activities and diagnostic testing during the weeks August prior to the commencement of the academic year. This schedule will provide extended yearly learning time without posing undue complications for families who also have children attending DCPS schools. It will also preserve a block of summer time for review and revision of programs, a particularly important function after the Academy's inaugural year. Because the DCPS 2001-2002 school year calendar is presently unavailable, the Board is unable to create a first year schedule with specific dates at this time.

B. BUSINESS PLAN

1. PLANNING AND ESTABLISHMENT

a. Profile of Founding Group

The applicant founding group is the Thurgood Marshall Academy Board of Trustees (Board), located at 600 New Jersey Ave., NW, Washington, D.C. 20001. The Board is an outgrowth of the D.C. Street Law Clinic at the Georgetown University Law Center, a highly-regarded, 28-year-old program in which Georgetown law students teach a law-related course in the D.C. public high schools. Most of the members of the Board are affiliated with D.C. Street Law. All the members bring valuable and varied backgrounds, experiences, and skills to the effort, including significant professional experience prior to attending law school.

The members of the Board are as follows:

Megan Blamble has served as a D.C. Street Law teacher and provided legal representation to indigent D.C. families on special education matters through Georgetown's Family Opportunity Clinic. Ms. Blamble has also completed legal internships with the New York City Legal Aid Society's Juvenile Rights Division and the D.C. Children's Advocacy Center. Upon completing the bar examination, Ms. Blamble will head up the special education advocacy program of the D.C. Legal Aid Society.

Pamela Cherry is a former public elementary school teacher with experience in D.C., Fairfax County, Prince George's County, and Suffolk City, Virginia, and an M.A. in Education. As an intern with the Citizens' Commission on Civil Rights in Washington, D.C., she is part of a team researching and assessing school use of federal Title I funds. Ms. Cherry also completed a legal internship dealing with juvenile justice at the Washington, D.C.-based Children's Defense Fund.

John Commisso is a certified public accountant and former staff accountant with Price Waterhouse LLP, where he performed financial audits of diverse public and private businesses. He has provided legal representation to indigent D.C. families on special education matters with Georgetown's Family Opportunity Clinic. Mr. Commisso also served on U.S. Senator Edward Kennedy's education staff, researching education legislation and court decisions and preparing and drafting statements and writings related to these issues.

Jacquelyn Davis served as a D.C. Street Law teacher at Frank W. Ballou High School and the co-founder and President of Hands On D.C., a volunteer organization that assists with refurbishing D.C. public schools, raising scholarship funds for low-income D.C. youth, and recruiting community residents and organizations to provide volunteer services in D.C. public schools. Ms. Davis has extensive national and state legislative and political experience, including service as a Congressional Chief of Staff and an education policy worker for the Governor of Rhode Island.

Melody Fowler-Green has performed a wide variety of legal research and litigation work in the area of employment and labor law for the Washington, D.C.-based Partnership for Civil Justice, the American Foreign Service Association, and a major Michigan labor law firm. Ms. Fowler-Green was Editor in Chief of the *Georgetown Journal on Poverty Law and Policy* and holds an M.A. in Women's Studies from the University of Cincinnati.

Thomas Hutton has conducted research and federal and state advocacy on public education issues affecting disadvantaged students with the Washington-D.C.-based Center for Law and Education, for whom he is currently co-authoring a parents' guide to high school reform. His state government background in Hawaii includes education policy work, and he served as a summer law associate with a Maine firm representing many public school systems. Mr. Hutton has also provided legal services to a Southeast D.C. community development corporation as a participant in Georgetown's Harrison Institute Housing and Community Development Clinic. He holds a graduate certificate in Public Administration from the University of Hawaii.

Joshua Kern served as a D.C. Street Law teacher at Frank W. Ballou High School in Southeast D.C. He holds an MBA from Tulane University and has significant experience in business and telecommunications consulting for both private and public sector clients. Mr. Kern also serves as an investigator with the D.C. Public Defender Service and has conducted client intake work for the Maryland Legal Aid Service.

Lillemor McGoldrick is an adjunct professor of law with the D.C. Street Law program, where she instructs and trains teachers participating in the program. Ms. McGoldrick is a former high school English teacher who taught inner city students in Los Angeles and was an instructor in the Los Angeles district teacher certification program, where she specialized in portfolio assessment. She has provided legal and policy counsel to Parents United for the D.C. Public Schools as a fellow with the Washington Lawyers' Committee for Civil Rights and Urban Affairs; served as a Congressional fellow in U.S. Senator Edward Kennedy's Office of Education; and authored an article published in the *Georgetown Journal of Poverty Law and Policy* on the importance of community involvement in urban school reform. She was also a Street Law teacher in D.C. public high schools while a law student at Georgetown.

Nathaniel Mills was a D.C. Street Law teacher at Cardozo High School and has worked as a law clerk and investigator with the D.C. Public Defender Service. A former Olympic speedskater and captain of the 1998 U.S. Olympic Team, Mr. Mills is a participant in the Olympikids & Champions in Life outreach programs to D.C. public schools.

Joy Moses was a middle school teacher with Summerbridge San Francisco, where she taught both math and English. As a law student, she has provided special education representation to indigent D.C. families in Georgetown's Family Opportunity Clinic and has also taught at School Without Walls as a participant in the D.C. Street Law Clinic.

Richard Roe is Professor of Law at the Georgetown University Law Center and serves as Director of its D.C. Street Law clinical program. He is founder and director of the D.C. Family Literacy Project, a former program Director for Street Law, Inc., and former Director of Street Law: Corrections, a program serving inmates in D.C. adult correctional

facilities. In addition to his Street Law-related background, Professor Roe currently directs the Georgetown Even Start program, which helps homeless families read with their children. He is Editor and co-author of *Great Trials in American History* and the author of a *California Law Review* article on cognitive research, school learning environments, and student expression.

The members of the Board will serve as the interim directors of the Academy until approval of its charter in the Fall, 2000. Most of them will remain active in establishing and supporting the Academy after it is chartered and its permanent Board of Trustees and executive staff are selected. Four students will return to the Law Center in the fall, and most of those graduating will remain in the Washington Metro area. It is anticipated that Board members will serve on the Board of Trustees, Board of Advisors, and possibly even as staff. In addition, D.C. Street Law faculty will continue to be extensively supportive of the effort.

The Board has also established a student organization at the Georgetown University Law Center that will provide the Academy with substantial volunteer assistance, including tutoring and helping the Academy to access the talents of Law Center faculty. The student organization will be eligible for funding, will have free office space, and will be provided with equipment and supplies.

The Board has held a series of meeting with community organizations and leaders serving the Southeast community and intends for community leaders and residents to be well represented on the Academy's Board of Trustees and Board of Advisors. The community will thus play a decisive governing role in the further development of implementation of this proposal.

The Board is working closely with the America's Choice School Design network, a program of the Washington, D.C.-based National Center on Education and the Economy, to develop the Academy's high quality, standards-based curriculum. The standards contributed by America's Choice are internationally benchmarked and the result of nine years and \$60 million of research, and the program has extensive experience in helping educationally disadvantaged students achieve to high standards. America's Choice will deliver its standards and render significant technical assistance with curriculum and instruction at dramatically discounted rates.

b. Planning Process

The Board was born out of the D.C. Street Law Clinic at the Georgetown University Law Center. Georgetown law students serving as Street Law teachers were frustrated with the low expectations for student achievement they encountered in some DCPS schools and, at the same time, were inspired by the high performance and learning that otherwise underachieving students demonstrated in the D.C. Street Law program. Two students teaching at Ballou Senior High School in Southeast initiated a student-run seminar at the Law Center called *Modern Educational Reform: Charter Schools* to examine issues of school reform generally and to explore the possibility of founding a charter school to serve the Ward 8 community. The students who took the initiative to

become part of this innovative and demanding seminar brought a wealth of diverse professional experience, as well as demonstrated commitment to public education and disadvantaged children. The class envisioned a school that would be dedicated to dramatic improvement of student achievement among disadvantaged and academically marginalized youth.

To work toward making this vision a reality, the group conducted extensive site visits to existing D.C. charter schools and initiated a series of meetings with national and local educational organizations and other community leaders in Southeast. They utilized the assistance of the D.C. Charter School Resource Center and held a series of meetings with representatives of several private curriculum and instruction consulting groups, eventually establishing a relationship with the National Center on Education and the Economy for the delivery of its America's Choice School Design program. The seminar quickly evolved into an organization focused and organized to develop and implement a first-rate charter school proposal.

c. Corporate Structure and Nonprofit Status of the School

Thurgood Marshall Academy is incorporated as a D.C. non-profit corporation and will obtain status as a 501(c)(3) tax-exempt organization. Articles of Incorporation have been filed with the District Department of Consumer and Regulatory Affairs, and documentation pursuant to tax-exemption under the Internal Revenue Code and the D.C. tax code will be submitted.

A separate non-profit organization, the Full Potential Foundation, has also been incorporated in D.C. through the efforts of the Board. Although the Foundation is independent of the Academy, its mission of supporting educational and recreational opportunities for D.C. youth specifically includes support of the Academy through organizational tasks, fundraising, and supplemental youth programs. It is anticipated that the Foundation will be able to implement activities benefiting the Academy and the broader community that might prove difficult for the Academy itself to implement. The members of the Board are serving as interim directors until a permanent Board is selected.

2. GOVERNANCE AND MANAGEMENT

a. Board of Trustees

Governance of Thurgood Marshall Academy will be the responsibility of its Board of Trustees. The Board of Trustees will be recruited by the Board after the Academy's charter is approved. The Board will be composed of between eight and twelve voting members and four non-voting members. Members shall serve staggered, two-year terms to allow for continuity of leadership.

The Board will actively recruit amongst community leaders and organizations from Southeast D.C. to serve as Trustees. The Board's members shall include at least four residents of the District Columbia, including at least two residing east of the Anacostia River. At least two members shall also be parents of currently enrolled Academy students. The Executive Director, the Principal, one teacher other than the Principal, and one student shall serve on the Board as non-voting Trustees. The teacher and students members shall be elected by their peers. Among the characteristics that will be sought among the remaining Board members are experience and expertise in the following areas: secondary education, business and non-profit administration, law, financial management and accounting, fundraising, social services, real estate and property management, and local government.

The Board shall have the following responsibilities:

- X Formally adopt, periodically review, and, as necessary, update the Academy's mission and vision statement;
- X Develop and adopt the Academy's bylaws;
- X Adopt, review, and update the Academy's strategic plan;
- X Oversee and ensure accountability of fulfillment of Academy's mission, school performance, and fulfillment of charter;
- X Appoint members of the Board of Advisors;
- X Meet periodically with the Parent Advisory Council;
- X Hire and evaluate the Executive Director and Principal;
- X Approve the Academy's annual budget and review the budget quarterly;
- X Review the Academy's monthly financial statements;
- X Approve the Academy's educational policies and plans;

- X Approve the Academy's administrative and personnel policies;
- X Ensure the Academy's fiscal accountability and compliance with regulatory and contractual obligations;
- X Raise funds to support the Academy's programs; and,
- X Represent the Academy in the community and in relationships with funders and other individual and institutional partners.

The Board of Trustees will elect from among their members such officers as it deems appropriate, including the following:

- 1) A President, who will preside over Board meetings and provide leadership to and oversight of fellow Board members;
- 2) A Vice President, who will fulfill the President's duties in the event of President's absence or unavailability and who ideally will serve as President at the end of the current President's term;
- 3) A Secretary, who will have responsibility for the maintenance and accuracy of Board records; and
- 4) A Treasurer, who will have responsibility for overseeing the fiscal accountability of the Academy and the accuracy of its financial records.

The Board of Trustees will be authorized to delegate responsibility to standing and ad hoc committees for making decisions, making recommendations to the Board, or carrying out particular functions. The Academy's bylaws will establish standing committees and procedures for establishing ad hoc committees.

In addition to the Board of Trustees, the Academy will have a broad-based Board of Advisors, comprised of individuals and organizations with the commitment and ability to assist the Academy and its students in a wide variety of capacities. The Board of Advisors will enable the Academy to draw on the resources and assistance of a broader range and greater number of individuals than can effectively serve on the Board of Trustees and will enable individuals to make more discrete contributions to the needs of the Academy than serving as Trustees. In particular, it is anticipated that the Board of Advisors will provide significant assistance with fundraising. The Board of Trustees will be authorized to assign members to the Board of Advisors, while ensuring that ultimate decision-making authority and accountability remain with the Board of Trustees.

Reflecting the due process philosophy embodied in the D.C. Street Law program and envisioned in this proposal, the Board of Trustees shall exhibit in all of its operations a commitment to obtaining meaningful input from the Academy's staff, parents, students, and the surrounding community.

b. Rules and Policies

The rules and policies for the governance of the Academy will be embodied in its bylaws, to be developed and adopted by the Board of Trustees. The Board of Trustees will also approve educational plans and policies as proposed by the Principal and organizational, administrative, and personnel plans and policies as proposed by the Executive Director, who will consult the Principal as to matters bearing on the educational program. The bylaws and both sets of policies shall be developed during the start-up year in order to be adopted before the Academy commences operations and shall conform to representations made throughout this application.

c. Administrative Structure

The Academy will feature an innovative managerial structure that will enhance its organizational and educational success while enabling it to avoid some of the typical pitfalls that undermine the effectiveness of charter schools. Primary administrative and business authority will rest with an Executive Director, while primary curricular and instructional authority will rest with a Principal, both of whom shall be hired by, and directly answerable to, the Board of Trustees. These two executives shall serve as co-equals.

The Executive Director will have executive responsibility for business operations and contract management, proposing and implementing budgeting and financial planning (to be approved by the Board of Trustees), fundraising and external relations on non-educational matters, facilities and support operations, and fiscal and regulatory accountability. The Executive Director will serve as the Academy's point of contact for the D.C. Charter School Board.

The Principal will serve as the chief educational officer and head instructor and will have overall responsibility for curricular and instructional matters, including educational program design, implementation, and evaluation; technical collaboration with America's Choice and other educational organizations; oversight of other full-time, part-time, and volunteer educational staff; admissions; parental outreach and involvement; and extracurricular and support programming.

In short, the Principal's responsibility for curricular and instructional decisions and related student and parent programs will enable the Executive Director to give full attention to meeting the Academy's organizational, business, and financial needs. Further, the Executive Director's responsibility for non-educational operations will enable the Principal to serve as a core instructor, focus on providing strong faculty leadership, and ensure the successful development and implementation of the Academy's innovative curricular and instructional philosophy.

The Executive Director and Principal shall collaborate, with Board guidance as necessary, on personnel decisions and business relations with external individuals and organizations dealing with educational matters, as well as on other matters of overlapping

responsibility. The Board of Trustees will develop precise job descriptions and procedures in order to clarify the two officers' respective responsibilities and will continually review and modify the job descriptions and procedures as necessary to minimize any confusion and ambiguities.

d. School Management Contracts

Not applicable.

3. FINANCE

In estimating future revenues and expenses, all figures are based on currently available information and in current dollars. The applicant Board did not apply any inflationary assumptions, as inflation is expected to affect estimated revenues and expenses alike.

The Board determined the following revenue and expense estimates using currently available data from District of Columbia public charter schools and charter schools in other jurisdictions. Further, the applicants consulted with experts in public education and various other public education resources.

a. Anticipated Source of Funds

The Academy is expected to receive funds from four main sources: the per pupil allocation, other public funding, private grants, and corporate and individual donations.

Public Revenues

Based on the fiscal year 1999 per pupil allocation for grades 9-12, the Academy will receive at least \$6,600 per pupil each school year. At this rate, the Academy will receive \$528,000 in Year 1 (80 students), \$1,056,000 in Year 2 (160 students), and \$2,640,000 in Year 5 (400 students, full capacity). The Academy will also receive a facilities allowance of \$617 per student each year. In addition to the per pupil allocation and facilities allowance, the Academy will receive public operating grants based on the needs of the students the Academy will serve. For example, the Academy's students will qualify for federal entitlements such as Title I funding. In the operating budget, the applicants have estimated federal entitlements at \$600 per student each year.

The Academy will receive additional public funds to serve the special needs of its students. For example, the Academy will receive additional funds for special education and limited English proficient students, free and reduced price lunch, transportation, and summer school. Estimated revenues and expenses for these and similar programs and services are not included in the operating budgets. The Academy will use such additional revenues to provide additional programs and services to meet the needs of these students.

The applicants expect to receive a public grant to defray anticipated planning and start-up costs. While the Academy is expected to raise additional revenue from various other public and private sources, it will be prepared, as described in the No Fund Raising Scenario at Table F.2.B, to operate on a smaller budget if the per pupil allocation proves to be the only actual source of funding.

Private Revenues

The Board is actively soliciting additional funding from private foundations, corporations, and individuals. Such revenue will be allocated among the Academy's expected planning and start-up costs and operating budgets.

Upon receiving First Stage Clearance in August, 2000, the Academy will begin incurring expenses in anticipation of opening its doors to students in September, 2001. Revenues and expenses for the ten-month start-up period September 1, 2000 through June 30, 2001 (start-up period) are described in the Pre-Opening Budget at Table F.1.A. Revenues and expenses for the period July 1, 2001 through June 30, 2002 (Year 1) are included in the first-year, twelve-month operating budget at Table F.2.A.

b. Planned Fundraising Efforts

The Academy will employ an Executive Director during the start-up period. The Executive Director will work with the Board of Trustees and Board of Advisors during and after the start-up period to conduct extensive community outreach fundraising activities. During the planning and start-up period, the Academy's cash expenses will be kept to a minimum, as the Academy will rely on in-kind donations of office space, furnishings, equipment, and supplies. The Academy is already the recipient of a \$10,000 planning grant from the Walton Family Foundation, and the Board has begun working with America's Choice to identify and develop appropriate curriculum, standards, and teaching methods for the Academy. America's Choice has made a firm commitment to work with the applicants and the Academy during the planning and start-up period on a *pro bono* basis.

In collaboration with the Executive Director, the members of the Board of Trustees and other interested parties will form a fundraising committee to develop and implement a fundraising plan. This plan will first examine the needs of the school and then identify two categories of funding sources: 1) available grant funds, and 2) direct fundraising activities and events. Regarding potential grant funds, the fundraising committee will utilize the Foundation Center's library to research both local and national sources of prospective grants and will also canvas Academy supporters and friends for corporate and foundation contacts. Regarding direct fundraising activities and events, the fundraising committee will examine contacting alumni of the Georgetown University Law Center Street Law program, conducting fundraising event or series of fundraising events connected to Georgetown University Law Center, and fundraising events centered upon the Southeast community where the Academy will be located. Fundraising costs will be allocated to the budget in the categories of personnel salaries and office expenses.

Once the Academy opens its doors to students in September, 2001, it will offer the highest quality student programs and services by supplementing the per pupil allocation and other public funding with private resources. The Academy is expected to receive grants from foundations, corporations, and individuals earmarked for specific programs and services. The Academy is also expected to receive grants and donations from these private sources to defray its general operating expenses. Assistance with grant-writing and fundraising will be provided by the Board of Trustees and Board of Advisors; as the Academy expands to full scale and fundraising efforts prove fruitful, retention of additional part-time staff or outsourcing of assistance may be considered. In addition, the Academy will rely on in-kind donations of academic services, computers, equipment, library materials, supplies, classroom and office furnishings, and administrative services to the maximum extent possible.

The Academy will recruit and work with, on a *pro bono* basis, individuals and organizations who will act as instructors, teaching assistants, mentors, tutors, and guest speakers. For example, the D.C. Street Law Clinic and Family Literacy Program at the Georgetown University Law Center has made a firm commitment to work with the Academy and provide the services of law students who will teach the Street Law curriculum at the Academy.

The Academy will also secure a revolving line of credit from a local bank. This line of credit will be available for short term borrowing in the event that the Academy is unable to raise anticipated revenues to fund the planning and start-up activities. Further, in the event that the Academy does not raise anticipated operating revenues from private sources, the Academy will use this line of credit as needed during the first months of operation in order to meet its obligations until the first per pupil allocation is received in October, 2001.

The Academy will seek additional funding beyond the per pupil allocation through the following funding sources: national and local foundations, individual donors, corporate sponsorship, law firm sponsorship, and government grants. The Academy has already received a \$10,000 planning grant from the Walton Family Foundation. Additionally, the Academy will explore non-traditional revenue sources such as corporate and law firm-named sponsorship classrooms and for-profit student-run ventures. Moreover, the Academy's innovative programs and target student population lend themselves to niche funding sources for eradicating the "Digital Divide" (computer hardware/technology for classrooms/lab), addressing adult education/literacy, improving student literacy/reading readiness, advancing student math and science achievement, developing after school programs, involving students in community service, providing educational and recreational summer programs, addressing at-risk youth, creating experiential learning programs, and involving students in internships/School-to-Work. Finally, the Academy's unique law-related education curriculum based on the Street Law model will enable it to attract legal funding sources from a range of donors including: individual lawyers, law firm sponsorships, the American Bar Association, other legal organizations, and former Street Law participants.

Foundations: Initially, the following foundations will be targeted for support: Walton Family Foundation, Robert Wood Johnson – Local Initiative Partners Program, Bell Atlantic Foundation, Bagley Foundation, Annie E. Casey Foundation (Educational Reform Initiative), Exxon-Mobil Foundation, George Family Foundation, Commonwealth Foundation, Marpat Foundation, Fowler Memorial Foundation, Meyer Foundation, Cafritz Foundation, Public Welfare Foundation, Fannie Mae Foundation, Philip Graham Foundation, AOL Foundation, Robert F. Memorial Foundation, and Wendling Foundation.

Individuals: The Full Potential Foundation (see Section B.1.c, above) will host annual fundraising events for the Greater-Washington D.C. community. In July of 2001, the Foundation plans to host its first annual Thurgood Marshall Birthday gala, celebrating the life and times of Marshall and other legal rights heroes. The Board plans to involve civil rights, legal, and community organizer heroes such as Congressman John Lewis, Julian Bond, Sarah Weddington, and Kweisi Mfume. The Board anticipates raising \$100,000 from this event. Prior to this event, the Board will host several smaller events, including one targeting the Georgetown University Law Center and Georgetown University communities. The Board has already met with David Wilmot, Former Dean of Admissions of Georgetown Law Center and community leader, who is assisting the Board in meeting with various philanthropic community leaders who may be able to support the Academy. The Board will also mail and phone Georgetown University Law Center and D.C. Street Law Clinic alumni to seek their support.

Partner Institutions: The Academy will collaborate with law firms and other institutions that can provide specific services for program development, in-kind contributions, and financial support. The Board has already met with the law firm of Covington & Burling about the possibility of sponsoring a summer internship/job program and Saturday remedial academy, providing volunteer tutors and mentors, and contributing financially to the Academy. Similarly, the Academy will seek support from many other Washington, D.C. area law firms. The Academy will also seek support from the high-tech companies in the region for programmatic support, computer lab development, classroom technology, summer jobs, mentors/tutors, teacher training, and financial support.

Government Grants: Because the Academy will serve many poor youth defined as at-risk, it will be eligible for Office of Juvenile Justice and Delinquency Prevention and U.S. Department of Education targeted grants. Additionally, its community service component could help it leverage Corporation for National and Community Service and Americorps funds. Finally, the Academy will apply for specific D.C. government funding from the D.C. Housing Authority.

c. Financial Management and Accounting

The Executive Director, among other roles, will serve as the Academy's business manager and, together with the Board of Trustees, will be responsible for the Academy's financial management and accounting. The Academy's fiscal year will begin on July 1, and end on June 30, each year. The Executive Director will maintain appropriate records of all financial transactions and obligations in accordance with sound financial

management and generally accepted accounting principles. The Executive Director, with the Board of Trustees, will develop an appropriate system of internal accounting procedures and controls designed to ensure sound fiscal management, accountability, security, and stability.

Annual Budgeting

Each spring, the Executive Director will submit to the Board of Trustees (1) a detailed operating budget for the following two fiscal years, (2) a capital budget explaining facility, equipment, and other fixed asset expenditures for the following fiscal year, (3) a detailed cash flow analysis for each month of the following fiscal year demonstrating that the Academy will meet its fiscal obligations in a timely manner with an appropriate cash reserve each month, and (4) a five-year operating and capital financial plan describing the Academy's expected revenues and expenditures for the following five fiscal years. Each spring, the Board of Trustees will vote to approve the operating budget, capital budget, and cash flow analysis for the following fiscal year. The Board will review the budget quarterly.

Fundraising

As the Academy's business manager, the Executive Director, together with the Board of Trustees, will be responsible for raising appropriate revenues from all available sources, including the per pupil allocation, public grants, local and federal public entitlements, and grants and donations from private foundations, corporations, and individuals. Each spring, the Board of Trustees will vote to approve an appropriate fundraising strategy for the coming fiscal year, including establishing a fundraising target amount and identifying appropriate sources of revenue. Prior to any fiscal year for which the approved cash flow analysis indicates an expected cash deficiency in any month, the Board of Trustees will vote to approve an appropriate fundraising strategy to eliminate such cash deficiency; such fundraising strategy will rely on short term borrowing of funds only as a last resort and only if such borrowing can be repaid in a timely and fiscally prudent manner.

Administering the Budget

As soon as possible, the Academy will establish a cash reserve and will maintain such reserve at an amount not less than three months operating expenses. The Executive Director will administer available resources in accordance with the budget approved by the Board of Trustees. All expenditures less than or equal to one thousand dollars shall require the approval and signature of the Executive Director. All expenditures greater than one thousand dollars will require the approval and signature of the Executive Director and the Treasurer of the Board of Trustees.

The annual budget approved by the Board of Trustees is an estimate of expected revenues and expenditures; as a result, the budget should not impose an unreasonable burden on the Executive Director's responsibility to expend funds in a manner necessary to achieve the Academy's mission and satisfy its obligations. Therefore, the Board of Trustees will develop and vote to approve appropriate procedures that will allow the

Executive Director to deviate from the approved budget when necessary to achieve the Academy's mission and when in accordance with sound financial management and fiscal accountability, security, and stability.

After the end of each month, the Executive Director will prepare a report comparing actual monthly revenues and expenditures to budgeted monthly revenues and expenditures. Each quarter, the Board of Trustees will review the monthly actual-to-budget reconciliations prepared by the Executive Director. When the Board of Trustees determines that the Academy's actual monthly revenues and expenditures deviate significantly from the approved budget, the Board of Trustees will vote to approve modifications to the budget that appropriately address any unexpected cash excesses or deficiencies.

The Executive Director will have the authority to negotiate and enter into contracts for appropriate services, facilities, equipment, furnishings, supplies, and other resources necessary to achieve the Academy's mission. All contractual agreements requiring expenditures less than or equal to one thousand dollars shall require the approval and signature of the Executive Director. All contractual agreements requiring expenditures greater than one thousand dollars and less than or equal to ten thousand dollars shall require the approval and signature of the Executive Director and the Treasurer of the Board of Trustees. All contractual agreements requiring expenditures greater than ten thousand dollars shall require the approval of the Board of Trustees. Further, the Academy will comply with all requirements regarding public notification and competitive bidding prior to entering into contractual agreements.

Audits

When appropriate, the Board of Trustees will retain the services of independent auditors to review the Academy's internal accounting policies, procedures, and controls and evaluate the soundness of the Academy's fiscal management practices.

d. Civil Liability and Insurance

The Academy will obtain insurance coverage that meets or exceeds the minimum level of coverage the District of Columbia Public Charter School Board recommends. The applicants have obtained an insurance estimate from Alliance Insurance and Financial Services. This estimate, included in Section E: "Certifications," contains a detailed explanation of the level of insurance coverage the applicants believe is appropriate to meet the District of Columbia Public Charter School Board's recommended minimum insurance coverage and the unique needs of the Academy.

e. Provision for Audit

Each year, an independent Certified Public Accountant licensed in the District of Columbia will audit the Academy's financial statements in accordance with Generally Accepted Auditing Standards and all applicable laws and regulations regarding the audit

of public charter schools. The Executive Director will be responsible for ensuring the Academy's sound fiscal management and accounting.

4. FACILITY

a. Identification of a Site

In order best to serve its target population, Thurgood Marshall Academy will be located in Ward 8. For its first and possibly second years of operation, TMA is leasing the third floor and possibly second floor annex from Congress Heights Methodits Church. TMA will have a separate entrance and its own stairwell. TMA's Board of Trustees and Executive Leadership have identified a facility that will serve the school's needs for the first, and possibly the second, year of operations. This facility, at 421 Alabama Avenue, SE, is ideally situated to meet the needs of the target population. Located at the intersection of two of Ward 8's major arteries, Alabama Avenue and Martin Luther King, Jr. Drive, Thurgood Marshall Academy is easily accessible by public transportation. Most SE bus routes have stops within 100 yards of the facility and the new Congress Heights Metro Stop is only a few blocks away.

The Board and Executive Leadership are in the process of searching for a facility to meet the school's needs beyond the initial year of operation, and have partnered with a local real estate consulting firm, Jair Lynch Consulting, to ensure that the needs of the school as it expands are met. Jair Lynch Consulting is also working with the Board and Executive Leadership to ensure that the school's needs are met at the 421 Alabama Ave. facility.

~~Thurgood Marshall Academy will lease the 421 Alabama Ave. facility from the Congress Heights Methodist Church. The facility, which is the 7000????sq. foot annex to the Church, is equipped with the following:~~

- X five classrooms, depending on initial enrollment;
- X Space for computers and library resources;
- X Space for a common and/or dining area;
- X Space for administrative offices;
- X Restrooms;
- X A kitchen facility, although this could, if necessary, be located off-site;
- X Handicapped accessibility; and,
- X Either on-site facilities or convenient access to facilities for related and extra-curricular activities.

The Academy will probably lease its site initially, although as the student population grows to scale and fundraising expands, acquisition of a site may be considered. Use of an existing non-school facility will require renovation to configure the space to serve the needs of the students and staff. The Board also recognizes that an interim site located outside the targeted community may be necessary in order to commence operations on schedule while a permanent facility is secured. In such an eventuality, the Academy will work closely with the target community, its support network, and local transit authorities to ensure that the student population is drawn from the target community and that transportation and other resulting complications are addressed.

To identify a suitable site, the Board is pursuing or will pursue the following possibilities:

- X There is significant vacant DCPS school space in Southeast D.C., either in partially utilized or altogether vacant facilities, and the D.C. Financial Control Board recently voted to give the Mayor control of at least 32 under-utilized school facilities in order to make such sites available for charter schools.
- X The Board has met with Mrs. Cora Barry of the Wish List Foundation to explore the possibility of a collaborative relationship under which the Academy could utilize the state-of-the-art Southeast Tennis and Learning Center off of Wheeler Road, which will include suitable space and is scheduled for completion at the optimal time for the opening of the Academy.
- X The Board is approaching non-profit community development corporations, including Marshall Heights CDC, East of the River CDC, Anacostia Economic Development Corporation, and Wheeler Creek Estates CDC, all of which are developing and rehabilitating commercial property in Southeast, D.C., and some of which have initiated their own charter school efforts.
- X The CDSG has also begun contacting private, for-profit developers, realtors, brokers, and property managers for assistance in identifying potential sites. These include Steven Klebanoff of Sumner Partners, an experienced real estate and property development firm that has handled school projects (see attached letter in Appendix A).

The Board will continue in its efforts to identify potential sites during the application review period. Upon approval of its charter, the Academy anticipates the following time frame for identification, lease, and, if necessary, renovation of a site:

Site search:	Ongoing
Site selection:	December 2000
Lease negotiation & formalization:	January 2001
Architectural planning, if applicable:	February 2001
Renovation out to bid, if applicable:	March 2001 <u>January 2001</u>
Selection of contractor, if applicable:	April 2001 <u>February 2001</u>
Completion of renovation:	June 2000 <u>May 2001</u>

b. Site Renovation

Not applicable as yet. ~~Jair Lynch and Architect Milton Shineberg are completing the final feasibility study and securing the necessary building permits. Renovation entails adding walls, upgrading the bathrooms, and increasing the electrical supply of the building.~~

c. Financing Plans for Facilities

Funding for the lease and possible renovations shall be through DCPS funding augmented by private grants, other private donations and/or financing, and in-kind donations.

d. Building Maintenance

Building maintenance and code compliance will likely be a function of the landlord and governed by the lease agreement. In any event, the Academy will operate its facility in strict compliance with applicable codes and standards requirements. It will likely contract for basic custodial services and will provide for whatever more significant maintenance not provided by the landlord through contractual or in-kind services. The Academy, through the Executive Director, will provide for an annual comprehensive internal review of code and standard compliance.

5. RECRUITING AND MARKETING

a. Outreach to the Community

See 4.b Community Participation (above) for a more detailed and current community outreach program.

The Thurgood Marshall Academy Board of Trustees (Board) has already begun to build a relationship with the community the Academy will serve and will continue in its efforts to engage and educate policy makers about the goals and visions of the school. The Board thinks it vitally important to engage the community (both locally and in the District of Columbia generally) in this effort. It is important to the Academy's mission that potential students of all levels of ability and circumstance are made aware of the educational opportunities at the Academy and that the legal community in D.C. is equally aware so that the Academy may draw on their expertise, experience, and resources. Along with the efforts of the Executive Director, the Academy's Parent and Community Development Coordinator will spearhead community outreach efforts.

The Board views the Academy's potential relationship with the community as a reciprocal one. The Academy can provide resources for the community, while its outreach efforts can provide important learning opportunities for its students. For this reason, its outreach to the community will include efforts to create long-lasting

and meaningful relationships. There are a number of avenues that the Board has and will continue to pursue in an effort to reach out to the community:

- ◆ *Local Public Schools and Guidance Counselors.* Making local school educators, Principals, and guidance counselors aware of the program the Academy will offer will be important to its recruiting efforts. These individuals are uniquely positioned to identify those students who would be most interested in the Academy's programs and to assist in recruiting those students whose parents may not contact us on their child's behalf. Further, the recommendations, support, and experience of this group of educators will be important to the Academy's future success. These educators will be expressly invited to all informational sessions and will be directly contacted by the Parent and Community Development Coordinator.
- ◆ *Community and Civic Organizations.* The Board recognizes local community support as vital to the Academy's success. The Academy's contacts and partnerships with local grassroots organizations, advocacy groups, community development corporations, and other community groups will provide help in a number of ways: it will be better able to assess community needs; these organizations can provide internships and other community service opportunities for students; and these organizations will serve important roles in recruiting students.
- ◆ *Students and Faculty of Area Colleges and Research Institutions.* The students and faculty of area colleges, particularly the Georgetown University Law Center, have been, and will continue to be, helpful in curriculum development, program development, research resources, and vision. Students and faculty of area institutions will be able to serve as tutors, academic role models, and staff in the Academy's literacy, GED preparation, and financial management programs.
- ◆ *Parent/Family Organization and Programs.* The Academy's Parent and Community Development Coordinator and Parent/Family Organization will be at the center of its efforts to reach out to the community. They will together ensure that the Academy's relationship with the community is reciprocal, providing the community with needed services, while drawing resources and information from the community for its students.
- ◆ *Government Agencies and the Legal Community.* Government agencies and the legal community in D.C. will provide excellent venues for teaching an understanding of the law and its impact on our society. Students will be able to observe our democratic system first-hand as interns. They will also be able to learn directly from policy makers and legal decision-makers as individuals from these agencies and the legal community serve as guest speakers and teachers and will serve as judges in mock trials.

b. Recruitment of Students

At full operation, the Academy will serve grades 9-12. It will recruit 80-100 9th

grade students for the first year. Each year a grade will be added to the school until the Academy reaches full enrollment: 240-400 students. The Academy will recruit from youth and community organizations, churches, public housing, charter schools and other middle schools in Southeast Washington, D.C. The Board has met, and will continue to meet, with civic and church leaders, local public school principals and guidance counselors, and social workers so that they may refer students to the Academy. The Board has already established partnerships and close links with a number of community organizations (Covenant House, Habitat for Humanity, AMEN, and Wheeler Creek CDC) and individuals and intends to draw on their experience throughout the recruiting process and enlist their help. The Academy will also draw on contacts throughout Georgetown University Law Center and the D.C. legal community for publicity.

In addition, the Academy will recruit students from the Bolling Air Force Base in Southeast Washington. The Base community will offer a diverse mix of students, a fact that will inure to the benefit of all students on the campus and will honor Thurgood Marshall's vision of diversity in the American classroom. Further, recruiting from the Air Force Base is expected to present significant additional opportunities for resources and partnerships for Thurgood Marshall.

The Academy will hold informational neighborhood meetings sessions hosted by local residents beginning in February 2001, in the winter and early spring following the first year of operations, led by the Parent and Community Development Coordinator. These neighborhood meetings will give local residents an opportunity to learn more about TMA and to give feedback about its design. Additionally, Councilmembers Sandy Allen and Kevin Chavous are hosting a TMA informational meeting for community leaders.

Following these neighborhood meetings and the Councilmember meeting, TMA will host a larger public forum for interested parents, community members, and students. This public meeting sessions will provide interested parents and students with information regarding the school's philosophy, curriculum, methodology, and future plans and will allow students and parents to meet representatives from the Academy. This meeting sessions will be open to all and will be conducted every year. In conjunction with the Principal and Executive Director, The Parent and Community Development Coordinator will market the school through its many community partnerships, while always seeking more partners.

TMA The Coordinator will make every effort to market the school to students whose parents may not contact us through educators, school guidance counselors, and social workers. Additionally, TMA's leadership will recruit students by conducting informational meetings at local churches and public housing communities. Finally, TMA will advertise in the local newspaper, The Informer, and on the radio to recruit students.

Applications may be filled out in a number of ways:

- (1) An application may be picked up at any number of participating youth organizations and community partners, and returned by mail.
- (2) An application may be filled out during one of the informational sessions (with or without the assistance of Thurgood Marshall Academy Staff).
- (3) Interested parents and students may make an appointment with a staff member for

assistance with the application process.

The final deadline for fall applications will be July 30, 2000. Enrollment in the first year will be determined strictly by lottery in accordance with section 2206(c) of the D.C. School Reform Act. After the first year, preference will be given to siblings, then to students in the surrounding neighborhood. Again, further enrollment in subsequent years will be determined through a lottery.

In the unlikely event that significantly fewer applications are received than in expected, the Academy will consider implementing its No Fund Raising scenario described in Section F.2, below. It is also expected that any such under-enrollment would be a temporary and one-time phenomenon, as the Academy's reputation after the first year of operations would generate increased enrollment during the first academic year and in subsequent years.

c. Future Expansion and Improvements

The Academy is expected to enroll 80 ninth grade students during its first year of operation. A grade will be added each year until the Academy is at full operation, serving 9-12 grades and a maximum of 400 students.

The Academy will be located in a facility suitable for approximately 200 students during its first two years of operation. During these two years, it will locate a permanent facility with the capacity to serve the expected 9-12 grade population. Depending on public school building and commercial real estate property availability and fundraising efforts, the Academy will plan to rent, remodel, or build an appropriate facility.

As its student body grows grade-by-grade, the Academy will hire additional faculty/staff and develop more diversified curriculum to meet the needs of academically advancing students. It will continue to recruit long-term, exceptional teachers; new, energetic teachers; and volunteers to build the core curriculum, sports, foreign language, creative arts, mentor/tutor, and extracurricular programs.

C. PLAN OF OPERATION

1. STUDENT POLICIES AND PROCEDURES

a. Timetable for Registering and Admitting

Thurgood Marshall Academy will begin actively recruiting students on March 1, 2001, or upon final approval of its charter application, whichever comes later. The tentative due date for applications is June 1, 2001, to allow for sufficient information about the school and recruitment of prospective students. If more applications are received than seats available, a lottery will be conducted and selected students and a numbered wait list will be determined by June 15. Registration for accepted students will begin June 15 and continue thereafter. The recruitment, registration and admissions process will occur prior to the registration process of the D.C. Public Schools, which typically occurs in late August

b. Policies and Procedures for Selection, Admission, Enrollment, Withdrawal, Suspension, and Expulsion of Students

Selection, Admission, Enrollment, Withdrawal

The Academy will be open to all D.C. students eligible to attend the ninth grade (and succeeding grades as more grade levels are added), with the only limit being the number of available seats. The Academy will not discriminate on the basis of academic or athletic ability, measures of achievement or aptitude, disability, proficiency in English, or any other basis prohibited by law. Given the anticipated location in the Southeast of the District of Columbia, the Academy's Board of Trustees (Board) anticipates that the large majority of students will be drawn from that section of the city.

The application process will be designed to inform interested families and prospective students about the goals and educational approaches that characterize the Academy. This process will include 1) a brochure describing the school's goals, objectives, methodology, and plan of operation; 2) scheduled group informational meetings about the school; 3) informational interviews for interested families and students with the Principal and/or other members of the faculty or directors; and 4) an application which requires students to describe their understanding of the school's principles, their interest in attending the school, and their commitment to the course of study involved in the school. The applications will not be used to differentiate among prospective applicants in the admissions process, but rather will serve as a threshold expression of interest in and commitment to the school.

The Academy will utilize the proof of residency requirements established by the D.C. Public Schools. Following acceptance, applicants will enroll in the school. Withdrawal will be permitted at any time.

Suspension and Expulsion

As indicated in the section on "Safety, Order and Student Discipline," Section A. 4.b, above, the Academy will adopt both a code of conduct and disciplinary policy that will establish positive and prohibited behaviors. The sanctions for prohibited behaviors will include suspensions and expulsions. The standards for suspensions and expulsions will be at least as protective of student rights as required under the United States Constitution and federal and District of Columbia law and regulations and will be consistent with fundamental principles of due process of law. Students subject to suspension for alleged conduct not subject to expulsion will be provided notice and an opportunity to be heard prior to suspension. Students subject to suspension for alleged conduct that may lead to expulsion may be suspended immediately, but will be provided notice and an opportunity to be heard suspension within two school days of suspension. During suspension, students will be provided with academic support and counseling to remediate any problems leading to the suspension and to assist the student in completing academic work during the suspension.

2. HUMAN RESOURCE INFORMATION

a. Key Leadership Roles

As described previously (see Section B.2.c, above) the Academy's critical leadership functions will be filled by the Executive Director and the Principal, although some of these functions may eventually be delegated to additional staff as the Academy grows to scale. The Board appreciates the importance of these positions to the Academy's success and is committed to conducting an extensive search a competitive hiring process to retain the most qualified and promising persons for these positions.

The Principal will serve as the chief educational officer and head instructor and will have overall responsibility for curricular and instructional matters, including educational program design, implementation, and evaluation; technical collaboration with America's Choice and other educational organizations; oversight of other full-time, part-time, and volunteer educational staff; admissions; parental outreach and involvement; and extracurricular and support programming. ~~The Board's Lillemor McGoldrick will have primary responsibility for educational and curriculum related functions during the planning period until such time as the Board of Trustees begins a competitive process to hire the Principal of the Academy (See Appendix D for Lillemor McGoldrick's resume).~~

Principal

Duties: Chief educational officer and lead instructor, responsible for curricular and instructional matters; program design, implementation, and evaluation; supervision of instructional personnel; parental and community outreach and involvement; extracurricular and support programming; and, in collaboration with Executive Director, personnel recruitment.

The Executive Director will have executive responsibility for business operations and contract management, proposing and implementing budgeting and financial planning, fundraising and external relations on non-educational matters, facilities and support operations, and fiscal and regulatory accountability. The Board's Joshua Kern will have primary responsibility for administrative and business functions during the planning period until such time as the Board finishes the hiring process for this position (See Appendix D for Joshua Kern's resume).

Executive Director

Duties: Chief administrative and business officer, responsible for financial and business operations; human resources management; contract and grants management; financial planning; budget proposal and implementation; development; supervision of non-instructional personnel; community outreach and relations; and, in collaboration with Principal, personnel recruitment.

TMA has hired its Principal and Executive Director to begin in March, 2001.

Joseph Feldman, Principal

With his background and experience with high school students in both an educational and legal capacity, Mr. Feldman is the perfect fit for TMA. Mr. Feldman was most recently an Assistant Principal at Washington Irving High School in New York City, where he was the supervisor of a "house"—one of eight semi-autonomous schools within the larger facility. In that role he was responsible for the education of 450 high school students and twenty faculty members, as well as serving as the Chair of the English department for the entire school of 2600 students. He has chaired the Manhattan Superintendent's Committee on Literacy and been a consultant for the Massachusetts Department of Education's charter school office. He is a graduate of NYU Law School, during which time he chaired a program in which law students taught high school students legal concepts. He also worked represented court-involved juveniles. During his second year of law school, Mr. Feldman received a fellowship to be a policy advisor to U.S. Secretary of Education Richard Riley's Chief of Staff. Before law school he earned a Master's Degree in education from Harvard. Mr. Feldman taught high school English and history for several years in an urban high school in Atlanta where he received Georgia's "Star Teacher Award." He has published articles on employment discrimination and school desegregation.

Joshua Kern, Executive Director

As co-founder of TMA, Mr. Kern became interested in creating a high-standards, law-related education charter high school for students of Southeast, Washington, DC while serving as a D.C. Street Law teacher at Frank W. Ballou High School in Southeast D.C. In addition to completing his JD at Georgetown Law Center this May, Mr. Kern holds an MBA from Tulane University and has significant experience in business, technology, and telecommunications consulting for both private and public sector clients. In his consulting experience, Mr. Kern developed and oversaw budgets, created and re-designed technology systems, and managed and trained employees.

If there is one thing for which the Academy will not want, it is legal counsel. Covington Burling is serving as TMA's pro bono counsel and Patton Boggs, Hogan

Hartson, and Williams and Connelly are all helping TMA. Six members of the CDSG have graduated from Law School, and any one of them could serve as interim legal counsel during the planning until such time as the Board of Trustees obtains permanent legal counsel. It is the goal of the Academy to obtain such counsel by offering Board positions to qualified partners and/or associates at prominent DC law firms and relying significantly on well-coordinated *pro bono* services.

b. Qualifications of School Staff

Thurgood Marshall Academy will ensure that its instructional staff, as well as its administrators and support personnel, are qualified to fulfill the Academy's mission, teach and develop the curriculum upon which it is modeled, carry out its instructional strategy, and meet the demands of its daily calendar.

Some members of the Board will be involved in the day-to-day operation of the school, although full-time positions will be filled through a competitive process. TMA's Principal will hire its teaching faculty and the Executive Director will hire the non-academic staff. As TMA the Board intends to attract talent from the broadest possible pool, teachers and administrators will not be required to have teaching certification, though they will be required to have extensive training in their discipline, experience working with high school students, and an ability to assess student progress and adjust instruction to meet student needs. As previously mentioned, the Academy will implement an extensive Professional Development Program in which all teachers will participate.

Because of the extended-day/extended-year nature of the Academy's schedule, teachers and administrators will be required to work a somewhat longer day than at a traditional school, and will also work a longer academic year.

Given that the Academy will be a law-related school, the Board plans to draw on the talent of local attorneys, judges, and other legal professionals during law-related projects. In the creative arts and physical education component of its curriculum, the Academy also plans to draw from the talent of local artists, dancers, journalists, and athletes, to help guide the students in these areas.

To ensure the safety of all Academy students, background checks will be conducted on all Academy faculty and staff, as well as on the volunteers who will work with the school.

Teaching Criteria:

- Knowledge, understanding, and successful demonstration of working with colleagues to develop interdisciplinary curriculum.
- Knowledge, understanding, and successful demonstration of providing a challenging and rewarding learning experience in an urban setting for students with below grade-level skills.
- Knowledge, understanding, and successful demonstration of using authentic assessment tied to specific student outcome targets.

- Experience using technology to support learning.
- Successful demonstration of working as a flexible, contributing member of a team of professionals.
- Active pursuit of continual professional growth and commitment to support colleagues in their growth.
- Knowledge, understanding, and successful demonstration of working with minority and urban adolescents who may have significant academic needs.
- Eagerness to and ability to work comfortably with the parent community and business partnerships.
- Energetic and thrives on change.
- Strong work ethic and commitment to success of every child.
- Ability to design and implement innovative curriculum, relevant to students' lives.
- Strong educational background and knowledge of their subject area.
- Understanding of cognitive, behavioral, and emotional aspects of the early adolescent.
- Creative, enthusiastic, and passionate in their approach to teaching and learning.

c. Staffing Plan

Thurgood Marshall Academy will strive to maintain a pupil-teacher ratio of no more than 20 to one. During its first year of operation, there will be four teachers hired to teach no more than 80 students.

During its first year of operation, in addition to a Principal and Executive Director, the Academy will hire one teacher to cover each of Academy's major curricular foci—English, Social Studies/Law, Science, and Mathematics. The Principal will serve as one of these core content teachers in addition to serving as the curriculum leader for the school. Additionally, the Academy will hire two "mid-level" teachers (teachers with significant teaching or career experience), and one "first level" (early career) teacher. In addition to full-time teachers, one part-time teacher aide will be hired to assist the full-time teaching faculty.

During its first year, the Academy will have one full-time social worker/counselor to assist students, as well as an administrative assistant to help the school's administrative leaders. All of these positions are identified in the school's operating budget. The only position which remains contingent upon fundraising is that of the Executive Director, who will perform the business manager function. In the unlikely scenario that the Academy cannot fund this position during its first year, this role will become a joint-function of the Principal and the Board of Directors, and the position will be fully funded during the Academy's second year as the school enrollment and funding increase.

Because the Academy will be expanding by one grade level every year for its first four years of operation, the staffing situation will vary greatly from one year to the next. The Academy's projected budget reflects the hiring of four additional teachers during its second year, as well as a second teacher's aide, a full-time custodian, and a full-time

special education coordinator (a role which will be filled by one of the four core teachers during the Academy's first year of operation).

d. Employment Policies

See attached Employment Policies.

~~The Academy Board of Trustees will be responsible for developing staff contracts, evaluation plans, and other personnel policies, and will begin to do so immediately after it convenes, completing these tasks no later than one month before hiring begins. In order to ensure the rights and benefits of any current DCPS employees who may choose to work at the Academy, the Board will draw upon policies from DCPS and other existing schools to create its personnel handbook. The Academy intends to be an equal opportunity employer that provides fair treatment and compensation to its employees, while considering the needs of its students and the school community as a whole.~~

e. Use of Volunteers

The Academy is expected to attract high quality, committed volunteers from a variety of institutions and organizations who will contribute to its academic and enrichment programming in addition to staffing its mentoring and tutoring programs. Given the Academy's connections to both Georgetown University and the Georgetown University Law Center, it will utilize undergraduate and law student volunteers. Both educational centers are expected to collaborate with the Academy to sponsor well-organized volunteer programs. After completing an extensive weekend training program, undergraduate students will staff the one-on-one, regular weekly literacy and math remedial tutorial sessions for Academy students. Law students will also help tutor Academy students, but they will primarily be used to teach specialized legal curriculum units and to coach and prepare the students for mock trials, debates, and legislative sessions.

The Academy will count on the support of lawyers from affiliated D.C. area law firms. Each student will be paired with a lawyer mentor who will meet with the student bi-monthly. During the annual "Shadow Day," each student will shadow his or her mentor at work and learn more about what the mentor does and how the professional world works. Law firm mentors will be asked to assist students in finding summer jobs and planning for college. The mentors will be provided college counseling information to allow them to reinforce the guidance the students will already receive from the Academy. Additionally, lawyer mentors may augment the tutoring efforts and support the law student mock trial and legislative session coaches in their efforts to prepare the students for culminating educational events.

The Academy will utilize the broad resources of Washington, D.C., and its vast diversity of professionals to expose the students to different professions and experiences. The Academy will host guest speakers and sponsor field trips and educational expeditions.

Finally, local creative artists in the areas of visual arts, dance, and theater will instruct the Creative Arts program.

3. ARRANGEMENTS FOR MEETING DISTRICT AND FEDERAL REQUIREMENTS

a. Health and Safety

The Academy will permit inspection by all appropriate government officials to ensure that the school complies with all federal and District health and safety regulations pursuant to §§2202(11) and 2204(c)(4) of the D.C. School Reform Act. The Academy will always have a faculty member on duty trained in first aid and CPR to ensure the continual health and safety of all students and faculty.

b. Safety and Fire Codes for Buildings

The Academy will meet the requirements of D.C. Code §5-501 *et seq.* for fire safety. Additionally, all facilities will be in compliance with the appropriate sections of the Americans with Disabilities Act.

c. Transportation

The Academy will arrange for its students to receive reduced school fares on the Metrobus and Metrorail pursuant to §2208 of the D.C. School Reform Act. The Academy will participate in the Metro student token bus program, and tokens will be made available to all students on campus. Furthermore, the school will make arrangements with the appropriate Metro officials to re-route public transportation in the event that the facility is not adequately served by existing routes. Finally, the Academy will seek assistance from DCPS to provide transportation to students with disabilities who are not adequately served by public transportation.

d. Enrollment Data

The Academy will keep meticulous records of student enrollment and attendance and provide a compilation of the same to the D.C. Board of Education and the Public Charter School Board as required by §2204(c)(12) of the D.C. School Reform Act.

e. Maintenance and Dissemination of Student Records

The Academy will responsibly maintain a computerized database of all records required by the D.C. School Reform Act, parts B and D, and other applicable laws, including D.C. Code sec. 31-401 *et seq.* (Compulsory School Attendance); 31-501 *et seq.* (Immunization of School Students); 31-601 *et seq.* (Tuition of Non-Residents); 29-501 *et seq.* (Non Profit Corporations). The records will be continuously updated and monitored throughout the academic year, and will be disseminated upon request by appropriate DCPS and other public charter school authorities.

f. Compulsory Attendance Laws

The Academy will keep meticulous enrollment and attendance records to ensure that every student is accounted for every day. The Academy will take appropriate steps to remedy persistent infractions of school and District requirements.

g. Subchapter B of IDEA & Subsection 504 of Rehabilitation Act of 1973

The Academy's special education program will be developed with the assistance of the DCPS Office of Special Education to ensure compliance with federal requirements.

h. Title I of the Improving America's Schools Act

The Board expects the Academy to be eligible for Title I funding, as at least 75% of its students' family income will be well below poverty. These funds will primarily be used for literacy and math remediation programs to help the students achieve greater academic success.

i. Compliance with Civil Rights Statutes and Federal and D.C. Regulations

The Academy, consistent with its due process philosophy, will be in full compliance with all federal civil rights statutes and District regulations to ensure that all students, volunteers, and employees will not be discriminated against in any way.

4. IMPLEMENTATION OF THE CHARTER

a. Timetable

The following table details tasks completed to date.

Task	Completed
Work with America's Choice to develop standards for Academy's curriculum	April 2000
Begin Search for Facility	March 2000
Establish relationship with bank (First City Bank)	May 2000
Secure start-up grant (\$10,000 from Walton Foundation)	May 2000
Incorporate Thurgood Marshall Academy and Full Potential Foundation	May 20 2000
Submit final application	June 5, 2000

The following schedule details the courses of action over the next 15 months in preparation for opening the school in August, 2001.

Task	Timing
Facility site search	June – November 2000

Task	Timing
Facility site selection	December 2000
Finalize site plan	February 2001
Identify sub-contractor(s) for renovation	April 2001
Complete application for 501(c)(3)	December 2000
Conduct first fundraisers to secure minimum of \$100,000 in funding	September 2000
Start renovation	April 2001
Complete renovation	June 2001
Write by-laws for Board of Trustees	June 2000
Finalize insurance plan	December 2000
Begin marketing	October 2000
Student application deadline	May 2001
Conduct student lottery	May 2001
Baseline testing of students	August 2001
Submit fundraising proposals	May 2000-August 2001
Recruit mentors and volunteers	May 2000-August 2001
Hire Principal and director of operations	January 2001
Hire teachers	January 2001-April 2001
Hire staff	June 2001-August
Finalize Board of Trustees operating policies	June 2001
Form Board Committees	June 2001
Raise additional \$100,000 from foundations and other private donors	August 2001
Purchase books supplies and equipment	June 2001-August 2001
Conduct Staff Development	April 2001-August 2001
Conduct orientations for students and parents	March 2001-August 2001

b. Major Contracts Planned

Other than the planned contract with America's Choice, the Board ^{has} have no major contracts planned at this time.

c. Orientation of Parents, Teachers, and Other Community Members

The Board recognizes that the Academy's experiential learning teaching strategies and law-related focus may be unfamiliar to many parents and community members. To familiarize new members of the Thurgood Marshall Academy community with the due process method and educational philosophy, the Parent and Community Development Coordinator will conduct mandatory school-wide orientation sessions prior to the start of the school year for new parents, teachers and community members.

All members of the Academy faculty, including the Director of Operations, will attend orientation. The Board views orientation as an opportunity to ensure that parents and community members feel immediately invested in the educational environment, as

well as an opportunity for the faculty and staff to form meaningful relationships with the community they are serving.

Orientation sessions will also provide new parents, faculty and community members with an overview of the resources that are available to them, and the sessions will be conducted in a “learning expedition” manner that resembles the method of instruction that will be used in the classroom. Parents and community members will have an opportunity to experience first hand the quality of education their children will be receiving.

Finally, orientation will provide an interactive forum for voicing ideas, concerns, and suggestions that will ensure that the needs of the school and the larger community are met.

d. Services Sought from the District of Columbia Public Schools

Currently, the Board does not anticipate that the Academy will seek any services from DCPS, with the possible exceptions of seeking transportation services for special education students and food services.

D. PUBLIC CHARTER SCHOOL ACCOUNTABILITY PLAN

See attached Accountability Plan and Accountability Matrix.

1. GOALS AGAINST WHICH THE SCHOOL WILL BE JUDGED

~~Thurgood Marshall Academy will have three overarching goals: 1) student achievement; 2) student civic participation; and 3) institutional excellence (for more detail on these goals, see Section A.1.d. Goals, above). These three areas are tied together by the Academy's due process model for its instructional approach and its law-related focus for its central thematic content. They are further cemented by the "New Standards" instructional and assessment approach developed by the Academy's prospective partner, America's Choice Design Network (see Appendix B, "America's Choice School Design Network's New Standards").~~

~~The goals and objectives for students attending the Academy will evolve as the school expands to full capacity and it can more readily identify the academic needs of its population. However, some academic goals, such as the expectation that ninth grade students who enter the Academy achieving at or below grade level will reach standard grade level skill ability or above average capability in all academic areas by the time they graduate, are non-negotiable. Similarly, the Board is firmly committed to ensuring that all graduating students achieve proficiency and mastery in all subject areas, to be demonstrated by meeting America's Choice national performance standards. Finally, the Academy's highest aspiration will be to cultivate in every student an appreciation for the value of education, including the motivation and desire to better oneself through learning.~~

~~The Academy will expect its students to participate actively in their communities and to develop an understanding about how law and civic responsibilities shape their lives and how they can, in turn, shape the law and their communities. The Board believes these goals are best learned through experiential and project based learning. By working together on community based projects that serve some need in the area, students will develop an understanding of what it means to be a responsible citizen and make a difference in their community. To this end, the Academy will set the following substantive goals for civic participation:~~

- ~~1) All students will spend at least one month each year in an internship or externship with a public interest or private organization.~~
- ~~2) Students will complete a minimum of 25 hours of community service each year.~~
- ~~3) Each year at least 25 volunteers from professional and community based organizations will visit the school, interact with students, and help implement special programs.~~
- ~~4) Students will demonstrate an ability to work together effectively as a team.~~
- ~~5) Students will demonstrate respect for themselves, their peers, their families, and their communities.~~
- ~~6) Students will demonstrate increased self-esteem and develop higher expectations for~~

themselves and confidence in their abilities.

7) ~~Students will learn to take responsibility for themselves and for their actions.~~

——— Finally, the Academy will be committed to creating a well-functioning and professional educational institution that is responsive to the needs of students, parents, and the community it serves. To achieve this goal, it will be imperative that the Academy meet the following standards for excellence:

- 1) ~~On-going viability in terms of fundraising, cash flow, student enrollment, and attraction of high-quality faculty.~~
- 2) ~~Development of a unique four-year law-related education curriculum which can serve as a national model.~~
- 3) ~~Recruitment of faculty members and community volunteers from a variety of backgrounds to foster the educational vision of the school, including locally and nationally renowned educators, advocates, and professionals.~~
- 4) ~~Substantial involvement of parents and community members in the long-term success of both the Academy and its students.~~
- 5) ~~Creation of an educational environment that fosters student success and instructional creativity and support.~~

2. INDICATORS OF PERFORMANCE

Student Achievement

——— The overriding objective of the Academy is to provide a quality education to each student who walks through its doors. To meet this goal, the Board has chosen to work with the America's Choice Design Network, which incorporates world-class academic standards for what students should know and be able to do, as well as a performance assessment system that measures whether students are reaching the standards. Central to the model is the adoption of broad academic learning goals for students. These broad learning goals correspond to clear performance standards—the New Standards Performance Standards—in the core areas of English language arts, mathematics (including algebra, geometry, probability, and statistics), and science (including physics, biology, chemistry, and earth sciences (see Appendix B, “America's Choice School Design Network's New Standards”).

The New Standards assessment approach uses three interrelated components: “performance standards, an on-demand examination, and a portfolio system” in each subject area or project. Performance standards include both “performance descriptions (detailing what students should know in the subject areas as well as the associated cognitive and expressive skills connected to the knowledge base) and “work samples and commentaries” (exemplary standards of student work as models of ranges of

achievement, particularly of excellence). The performance standards have been established through extensive collaboration with national professional organizations and through and thorough research. In disciplines where America's Choice has not yet developed formal performance standards, the Academy will develop a set of rubrics setting out ranges of student achievement in these areas. For example, for law-related topics, such as mock trials, negotiations, units on individual rights and other law-related areas and activities the Academy will work with the D.C. Street Law Clinic and Street Law, Inc., to develop appropriate rubrics and standards during the planning year.

Student Civic Involvement and Non-Academic Goals

At the Academy, even nontraditional educational goals will have quantifiable benchmarks. Copies of the overarching civic participation goals will be kept on record and form part of a system of accountability for the school. Each year, each student, together with her or his parent/guardian and an Academy Advisory teacher will set individual goals for a student that will be incorporated into an Individual Learning Plan (ILP). This ILP will be set forth both academic and non-academic educational objectives and will be used by both the students and administrators. Throughout the year, student programs will be monitored to ensure that ILP goals are achieved and appropriate support is provided. The monitoring of a student's individual progress will be conducted during a student's weekly Advisory class. During Advisory class, students will update and maintain community service and internship and externship portfolios, logs, and monthly reports.

Institutional Excellence

The America's Choice School Design includes a school planning and management component, called *Planning for Results*, that will be integral to ensuring that the school achieves its standards of excellence. Planning for Results is matched to the instructional system and requires the constant analysis of student performance data and uses that data as the basis for ongoing adjustments to meet the needs revealed by the analysis. This tool will be used to develop the school's overall accountability plan. The school's accountability plan will provide the framework for information needed to measure and track the school's progress towards its goals, make program adjustments where needed, and report to parents, the community and state on performance and progress. More information on the specifics of this tool will be follow in the Measurement section.

3. BASELINE PERFORMANCE

Baseline measures for student performance at the Academy include the following:

- 1) Stanford 9 test results;
- 2) America's Choice Design Network diagnostic tests;

3) SAT;

4) Number of students enrolled at start the school year compared to number who complete the academic year; and

5) Students individual records of academic performance (report cards and progress reports).

—— The Academy will establish baselines for measuring performance in two ways. First, the Academy will use district wide assessments to compare the performance of students at the Academy to the performance of students at other DCPS schools (as well as other D.C. charter schools). These test results will provide a valuable performance benchmark to ensure that the Academy's student performance is on par with or exceeds that of other students in the District. If the population of students at the Academy is similar to the population in most DCPS schools, district wide assessments can serve as a direct indicator of how well the Academy's unique approach is working to lift students to higher achievement levels. However, the Academy will also be prepared to enroll students who on average may have a profile that differs from average DCPS students. To account for this, the Academy will assess these students by making a comparison between the Stanford 9 tests of incoming students and their SAT-9 test results in the 9th and 11th grades. This adjusted baseline will allow us to make a more individualized determination of their progress relative to grade level expectations. This will also provide us with a more accurate reflection of the impact of the Academy's academic program and instruction.

In addition, national assessment tools, such as the SAT, will also be used as performance benchmarks. This will enable us to compare Academy student performance to those of other students across the country as well as students in the District.

4. MEASUREMENT

—— Thurgood Marshall Academy will measure progress toward performance objectives on the basis of standardized tests (Stanford 9, SAT, etc.), records of student performance, and periodic surveys of students, parents, staff, mentors and Board members. The Academy's Principal, or chief educational officer, will be the person with primary responsibility for conducting evaluations and will work with America's Choice to structure and conduct the academic portions of the evaluation. Evaluation of the school management functions will be conducted with the help of a qualified consultant and the *Planning for Results* accountability plan.

Measures of Student Academic Achievement

—— The following assessment tools will be used to demonstrate the Academy students are mastering curriculum standards, and acquiring the skills they need to meet national performance standards:

Assessment Instrument	When Administered
Diagnostic Assessments (such as New Standards 8 th Grade Reference Examination in English Language Arts and Mathematics)	Summer before 9 th graders enter the school
Program embedded assessments (quizzes, test, reports)	Regularly throughout the school year
Student portfolio presentations, demonstrations, performances and exhibitions	Regularly throughout the school year
Individual Learning Plans (ILPs) and development checklists	Created at beginning of school year and utilized and adapted as necessary throughout the year
Stanford 9 Achievement Tests (SAT-9) in reading, mathematics and science	9 th Grade students—Spring 11 th Grade students—Spring
SAT	Fall of 12 th Grade

— In addition, student performance will be measured according to the America's Choice Design Network's New Standards Performance Standards. This measurement will indicate the extent to which students meet, exceed, or fail to meet the standards and the extent to which they are making progress toward achieving standards. Total scores and performance levels will be reported on the basis of: 1) Achieved Standard with Honors; 2) Achieved Standard; 3) Nearly Achieved Standard; 4) Below the Standard; and 5) Little Evidence of Achievement. Furthermore, data summarizing every student's performance will be reviewed weekly by the school's faculty and staff team. Specific action plans will be developed as necessary to ensure that every student masters the course material. For example, as mentioned in the section on Student Intervention, when a student's performance is seriously lagging, the classroom teacher will assemble a team composed of the student, parents/guardians, a school counselor, and if necessary a school administrator to decide on a course of action designed to correct the problem and provide the student with additional academic support.

— Diagnostic tools will also be administered to measure students' performance and skills levels at the time they enter the school. The middle school (8th grade version) of the New Standards Reference Examination will be administered to all incoming students before school starts. This diagnostic tool will help teachers determine their initial mastery levels, to develop ILPs, and to establish baselines to measure progress over time.

— Standardized tests will also be used to monitor student performance. Noting changes in individual students' SAT-9 scores from grade 8 (prior to entering the Academy) to grade 9, and then to grade 11, will enable staff to monitor student's performance increases or declines from prior testing and help teachers identify where particular weaknesses exist.

— Teachers will also use frequent program embedded assessments to make sure that students who need extra help get it immediately. For example, teachers will use portfolio

assessments to make sure that students produce a full range of work required by standards over time. Portfolios are structured, organized collections of student work that provide in-depth documentation of student growth as learners. These assessments involve both teachers and students in curricular decisions as they make selections for and compile the portfolio, review its contents, and develop new activities based on their joint assessment of the student's progress and interests. Portfolio presentations, demonstrations, performances and exhibitions of final products will culminate each segment of the school year. Public displays of student work will also be used to allow parents, community members, and teachers to review and assess the student work and provide valuable feedback regarding student performance.

Measurements of Student Civic Involvement

———— It will also be important to measure students' contributions to the betterment of the community and the value of their various non-traditional learning experiences outside the school setting. To assess its goals to engage all students in civic duties and responsibilities, the Academy will use the following indicators:

- 1) Chart and record number of externship placements each year.
- 2) Require students to turn in monthly journals about their externship experiences.
- 3) Require students to offer a presentation at the end of the school year about their experiences learning outside the classroom and/or one way in which they participated or contributed to their community over the course of the year (i.e. by attending a public forum, participating in a community meeting or panel discussion, voting for a particular issue or candidate, etc.).
- 4) Survey students and the community organizations that host students about the effectiveness and community impact of the work the student performed.
- 5) Chart and record the number of school visitors who conducted special lectures or workshops.

Measurements of Staff Performance

———— All school employees will be evaluated at least once a year. All teachers will be subject to a formal review each spring, or more frequently if necessary. The Principal, in conjunction with lead teachers, will evaluate all teachers. In addition, all teachers will be required to perform annual self-assessments, based on the same evaluation criteria used by their evaluators.

———— Faculty evaluations will be based on performance in categories listed below. Each category will be weighted as a percentage of the whole evaluation, as indicated. Points in each category will be combined to total the staff member's overall score, based on a 100-point scale. If a staff member receives a "zero" in any category, however, his or her overall score will be unsatisfactory.

Points	Rating
0-59 points	Failure/unsatisfactory
60-69 points	Borderline passing
70-89 points	Good performance
90-100 points	Outstanding performance

————The following summarizes the categories in which faculty will be evaluated and evaluation criteria within each category.

Category	Criteria
Student Achievement (30%)	<p>Students attain targets for lesson progress and mastery test scores (generally student scores are within the allowable range unless there are relevant extenuating circumstances)</p> <p>Students' scores improve on independent standardized tests and other independent assessments</p> <p>Students achieve targeted performance in other subjects on available measures, including curriculum-aligned tests and portfolios.</p>
Parent and Student Satisfaction (20%)	<p>Results from parent and student satisfaction surveys and other indicators reflect satisfaction with individual faculty member</p> <p>Individual faculty member contributes to a measurable impact on enrollment and retention</p>
Classroom Instruction and Behavior Management (30%)	<p>Individual faculty member effectively implements all curricula, e.g. demonstrating strong lesson presentation skills and creativity, using appropriate instructional techniques and monitoring students' independent work</p> <p>Individual faculty member effectively implements assessments, parent progress reports and report cards, and appropriately assigns homework and corrects papers.</p> <p>Faculty member demonstrates effective use of time, smooth transitions between activities, clear expectations for student conduct, a greater frequency of praising students to correcting them, effective and appropriate use of reward systems, and fairness and consistency in recognizing behavior and imposing consequences/restitution.</p> <p>Students demonstrate respect for the instructor and one another in the classroom, as well as exhibit appropriate conduct in the halls, restrooms, school grounds, at school activities on or off site, and in other non-classroom environments.</p> <p>Individual student learning plans (ILPs) are modified where necessary and implemented correctly.</p>
Faithful, Diligent and Competent Performance of Duties (10%)	<p>Individual faculty member faithfully, diligently, and effectively implements the Academy's policies and procedures, demonstrating a strong work ethic and positive attitude.</p>

Category
Interpersonal Skills (5%)

Criteria

Individual faculty member works well with other school staff, contributes to the development of a collegial work culture, participates in professional development discussions, shares expertise with colleagues, and participates in team planning meetings.

Professional Development (5%)

Individual faculty member demonstrates mastery of the approved curriculum to a high level of proficiency; performs well in check-outs linked to in-service training; uses technological tools to maximize efficiency; accepts constructive criticism in a professional manner; and works closely with lead teachers, the Principal, and other colleagues to improve his or her teaching skills.

Measurements of Parent Satisfaction

Annual satisfaction surveys will be distributed twice annually to parents, students and school staff to help the Academy meet the community's expectations. The surveys will, for example, ask parents to rate the effectiveness of each major academic and administrative facet of the school, including the quality of the academic programs and learning environment, the effectiveness of the behavior and discipline policies, and the strength of the school leadership. The responses of parents, students and school staff will be analyzed and shared with the Board of Trustees and Advisory Board and will also be included as part of the Academy's annual report.

Measurements of Organizational Achievement

As previously mentioned, the Academy will use the *Planning for Results* system, from America's Choice to devise a detailed accountability plan that can be regularly monitored for school compliance and design implementation progress. This system starts with the Academy's academic standards and helps the School Leadership Team keep the focus on results as they:

- (1) Analyze data for the school in terms of student achievement against the standards
- (2) Search for effective practices to address deficiencies
- (3) Implement those practices
- (4) Examine the success of implementation
- (5) Assess the effectiveness of the practices as implemented.

The plan will set forth performance objectives in three domains: 1) student and school academic performance; 2) student and school non-academic performance; and 3) organizational and management performance. For each domain, the plan will include: 1) aligned performance indicators; 2) measures of the performance indicators; 3) annual

and five-year targets; 4) sources of baseline data; and 5) strategies for attainment. For each goal, there will also be a series of corresponding benchmarks that specify annual and five-year targets for implementation and baseline data will be collected in order to identify progress made toward that goal.

— A Diagnostic, Assessment, and Development Tool will be used in conjunction with the accountability plan four times a year — at the beginning, middle and end of each trimester, as well as at the end of the summer session. The tool will have five categories for evaluating “Where is the School Now?” These equate to:

Evaluation Categories

- 0 = not in place
- 1 = getting started
- 2 = moving along
- 3 = almost there
- 4 = fully implemented

— The purpose of the tool is to help the Academy determine its progress in implementing the design, and especially, identifying areas that need more attention.

5. REPORTING PERFORMANCE AND PROGRESS

— Different aspects of school performance and progress will be reported to parents, the Academy staff and Board of Trustees, and the community. Parents will certainly receive regular updates on the performance of their children who attend the school. As soon as the results from school-wide performance assessments are available, they will be shared with the public and the chartering authority through press releases, and monthly newsletters. Additionally, the Academy will attempt to disaggregate the data from student results where appropriate by age/grade, gender, race, poverty, and special education status.

Reporting Method	When Reported	To Whom
Public exhibitions of student work	At end of each advisory period and at the end of summer school	All constituents
Academy self-assessment progress reports	Quarterly, for each advisory period and summer session	Academy Staff and Boards
Other interim reports	As required	DCPS
Academy’s Annual Report	Annually	All constituents
Audited financial statements	Annually as part of annual report	All constituents

Thurgood Marshall Academy Accountability Plan

The School Mission

The mission of Thurgood Marshall Academy (“TMA”) is to create a community of young people who are academically able, confident, and empowered to engage in our democratic society. Through a rigorous standards-based curriculum, uncompromisingly high expectations for student performance and behavior, and pedagogy modeled on the democratic ideals of fairness, participation, and respect for diverse perspectives, students will be empowered to pursue post-high school academic opportunities, to make a difference in their communities, and to succeed in life. Through an educational focus on law, democracy, and human rights, TMA will instill in its students a respect for human dignity and civic participation.

TMA will serve students in grades 9-12 in Southeast Washington, a constituency that has extreme educational needs (93% of high school students in this region of the city scored below basic proficiency on the SAT-9 in math and 70% scored below basic proficiency in reading). Additionally, dropout rates are extremely high among these young adults; of the students who enter as ninth graders, a mere 60% graduate. Finally, a staggeringly high percentage (83%) of Southeast students come from families whose low economic level qualifies them for free or reduced-price lunch. Despite, or perhaps because of this situation, TMA intends on demanding that all students devote the necessary time and energy to their academic progress so that every student graduates and goes to college. We expect that we will show progress on multiple indicators (attendance rate, mobility rate, and improvement on the SAT-9 scores) far surpassing other schools in the area, in DC, and in other urban areas nationwide. We have set high academic and behavioral expectations for every student, and our school community will not rest until those expectations are met.

The School Program

Thurgood Marshall Academy will provide its students with a strong academic background and a comprehensive understanding of the law and its impact on our society. TMA will collaborate with America’s Choice to implement a high-quality standards-based curriculum to ensure that students master all secondary academic subject areas.

TMA will be a law-related charter school, not only focusing on teaching substantive law and human rights but also incorporating a due process model of instruction that promotes democratic awareness and critical thinking. Students will learn substantive information about laws, human rights, conflict resolution, and democracy. The due process pedagogy employs strategies that promote fair and cooperative learning, student-centered classrooms, engaged participation, experiential learning, and, when needed, activism for positive change.

The school will be organized into a lower school and an upper school. The lower school, for students’ ninth and tenth grade years, will address the academic needs with which many students will enter the school to ensure that students perform at school standards by the end of the tenth grade. If they demonstrate proficiency, they will be promoted to the upper school, two years of intensive studies to satisfy our challenging graduation requirements. If at the end of their second year they fail to demonstrate proficiency, they will attend an intensive summer program to get them up to grade level. If at the end of the summer program they are still not able to show proficiency, they will receive extra remediation during the subsequent school year. TMA adopts this stringent policy because we believe it is a disservice to young people and their parents to promote students if they have not satisfied our standards and expectations. The final year will be designed specifically to prepare students for the demands of college, including the application process, social pressures and responsibilities, and study skills. We believe that with sufficient commitment from all school constituencies, every student can achieve high expectations and succeed in college.

Each year the school will focus on a series of core questions modeled on Ted Sizer’s Essential Schools; students will grapple with fundamental conflicts and tensions such as those between liberty and equality, unity and diversity, power and justice, freedom and order, and rights and responsibilities. By exploring fundamental questions across subjects, students will grow to be critical thinkers, reflective citizens, and effective participants in our law-based society. These themes will be woven throughout the core curriculum and enrichment activities—to the extent practicable, the law will be a lens through which students learn all subjects. Additionally, in cooperation with Georgetown University Law Center’s D.C. Street Law Clinic and its affiliated organization, Street Law, Inc., TMA will develop a comprehensive four-

year high school curriculum on law and human rights. The curriculum will give youth a balanced and realistic look at how the law affects them and how they can affect the law.

The intensive academic expectations will be facilitated by school structures that utilize the research on best practices. Only eighty students will be admitted each year into the school, and small class sizes (no more than 20 students per class) and block scheduling (ninety-minute class periods) will enable teachers to become familiar with their students, identify academic difficulties, and address individual students' needs. Every student will be required to attend a longer school day and Saturday activities with remedial and supplemental academic programs to fit their needs.

Recognizing that students' academic success depends on the quality of instruction, a priority of TMA will be to create a professional culture in the school that encourages teachers to reflect upon and discuss their practice. Built into the school's schedule will be time for teachers to discuss teaching strategies, to create cooperative interdisciplinary curriculum, and more generally, to develop strategies to enable their students to achieve the high standards of the school. External consulting from America's Choice and periodic visits to other innovative schools will also aid teachers to refine their practice continually.

Because of the extensive demands we are making of our students and ourselves, we intend on integrating the resources (human and financial) of private organizations into our school programs. For example, students will be mentored by Georgetown Law students as well as established African-American professionals (preferably lawyers) to help students visualize their future success as adults. Additionally, students will participate in hands-on enrichment activities in the legal and political institutions of our nation's capital and guided by experts in those fields.

TMA intends to treat parents/guardians and the community as a resource and a clientele: we will build solid lines of communication between parents and school staff; draw upon the skills and resources of the community even as the school serves to strengthen it; and simply, treat them with the respect and dignity that they deserve. Because TMA believes that parents / guardians must take an active role in supporting their child's academic progress, the school will implement an aggressive and inclusive parent/family outreach and participation program, managed by TMA's Parent and Community Development Coordinator. Conditioned upon receptivity by the community, the parent / guardian involvement strategy will include monthly workshops to inform them of school developments and issues impacting their children (adolescent development, educational and employment opportunities for students during the summer and after graduation, self-improvement). Recognizing the serious extra-academic needs of our students and their families, we hope to provide social services and legal advice on site, as well as to offer parents/guardians their own courses in literacy, GED preparation, and financial management.

The Purpose of the Accountability Plan

TMA's accountability plan is essentially an outline of the means by which the school will measure its educational and organizational viability. The assessments described will demonstrate how our students are performing using many different types of indicators, both quantitative and qualitative, and the outcomes will inform the school community and the D.C. Public School Chartering Board of how students are progressing toward the school's expectations. It also will enable school leadership (teachers, administrators, our board) to improve the school's instructional program. Above all, the accountability plan promises that TMA will create a system of diagnostic assessment that will ensure that our school delivers on the pledge of rigorous and effective standards-driven instruction for every child.

Introduction to the Accountability Plan Matrix

The attached matrix distills our school's accountability plan—our goals, how we will measure our progress relative to those goals, and what we will do with that information to help us move toward those expectations. It is divided into three areas of the school operations: 1) Academic Performance Objectives; 2) Student Non-Academic Performance Objectives; and 3) Organizational and Management Performance Objectives. For each set of objectives, there are seven headings, listed and defined below:

- Performance Objectives or Goals: What we hope to accomplish
- Performance Indicators: The data that will tell us how successful we are relative to our goals
- Assessment Tools: What we will use to obtain the data

- **Baseline Data:** In order to determine not only how close or far we are from our expectations, it is also informative to know how far we have progressed. For this reason, baseline data is collected where practicable to learn where we are before we begin operation.
- **Annual Target:** What we hope to accomplish within the first year or over the course of an individual year
- **Five-Year Target:** What we hope to accomplish by the fifth year of operation
- **Strategies for Attainment:** The programs/activities we hope will move us from our baseline to our performance objectives with greatest efficacy

In addition to the headings, additional terms will be used in the matrix:

- **Norm-referenced tests:** these tests are constructed to describe a student's relative rank compared to a reference group (the "norm group") of students at a similar grade level.
- **Criterion-referenced tests:** as opposed to norm-referenced tests, these tests gauge whether a student knows or can do specific things.
- **Value-added:** this describes how much a student has improved (or "value" has been "added"). Because many students enrolling in TMA will be significantly below grade level, students who have sub-average scores on tests when they enter may continue to have sub-average scores over an initial period. However, they may have improved substantially over this time, demonstrating effective school instruction.
- **Student mobility:** Most schools, when considering student attrition, merely look at overall numbers of students who leave the school. But this number indicates little about school performance, especially if schools are serving student populations with a higher rate of mobility who leave the school for reasons having nothing to do with their satisfaction of the school or the school's willingness to serve them. Therefore, TMA will disaggregate the mobility rate to determine the number of students whose decision to leave the school is directly related to their dissatisfaction with the school's program.
- **Normal Curve Equivalent:** The NCE statistically analyzes aggregate growth of students and can be used to compare them to similarly-situated students.
- **Reference Exams:** The America's Choice curriculum design model has its own assessments for math and English to be administered to students during the beginning of their ninth grade and again at the end of their tenth grade year.
- **AP Coursework:** Advanced Placement courses, developed by the Educational Testing Service, culminate in a final standardized exam, and many colleges allow students with passing scores to be exempted from taking (and therefore paying for) certain freshman courses.
- **Affective surveys:** As opposed to data collection of numerically-quantifiable information, affective surveys solicit opinions.
- **Lower School and Upper School:** The 9th and 10th grade years will be the "lower school", in which students will work on requisite skills to achieve grade-level competencies. Once students have successfully proven proficiency on the performance assessments, they may progress to the upper school, which will be two years of intensive academic work to satisfy graduation requirements of our high school. If students are unable to prove proficiency to exit the lower school, they will remain in the lower school but will receive assistance to enable them to satisfy the performance assessments at the end of the next year. In their final year of upper school, students will take a year of advanced studies specifically designed to prepare students for the rigors of college. If students are unable to prove proficiency to exit the upper school, they will remain in the upper school but will receive assistance to enable them to satisfy the performance assessments at the end of the next year.
- **Rubrics:** A written set of clear expectations (often including two or more levels of performance) articulating what defines sufficient demonstration of proficiency on an assessment.
- **Performance Assessment:** Rather than simply taking a test to measure a student's knowledge/skills, the assessment requires students to demonstrate their proficiency by preparing materials and presenting it to an audience for evaluation.

- **Demonstration of Proficiency:** For example, for a student to graduate from the school, he/she would have to write a literary essay that satisfies the requirements for each performance indicator. The essay would need to have a discernible organizing idea, incorporate supporting information, effectively organize the presentation of information from a variety of sources, and adhere to language conventions (grammar, paragraphing, punctuation, sentence construction, spelling)
- **High-stakes vs. low-stakes impact:** the magnitude of the consequences based on performance on the assessment

The Public Charter School Accountability Plan Matrix
(See attached matrix)

Strategies for Supporting Program Improvement and Continuous System Renewal

Academic Performance Objectives

Teachers constantly will be using authentic assessments from outside sources or of their own design (collaboratively created) to diagnose student weaknesses and strengths. With this information as a starting point, teachers and school leadership will strategize across disciplines to improve instruction in the school programs. For example, standardized exams, such as the SAT-9 and America's Choice Reference Exams, will give annual gauges of each student's competencies, and the results will be considered in future pedagogical methods and instructional content. Because internal assessments based on school-wide standards (including performance and other authentic assessments) will be an integral part of classroom instruction, the school will create a school culture among the staff and students that encourages reflection and planning for improvement based on assessments.

Student Non-Academic Performance Objectives

Although TMA views many services engaging students as part of its "academic" mission, the enrichment programs (including field trips, sports, music, etc.) will be evaluated according to their economic efficiency as well as affective surveys. Regarding social services (for example, parent outreach and involvement), although affective surveys will be helpful to judge our efficacy, we believe our efforts will likely be reflected in absentee and mobility rates as well as the number and severity of disciplinary issues. Based on our results on these indicators, the Board and TMA professional staff will develop strategies to improve our services.

Organizational and Management Performance Objectives

The Principal's efficacy as educational leader will be evaluated by the Board primarily according to the academic progress of the students, borne out by test scores and internal assessments. Additionally, the Board will administer affective surveys of the school constituencies (parents, students, staff) to assess the productivity of the work environment and the Principal's management. Finally, the Principal will present information on these issues to the Board at monthly meetings. The Board will use this information to support the Principal both inside and outside the school, and when necessary, to assist him/her with developing strategies to improve student and institutional performance.

The Executive Director will be charged with ensuring the school's fiscal integrity, both through revenue-raising and appropriate allocation of financial resources. He/she will present information on these issues monthly to the Board of Directors, who additionally will hire an outside auditor to perform an annual evaluation. The Board will also oversee other aspects of the Executive Director's responsibilities, including facilities management, financial planning, and securing future school sites.

The teaching and support staff will be highly qualified and grow in quantity with the increase in student population. They will work collaboratively to have internally-consistent expectations and assessments for students and themselves, and will have structured time with which to discuss issues of instruction and pedagogy to develop and improve their practice. Teachers' performance, evaluated by a combination of assessments by the principal, a peer, and the teacher herself, will determine whether the teacher's contract is renewed and/or the level of salary bonus for the subsequent year.

The Board itself will conduct self-assessments and administer surveys of school constituencies in order to judge its own effectiveness and contributions to the improvement of the school.

Procedure for Reporting Progress

TMA, accountable to numerous constituencies, will make every attempt to communicate its progress and challenges with all relevant groups. In addition to the annual report required by the Public Charter School Board of D.C., the school administration will be responsible for reporting monthly to the Board of Directors. Students and their parents will participate in meetings with school personnel quarterly, or more often if necessary, to discuss the child's progress and allow parents' or students' concerns to be addressed. The larger parent community will be part of periodic meetings with the school staff and administration to discuss the performance of the school at large, and will be encouraged to assist with school needs. Meetings will be held for the community to discuss challenges and successes, and we hope to forge a cooperative relationship with a local newspaper, *The Informer*, so that the larger community can learn about school events and be more interested in working with the school. Additionally, we will publish a newsletter to inform the general community and our partnerships of our progress. Our hope is that through multiple media of communication, and with each presentation framed for that particular constituency, each of our constituencies can understand and speak intelligently about the school, and therefore provide the most qualified assistance toward its improvement.

APPENDIX

Content and Performance Standards

Our academic content and performance standards are the America's Choice New Standards (see attached).

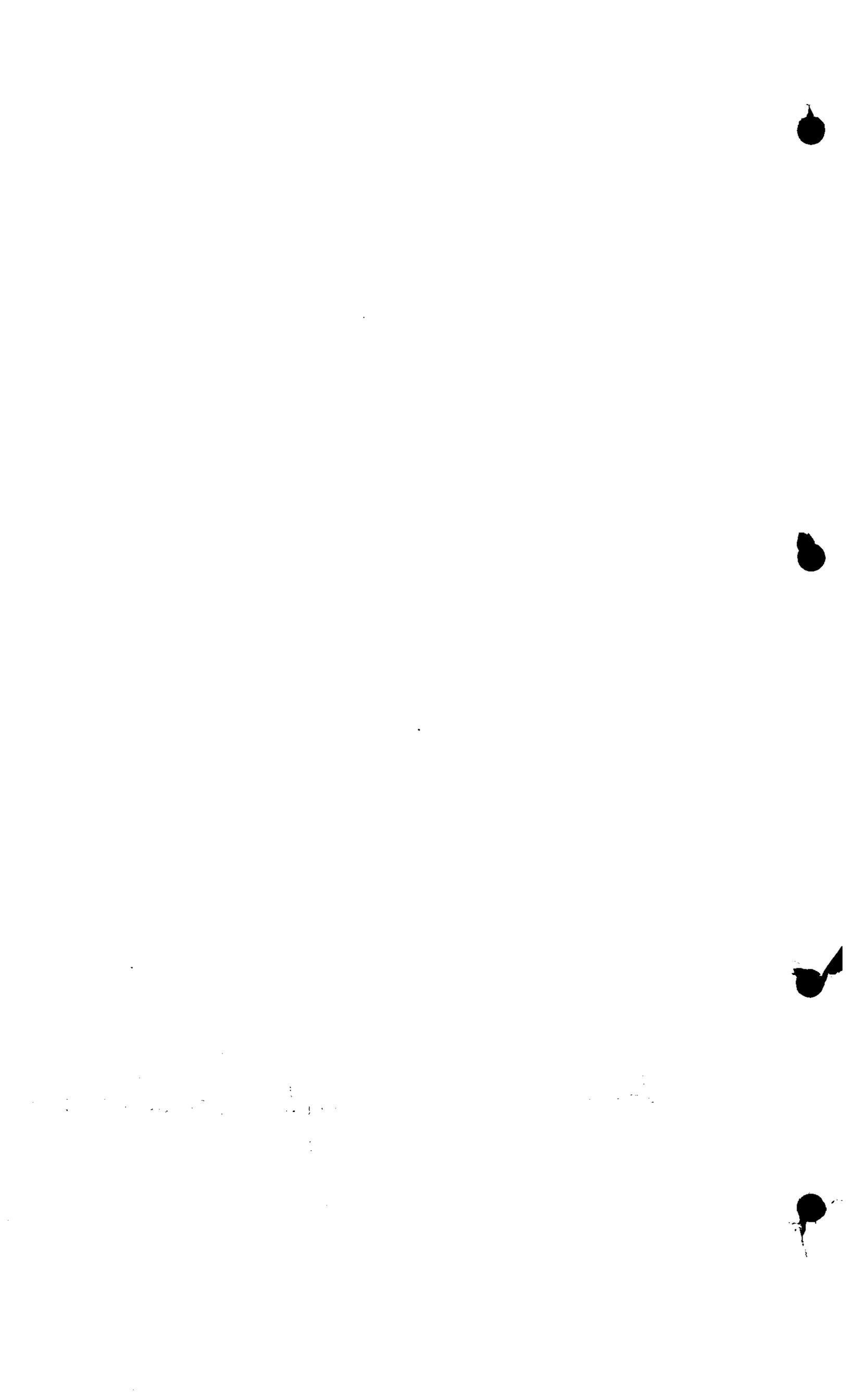
Thurgood Marshall Academy Charter School
Public School Charter Accountability Plan
School Years 2001-2006

The mission of Thurgood Marshall Academy is to create a community of young people who are academically able, confident, and empowered to engage in our democratic society. Through a rigorous standards-based curriculum, uncompromisingly high expectations for student behavior and performance, and pedagogy modeled on the democratic ideals of fairness, participation, and respect for diverse perspectives, students will be empowered to pursue post-high school academic opportunities, to make a difference in their communities, and to succeed in life. Through an educational focus on law, democracy, and human rights, the Academy will instill in its students a respect for human dignity and civic participation.

I. Academic Performance Objectives

Performance Objectives or Goals	Performance Indicators	Assessment Tools	Baseline Data	Annual Target (9 th graders)	Five-Year Target ¹	Strategies for Attainment
<p>Students will demonstrate academic proficiency at a performance level that makes the student competitive for college enrollment</p> <ul style="list-style-type: none"> Strong longitudinal progress on reading and math achievement Students will meet school standards in reading and math at a reasonable rate of progress 	SAT-9 norm-referenced scores, NCE scores, and performance standard achieved (criterion-referenced results)	SAT-9	<p>Student scores from other students from Southeast D.C. / Ward 8</p> <p>Incoming students will be tested upon entrance and every Spring thereafter</p>	<ol style="list-style-type: none"> At least 10% of students score above the average student in public schools in Southeast D.C. / Ward 8 Move 20% of students from Below Basic out of that category Increase number of students in Proficient and Advanced categories by amount that is 10% of student body <p>[Applies for every year of cohort]</p>	<ol style="list-style-type: none"> At least 50% of students score above the average student in public schools in Southeast D.C. / Ward 8 Move 100% of students from Below Basic out of that category Increase number of students in Proficient and Advanced categories by amount that is 50% of student body 	<p>Teachers and students will become familiar with the skills assessed on the SAT-9 exams. Course curriculum, although essentially aligned with the school's high standards, will also integrate the skills and testing strategies included in the SAT-9.</p> <p>Additionally, the tests given upon students' entrance to the school will be used for diagnostic purposes to inform instructional strategies, and rigorous coursework and supplemental academic programs will prepare students to succeed on the exams.</p>
	Exam scores (for reading and math)	America's Choice Reference Exams (administered in 8 th grade and 10 th grade)	Students will be tested during Fall of 2001 (8 th grade year)	Per America's Choice instructional and school design methodology, by end of 10 th grade year, 80% of students will perform at or above "Achieved the Standard" level of performance on exam	N/A per America's Choice school design	Curriculum will be aligned with the New Standards, and English and mathematics (the two primary skills assessed in the Reference Exams) will be emphasized across the different courses.
<ul style="list-style-type: none"> Students will meet school standards in all academic subjects (English, math, social studies, science) for each grade level at a reasonable rate of progress Students successfully move from lower school (grades 9-10) to upper school (grades 12-11) No student will graduate without demonstrated proficiency in school standards 						

¹ The Five-Year Target refers to the academic performance objectives of the cohort of 8th graders during their 12th grade year. Therefore, intermediate goals of the 8th grade cohort will be included within the Annual Target category.



I. Student Academic Performance Objectives (p2)

Performance Objectives or Goals	Performance Indicators	Assessment Tools	Baseline Data	Annual Target	Five-Year Target	Strategies for Attainment
<p>Students will demonstrate academic proficiency at a performance level that makes the student competitive for college enrollment</p> <ul style="list-style-type: none"> • Strong longitudinal progress on reading and math achievement • Students will meet school standards in reading and math at a reasonable rate of progress • Students will meet school standards in all academic subjects (English, math, social studies, science) for each grade level at a reasonable rate of progress • Students successfully move from lower school (grades 8-9) to upper school (grade 10-11) and then to Senior Academy (grade 12) • No student will graduate without demonstrated proficiency in school standards 	<p>Internal assessments of student performance according to standards</p> <p>Number of students promoted to upper level (grades 10-11), Senior Academy (grade 12), and number of students graduated</p> <p>Number of students requiring supplemental academic assistance programs</p>	<ol style="list-style-type: none"> 1. Portfolios 2. Performance assessments 3. Traditional classroom assessments (quizzes, homework, in-class activities, tests) 	<p>Continuous assessment</p>	<p>Students perform successfully on grade-level standards</p> <p>Number of students needing supplemental academic assistance programs decreases significantly during the course of a school year and from one year to the next for the grade cohort</p> <p>80% of students proceed to upper level on schedule (2 years after 8th grade enrollment) and Senior Academy on schedule (4 years after enrollment), with remaining 20% promoted one year later</p> <p>[Promotion to Senior Academy implies having achieved proficiency through performance assessments in all America's Choice/New Standards content areas (English, math, social studies, science) and TMA's requirements (arts, community service, law)]</p>	<ol style="list-style-type: none"> 1. 95% graduation rate among students who complete their 8th grade year (not including involuntary transfers or withdrawals) 2. 80% of students who complete their 8th grade year graduate in 4 years and 100% of students who complete their 8th grade year graduate within 5 years 	<p>Students will be assessed constantly by teachers using assessments aligned with school-wide standards, not only so students, teachers, and parents will understand whether students have achieved the standard or to what extent they fall below the standard, but also so students can receive supplemental assistance when necessary (tutoring, Saturday classes). Additionally, portfolios and performance assessments will be integrated into every class so students will be able to satisfy high-stakes assessments for student promotion to upper school and Senior Academy. Students who do not demonstrate adequate proficiency on the performance standards will not be promoted to the upper school or Senior Academy, but will instead receive intensive assistance during the summer and the next year so that they may advance the subsequent year.</p>
<p>Students graduating from TMA attend and are prepared for college</p>	<p>Students who attend college in Fall of 2006 remain in college</p> <p>Comparison with retention rates for similarly-situated graduates of high schools in Southeast D.C. / Ward 8 (if data is available)</p>	<p>Longitudinal tracking of graduating students</p>	<p>N/A</p>	<p>N/A</p>	<p>90% of students who graduate from TMA and attend college remain in college, ultimately earning a college degree.</p>	<p>In Senior Academy, students will receive instruction specifically designed to prepare students for college (social and academic demands). Curriculum will include AP coursework, college application strategies, SAT preparation, and essay writing.</p>

II. Student Non-Academic Performance Objectives

Performance Objectives or Goals	Performance Indicators	Assessment Tools	Baseline Data	Annual Target	Five-Year Target	Strategies for Attainment
Low student absenteeism	Attendance rates	Daily attendance and monthly/semester/annual averages	Absenteeism in schools with similarly-situated students in Southeast D.C. / Ward 8	90% daily attendance (Average of High Schools in Ward 8 = 83%; districtwide average = 87%) ²	Over 90% daily attendance rate	Parents and students, upon entrance to TMA, pledge consistent attendance. Parent-outreach personnel will contact parents when a student is absent, and when there is chronic absenteeism, they will develop strategies with the families.
Students will learn self-respect and social skills to contribute to a school environment in which every child can learn	Quantity of students disciplined and severity of school violations	Data collection on disciplinary referrals to administrators; anecdotal evidence from teachers	Data will be collected each month	The number and severity of school rule violations will decrease significantly over the course of the school year (by 50%).	The number and severity of school rule violations will decrease significantly over their five years at TMA.	Upon entrance to TMA, students and parents will be notified of the school code of conduct and potential penalties for rule infractions. While maintaining vigilant attention to due process and Constitutional rights of students in school, TMA will be clear and consistent in its enforcement of the school code of conduct.
Students (and their parents/guardians) who enroll will be satisfied with the educational services	Mobility Rates	Data collection, periodic affective surveys, and exit interviews	N/A	Less than 10% of the entering class will voluntarily withdraw to attend another school in the district.	Less than 5% of each year's entering class will voluntarily withdraw to attend another school by their graduation.	Parent involvement activities (including parent meetings and conferences) will allow parents to give feedback and advice on how the school could better serve their children's needs. Parents will also be represented on TMA's board.
Students will benefit from enrichment activities (including the arts and sports)	Levels of student participation and proficiency	Assessments by qualified staff, affective surveys of students and parents	N/A	Every student will participate in at least one enrichment activity during the course of the year.	Every student will participate in at least one enrichment activity during the course of each year, and the school will yield groups that may represent the school in district-wide or national events.	Qualified staff will be hired to organize and lead different enrichment activities (or clubs). The school will also hold periodic ceremonies for students to display their proficiency in these activities.
Students will participate in civic activities and impact their communities	Levels of student participation	Assessment by qualified staff, feedback from community	N/A	Every student will participate in a community-related event during their first year	Every student will participate in a community-related event each year	A staff coordinator will prepare students and coordinate their participation in community events (district council hearings, beautification projects, etc.).

² '98-'99 Attendance Rate data according to the DCPS website: http://www.k12.dc.us/dcps/data/data_frame.html

III. Organizational and Management Performance Objectives

Performance Objectives or Goals	Performance Indicators	Assessment Tools	Baseline Data	Annual Target	Five-Year Target	Strategies for Attainment
<p>The Principal will administer an educational program and school environment that facilitates student academic and social improvement</p>	<ol style="list-style-type: none"> 1. Student academic achievement 2. Student behavior 3. Parent satisfaction 4. Teacher satisfaction 5. Board satisfaction 	<ol style="list-style-type: none"> 1. Student standardized test scores 2. Student progress on internal assessments aligned with school standards 3. Disciplinary referrals 4. Affective surveys of constituencies (students, parents, teachers, community members) 	<ol style="list-style-type: none"> 1. Student scores on standardized tests administered at time of student enrollment 2. Student scores on internal assessments consistent with school standards 3. Affective surveys 	<ol style="list-style-type: none"> 1. School will achieve the academic performance objectives outlined in the Accountability Plan. 2. All constituencies will be satisfied with the Principal's performance and the Board chooses to renew the work contract. 	<ol style="list-style-type: none"> 1. School will achieve the academic performance objectives outlined in the Accountability Plan's Five-Year Target. 2. All constituencies will be satisfied with the Principal's performance and the Board chooses to renew the work contract. 	<ol style="list-style-type: none"> 1. Principal and teachers will have ongoing professional conversation about improving the educational program, curriculum, pedagogy, and learning climate of the school. 2. Principal will oversee data collection (hard and soft) to perceive and address deficiencies in institutional viability as they arise. 3. Principal will report monthly to the Board apprising them of school progress, and Board will provide support to Principal to address challenges. 4. Principal will frequently meet with parents and community members to learn about perceptions of the school and ways by which the school could better serve the needs and interests of its constituencies.
<p>The Executive Director will ensure fiscal and physical sustainability of the school</p>	<p>Fiscal integrity Physical suitability</p>	<ol style="list-style-type: none"> 1. Annual Budget 2. Quarterly financial report 3. Year-end concluding financial audit 4. Appearance of facility and suitability for educational purposes 	<p>Projected budget preceding each year</p>	<ol style="list-style-type: none"> 1. School will have fiscal integrity. 2. School will raise sufficient supplemental funds to provide necessary resources to ensure high-quality educational program. 3. Building facilities will be suited to educational programs. 4. Executive Director will find a school site for Years 2-5 that meets educational program and student capacity needs. 5. All relevant constituencies will be satisfied with the Executive Director's performance and the Board chooses to renew the work contract. 	<ol style="list-style-type: none"> 1. School will have fiscal integrity. 2. School will raise sufficient supplemental funds to provide necessary resources to ensure high-quality educational program. 3. Building facilities will be suited to educational programs. 4. Executive Director will have found and secured a school facility that meets the educational program and student capacity needs. 5. All relevant constituencies will be satisfied with the Executive Director's performance and the Board chooses to renew the work contract. 	<ol style="list-style-type: none"> 1. Executive Director will develop and implement fund-raising initiatives to raise funds sufficient to support high-quality educational programs and enrichment programs. 2. Executive Director will develop yearly budgets that are approved by an independent fiscal analyst. 3. Executive Director will report monthly to the Board apprising them of relevant issues, and Board will provide support to Executive Director to address challenges. 4. Executive Director will conduct a search for future site(s) for growing student population over the next five years.

III. Organizational and Management Performance Objectives (p2)

Performance Objectives or Goals	Performance Indicators	Assessment Tools	Baseline Data	Annual Target	Five-Year Target	Strategies for Attainment
<p>Teachers and staff will be highly qualified Teachers and staff will work collaboratively to have internally consistent expectations and assessments for students and themselves</p>	<p>Effective teaching practices that yield improvement in student achievement</p>	<ol style="list-style-type: none"> 1. Student test scores 2. Internal assessments 3. Principal evaluations 	<p>N/A</p>	<p>All teachers hired will provide engaging and rigorous instruction, with limited disciplinary referrals. Teachers will be prepared to provide additional services to the school and its students. High quality instruction will yield improvement in student academic achievement consistent with the academic goals of TMA's accountability plan.</p>	<p>All teachers hired will provide engaging and rigorous instruction, with limited disciplinary referrals. Teachers will be prepared to provide additional services to the school and its students. High quality instruction will yield improvement in student academic achievement consistent with the academic goals of TMA's accountability plan.</p>	<p>In April, 2000, the school administration and Board will begin search a for teachers in D.C./MD/VA area, and Principal will hire necessary staff. During the summer months, teachers and staff will work collaboratively to become familiar with school academic and behavioral standards and to develop curriculum and assessments. During the school year, teachers will have structured time with which to discuss issues of instruction and pedagogy to develop and improve their practice. Principal, as instructional leader, will evaluate and provide assistance to teachers.</p>
<p>Board will provide sufficient and effective support to school leaders</p>	<ol style="list-style-type: none"> 1. Performance on goals in TMA's Accountability Plan 2. Fiscal stability 	<ol style="list-style-type: none"> 1. Affective surveys of relevant constituencies 2. Self-assessment 3. Accountability Plan 	<p>N/A</p>	<ol style="list-style-type: none"> 1. Successful attainment of goals in TMA's Accountability Plan 2. Foster collaborative and supportive relationship with school administration and community 3. Sufficient fund-raising to support school programs 4. Ensure fiscal and academic integrity of school 	<ol style="list-style-type: none"> 1. Successful attainment of goals in TMA's Accountability Plan 2. Foster collaborative and supportive relationship with school administration and community 3. Sufficient fund-raising to support school programs 4. Ensure fiscal and academic integrity of school 	<p>Board will hold regular meetings to monitor school progress, develop long-term strategies, and support school leadership to meet the school's evolving needs. Board will respond to the interests of all constituencies (administrators, parents, community members, businesses, legal professionals, DCPS Charter Board).</p>

IV. Parent and Community Objectives

Performance Objectives or Goals	Performance Indicators	Assessment Tools	Baseline Data	Annual Target	Five-Year Target	Strategies for Attainment
Parents / Guardians will be informed and supportive of their children's educational success at TMA	<ol style="list-style-type: none"> Attendance at parent meetings Number of parents who participate in school activities Feedback from parents and students 	<ol style="list-style-type: none"> Documentation of parent participation and comments Affective surveys of parents and students 	Parent participation and comments in Fall of Year	<ol style="list-style-type: none"> Parent attendance at school/parent meetings will represent 75% of students. Parents will participate in school activities and events. Parents will support students at home (e.g., creating homework work space and time). 	<ol style="list-style-type: none"> Parent attendance at school/parent meetings will represent 75% of students. Parents will participate in school activities and events. Parents will support students at home (e.g., creating homework work space and time). 	<p>TMA's parent-outreach coordinator will notify and encourage parents to participate in meeting and school events. The school will also institute parent involvement workshops so parents become more knowledgeable about the school's academic and behavioral expectations, and therefore more comfortable becoming involved in their child's educational progress.</p> <p>The school will also notify parents periodically, in school-sponsored as well as community-sponsored publications, of school news and upcoming events.</p>
The surrounding community (without children who attend TMA) will be informed and supportive of their children's educational success at TMA	<ol style="list-style-type: none"> Number of community members who contribute financial or personnel resources to TMA Feedback from community members 	<ol style="list-style-type: none"> Documentation of volunteer contributions (financial or personnel) Affective surveys of community members 	Community involvement and feedback during startup year and first academic year of operation	<ol style="list-style-type: none"> Community members will contribute financial and personnel resources to school. Community members believe TMA is serving its children adequately. 	<ol style="list-style-type: none"> Community members will contribute financial and personnel resources to school, increasing each year of operation. Community members believe TMA is serving its children adequately. 	<p>TMA will provide community-based organizations with opportunities to provide resources to the school, such as mentoring or donations. The school will post flyers to notify the community of performance events (academic or non-academic), and to invite them to attend open meetings quarterly that will provide information about school progress and needs.</p>



F. BUDGET

Assumptions

In estimating future revenues and expenses, all figures are based on currently available information and in current dollars. The applicants did not apply any inflationary assumptions, as inflation is expected to affect estimated revenues and expenses alike.

The applicants determined the following revenue and expense estimates using currently available data from District of Columbia public charter schools and charter schools in other jurisdictions. Further, the applicants consulted with experts in public education and various other public education resources.

1. PRE-OPENING EXPENSES

Upon receiving First Stage Clearance in August, 2000, the Academy will begin incurring expenses in anticipation of opening its doors to students in September, 2001. Revenues and expenses for the ten-month start-up period September 1, 2000 through June 30, 2001 (start-up period) are described in the Pre-Opening Budget at Table F.1.A. Revenues and expenses for the period July 1, 2001 through June 30, 2002 (Year 1) are included in the first-year, twelve-month operating budget at Table F.2.A.

Revenues

The Academy's Principal expected source of revenue during the start-up period will be an estimated ~~\$110,000~~ ~~75,000~~ Title X public grant. The Academy has already received notice of an award of \$10,000 in start-up funds from the Walton Family Foundation, Inc., attached as Appendix F. Additionally, TMA expects the Walton Family Foundation, Inc. to grant the school another \$120,000 for the start-up process.

Personnel Costs

During the start-up period, the Academy will employ an Executive Director on a part-time basis for the purpose of implementing the charter. The applicants believe that the employment of an Executive Director is critical to the success of the Academy. The Executive Director will be responsible for all non-academic administrative tasks associated with starting and operating a new charter school. Among other things, the Executive Director will devote a significant amount of time during the start-up period to curriculum development; facilities management; resource acquisition; community outreach; and fundraising. During Year 1, the Executive Director's salary will be \$55,000 per year. During the start-up period, the Executive Director will be employed half-time for approximately ten months at a cost of \$22,917.

The Board of Trustees (Board) recognizes that the Academy's success depends largely on its employing a Principal and teachers who are invested in and committed to the Academy's approach to educating students. Therefore, the Academy will involve its new faculty in the selection and development of appropriate curriculum and standards at the earliest stages. The Board of Trustees will hire the Principal during the start-up period. As the Executive Director will be responsible for all non-academic administrative tasks, the Academy's Principal will be free to focus his or her energies on the academic tasks related to creating and operating a new charter school. The Principal will be primarily responsible for the Academy's academic success; his or her responsibilities will include faculty and staff recruitment and development and curriculum development, including working closely with America's Choice. During Years 1 and 2, the Principal will also teach part-time in order to reduce the student-teacher ratio and give the Principal the opportunity to be more closely involved with the academic progress of the students. During Year 1, the Principal's salary will be \$55,000 per year. During the start-up period, the Principal will be employed half-time for approximately six months at a cost of \$13,750.

The Academy will incur staff development expenses during the start-up period. While the Academy will not add new teachers to the payroll prior to Year 1, the Academy will recruit four new teachers and begin professional development activities during the start-up period. The Academy will allocate \$2,000 per teacher for each teacher's professional development during the

start-up period. The Academy also will incur approximately \$500 per teacher and Principal in staff development costs. Assuming culmination of the contract with the National Center on Education and the Economy (NCEE) for implementation of its model America's Choice curriculum and staff development, these funds will be directed to compensate NCEE.

The Academy will not employ any faculty or staff member more than half-time during the start-up period; therefore, the Academy will not incur any costs related to employee benefits.

Direct Student Costs

The Academy will not open its doors to students until September, 2001. The Academy will be able to delay direct student expenditures until after July 1, 2001. Therefore, direct student costs are included in the Year 1 budget.

During the start-up period, the Academy will incur approximately \$3,000 expense related to student recruitment and community outreach.

Occupancy Expenses

During the start-up period, the Academy will keep its cash expenditures to a minimum by relying on in-kind contributions whenever possible. The Academy will not incur rent or other occupancy expenses during the start-up period because it will rely on in-kind donations of office space and other occupancy-related expenses. The Academy's need for office space during the start-up period will be minimal as the Academy will employ only the Executive Director and Principal and each will be employed only part-time.

Office Expenses

The Academy will keep its office expenses to a minimum by relying on in-kind contributions whenever possible. During the start-up period, the Academy will incur office expenses of approximately \$5,000 primarily related to office supplies, equipment, telecommunications, printing, and postage necessary to begin the Academy's staff development, student recruitment, fundraising, and community outreach activities.

General Expenses

The Academy will spend approximately \$4,000 on insurance during the start-up period.

Excess

The Academy will have excess cash at the end of the start-up period which will be used to meet the Academy's Year 1 operating costs during the period prior to October, 2001, when the Academy will receive its first per pupil allotment.

Cash Flow Analysis

The Academy's cash flow analysis for the start-up period is provided at Table F.1.B.

2. TWO-YEAR OPERATING BUDGET

Revenues

The applicants have developed two budget scenarios. The Fundraising Scenario at Table F.2.A demonstrates how the Academy will operate on a balanced budget assuming that, in addition to the per pupil allocation, the Academy receives private grants and donations. The No Fundraising Scenario at Table F.2.B demonstrates how the Academy will operate on a balanced budget assuming that the Academy's only source of revenue is the per pupil allocation.

In Year 1, the Academy will serve approximately 80 ninth grade students. The Academy will add eighty students and one grade each year. By Year 5, the Academy will reach full capacity and serve approximately 400 students in grades nine through twelve.

Based on the fiscal year 1999 per pupil allocation for grades 9-12, the Academy will receive at least \$6,600 per pupil each school year. At this rate, the Academy will receive \$528,000 in Year 1 (80 students), \$1,056,000 in Year 2 (160 students), and \$2,640,000 in Year 5 (400 students, full capacity). The Academy will also receive a facilities allowance of \$617 per student each year. In addition to the per pupil allocation and facilities allowance, the Academy will receive public operating grants based on the needs of the students the Academy will serve. For example, the Academy's students will qualify for federal entitlements such as Title I funding. In the operating budget, the applicants have estimated federal entitlements at \$600 per student each year.

The Academy will receive additional public funds to serve the special needs of its students. For example, the Academy will receive additional funds for special education and limited English proficient students, free and reduced price lunch, transportation, and summer school. Estimated revenues and expenses for these and similar programs and services are not included in the operating budgets. The Academy will use such additional revenues to provide additional programs and services to meet the needs of these students.

Fundraising Scenario

In addition to public revenues, in the Fundraising Scenario, the Academy will raise through private grants and donations \$80,000 in Year 1, or 11 percent of total revenues, and \$50,000 in Year 2, or 4 percent of total revenues.

The Academy will minimize its cash expenditures by relying on in-kind contributions whenever possible. In the Fundraising Scenario, the Academy will receive in-kind contributions of \$29,320 in Year 1, or 4 percent of total revenues, and \$34,120 in Year 2, or 3 percent of total revenues. In-kind contributions will reduce cash expenditures for the acquisition of library and media center equipment and materials, computer equipment, other instructional equipment, classroom furnishings, and office furnishings and equipment.

Personnel Expenses

In Year 1 and Year 2, the Academy will employ the following personnel:

**TABLE F.2.C
PERSONNEL EXPENSES**

Job Title	Salary per year, per employee	Number, Year 1	Number, Year 2	Expense, Year 1	Expense, Year 2
Executive Director	\$55,000	1	1	\$55,000	\$55,000
Principal	\$55,000	1	1	\$55,000	\$55,000
Master Teacher	\$50,000	1	2	\$50,000	\$100,000
Mid-Level Teacher	\$40,000	2	4	\$80,000	\$160,000
First-Level Teacher	\$30,000	1	2	\$30,000	\$60,000
Special Education Teacher	\$40,000		2		\$80,000
Social Worker/Counselor	\$40,000	1	1	\$40,000	\$40,000
Teacher Aide	\$25,000	.5	1.5	\$12,500	\$37,500
Administrative Assistant	\$25,000	1	1	\$25,000	\$25,000
Custodian	\$22,000		1		\$22,000

The student-to-core-academic-teacher ratio will be approximately 80:4 (20:1) in Year 1 and 160:8 (20:1) in Year 2. The actual student-to-teacher ratio will be lower as the Principal will also teach part-time in Year 1 and 2, the Academy will employ a teacher aide part-time in Year 1 and a full-time and part-time teacher aide in Year 2, and the Academy will employ two special education teachers in Year 2.

The Academy's employee benefits cost will be approximately 30 percent of employee salaries in Year 1 and Year 2.

The Academy will work with America's Choice to develop an appropriate curriculum and train the Academy's teachers. The Academy will make a significant investment in staff development at an estimated cost of \$3,500 per teacher, per year. In Year 1, the Academy will spend \$17,500 for staff development for the Principal and 4 teachers. In Year 2, the Academy will spend \$38,500 for staff development for the Principal and ten teachers. Assuming culmination of the contract with the National Center on Education and the Economy (NCEE) for implementation of its model America's Choice curriculum and staff development, these funds will be largely directed to compensate NCEE.

Direct Student Costs

Several expenses will be directly correlated with the size of the student body. The applicants have analyzed expenses incurred by other charter schools and consulted with education experts and determined the following estimates of direct student costs per student:

**TABLE F.2.D
DIRECT STUDENT COSTS**

	Expense Per Student
Textbooks	\$250 per student
Student Supplies and Materials	\$100 per student
Student Assessment Materials	\$100 per student
Field Trips/Experiences/Extra Curricular	\$100 per student

Experiential learning will be a critical part of students' education at the Academy. Therefore, the applicants have liberally budget \$100 per student for field trips, extra curricular

activities, and experiential learning activities. Student assessment materials, including the cost of administering any required District-wide assessments, are allocated at \$100 per student.

The Academy will also make the following direct student capital expenditures:

**TABLE F.2.E
DIRECT STUDENT CAPITAL ASSETS**

	Quantity Per Year	Cost Per Item	Expense, Year 1	Expense , Year 2
Library and Media Center				
Books and Equipment			\$7,500	\$15,000
Other Instructional Equipment				
Television	1	\$300	\$300	\$300
VCR	1	\$200	\$200	\$200
Overhead Projector	1	\$100	\$100	\$100
Chalk Board	4	\$75	\$300	\$300
Science Lab Equipment			\$1,600	\$1,600
Classroom Furnishings				
Student Tables, Chairs, and Desks	80	\$50	\$4,000	\$4,000
Teacher's Desk and Chair	4	\$250	\$1,000	\$1,000
Classroom Computers				
1 Computer per 8 students (80 new students per year)	10	\$1,500	\$15,000	\$15,000
Total Direct Student Capital Assets			\$30,000	\$37,500
In-kind contributions			\$24,000	\$30,000
Cash Expenditures			\$6,000	\$7,500

The applicants expect that approximately 80 percent of the above capital assets or \$24,000 in Year 1 and \$30,000 in Year 2 will be acquired through in-kind donations. Therefore, the Academy's cash expenditure related to the above assets will be only \$6,000 in Year 1 and \$7,500 in Year 2.

Occupancy Expenses

The applicants have not yet identified a school facility for the Academy. However, based on information currently available from other District of Columbia charter schools and consultation with education experts, the applicants have made the following estimates related to occupancy expenses:

**TABLE F.2.F
OCCUPANCY EXPENSES**

	Year 1	Year 2
Space Required Per Student	120 square feet	120 square feet
Total Space Required	9,600 square feet	19,200 square feet
Rent	\$6 per square foot	\$6 per square foot
Maintenance and Repairs	\$.6 per square foot	\$.6 per square foot
Utilities	\$1 per square foot	\$1 per square foot
Janitorial Supplies	\$.3 per square foot	\$.3 per square foot
Equipment Rental and Maintenance	\$.5 per square foot	\$.5 per square foot

The Academy will spend \$13,000 in Year 1 and \$30,000 in Year 2 for facility renovations and improvements. In Year 1, the Academy will not employ a full-time custodian. Instead, the Academy will contract for custodial services at a cost of \$10,000 in Year 1.

Office Expenses

Several office expenses will be directly correlated with the size of the student body. The applicants have analyzed expenses incurred by other charter schools and consulted with education experts and determined the following estimates of office expenses per student:

**TABLE F.2.G
OFFICE EXPENSES**

	Expense Per Student
Office Supplies and Materials	\$50 per student
Telephone and Telecommunications	\$20 per student
Printing and Copying	\$75 per student
Postage and Shipping	\$30 per student
Legal, Accounting, and Payroll	\$60 per student

In addition to academic and administrative activities, the estimated cost of printing and copying and postage and shipping includes estimates for expenses related to activities such as fundraising, community outreach, and student recruitment.

The Academy will also make the following capital expenditures related to office furnishings and equipment:

**TABLE F.2.H
OFFICE CAPITAL ASSETS**

Cost Per Item	Quantity, Year 1	Expense, Year 1	Quantity, Year 2	Expense, Year 2
----------------------	-------------------------	------------------------	-------------------------	------------------------

Office Computers	\$1,500	2	\$3,000	1	\$1,500
Office Desks and Chairs	\$250	3	\$750	1	\$250
Fax Machine	\$400	1	\$400	1	\$400
Computer Printer	\$500	1	\$500	1	\$500
Other Office Furniture and Equipment			\$2,000		\$2,500
			<hr/>		<hr/>
Total Office Capital Assets			\$6,650		\$5,150
			<hr/>		<hr/>
In-kind Contributions			\$5,320		\$4,120
			<hr/>		<hr/>
Cash Expenditures			\$1,330		\$1,030
			<hr/>		<hr/>

The applicants expect that approximately 80 percent of the above capital assets or \$5,320 in Year 1 and \$4,120 in Year 2 will be acquired through in-kind donations. Therefore, the Academy's cash expenditure related to the above assets will be only \$1,330 in Year 1 and \$1,030 in Year 2.

The applicants have included in Office Equipment Rental and Maintenance \$8,000 in Year 1 and \$12,000 in Year 2 for the rental and maintenance of photocopying equipment.

General Expenses

The applicants have obtained an insurance estimate from Alliance Insurance and Financial Services (see Section E: "Certifications"), which contains a detailed explanation of the level of insurance coverage the applicants believe is appropriate to meet the District of Columbia Public Charter School Board's recommended minimum insurance coverage and the unique needs of the Academy. The Academy expects to spend \$14,000 in Year 1 and \$22,000 in Year 2 for insurance coverage.

The applicants have not included any revenue or expense related to transportation or food services in the operating budget. The applicants believe that these services will be fully funded through public revenues. In the event that public revenues do not fully fund these services, the Academy will fund such services by assessing necessary fees to the students.

The applicants have allocated 5 percent of total expenses (before the administration fee) to a reserve account in order to appropriately prepare for the possibility that actual expenses are greater than estimated in these budgets.

The Academy will pay an administration fee of one-half of one percent of the annual budget to the District of Columbia Public Charter School Board. The applicants estimate that the administration fee will be \$3,640 in Year 1 and \$6,580 in Year 2.

No Fundraising Scenario

In the event that the per pupil allocation is the Academy's only source of revenue, the Academy will be able to operate on a balanced budget as described in the No Fundraising Scenario at Table F.2.B.

In the No Fundraising Scenario, the Academy will receive \$6,600 from the per pupil allocation, a facilities allowance of \$617 per student, and federal entitlements of \$600 per student. However, the Academy will not receive any private grants and donations or in-kind contributions. Therefore, the Academy's revenues in the No Fundraising Scenario will be less than revenues in the Fundraising Scenario by \$109,350 in Year 1 and \$84,120 in Year 2.

In the No Fundraising Scenario in Year 1, the Academy will reduce personnel salaries and benefits by \$103,350 by eliminating the Executive Director position until Year 2, eliminating the teacher aide position until Year 2, and hiring a social worker on a part-time basis (70 percent full-time equivalent) instead of a full-time basis. These work force reductions will also reduce the reserve fund by \$5,168 and the administration fee by \$543 in Year 1.

In the No Fundraising Scenario in Year 2, the Academy will reduce personnel salaries and benefits by \$84,500 by eliminating one special education teacher's position and one teacher aide position. These work force reductions will reduce the reserve fund by \$4,225 and the administration fee by \$444 in Year 2.

If the Academy is unable to raise revenues through private grants and donation and in-kind contributions, the Academy will meet its cash obligations during the three month period prior to the first per pupil allocation in October, 2001, through short-term borrowing. These short-term borrowings will be repaid in October, 2001, after the Academy receives its first per pupil allocation.

3. ESTIMATED FIVE-YEAR BUDGET PROJECTIONS

Table F.3.A describes the Academy's projected revenues and expenses for Years 3, 4, and 5. These budgets demonstrate how the Academy will operate on a balanced budget assuming that the per pupil allocation, the facilities allowance, and federal entitlements are the Academy's only source of revenue in Years 3, 4, and 5.

4. CAPITAL BUDGET

Table F.4.A describes the Academy's projected capital expenditures in Years 1 and 2. This item includes a detailed price list of fixed assets to be purchased.

5. CASH FLOW PROJECTION FOR YEAR 1

Table F.5.A describes the Academy's projected cash flow during Year 1. The cash flow analysis assumes that the Academy will receive 50 percent of the per pupil allocation, facilities allowance, and federal entitlements in October, 2001, and 50 percent in February, 2002.

The cash flow analysis assumes that the Academy has \$15,833 cash on hand at the end of the start-up period. In addition, the cash flow analysis assumes that the Academy raises \$80,000 in private grants and donations and \$29,932 in in-kind contributions prior to the beginning of Year 1.

In order to meet its obligations during the three months prior to receipt of the first per pupil allocation, the Academy will defer certain expenses until after October 1, 2001. During July and August of Year 1, only the Executive Director and Principal will be on the Academy's payroll. Other than the \$2,000 stipend allocated to teachers in the start-up budget, the Academy's teachers will not be added to the payroll prior to September, 2001. The Academy will defer one-half of the September, 2001 payroll expense for all faculty and staff for one month. The Academy will pay faculty and staff this deferred salary in October, 2001, after the Academy receives its first per pupil allocation.

The Academy will defer accumulation of a reserve fund until after December, 2001. The Academy will also defer payment of the administration fee until after the Academy receives its first per pupil allocation in October, 2001.

If the Academy is unable to raise revenues through private grants and donation and in-kind contributions, the Academy will meet its cash obligations during the three month period prior to the first per pupil allocation in October, 2001, through short-term borrowing. These short-term borrowings will be repaid in October, 2001, after the Academy receives its first per pupil allocation.

E. CERTIFICATIONS

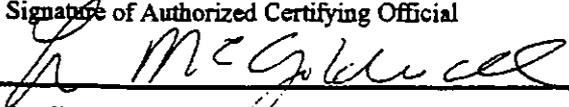
Please see the documents listed below, on the pages following:

- ◆ Assurances Form
- ◆ Letter from Alliance Insurance & Financial Services, Inc., describing Thurgood Marshall Academy's insurance coverage plans
- ◆ Incorporation Documents

Assurances Form
(This form must be submitted with the application.)

As the authorized representative of the applicant, I certify that the proposed public charter school:
Thurgood Marshall Academy

1. Will seek, obtain, and maintain accreditation for the public charter school from at least one of the accrediting bodies listed in Part B of the District of Columbia School Reform Act or a body otherwise approved by the D.C. Public Charter School Board. *See §2203(h), DC School Reform Act.*
2. Will, if the school's educational program includes preschool or prekindergarten, be licensed as a child development center by the District of Columbia government not later than the first date on which such program commences. *See §2203(h)(2), DC School Reform Act.*
3. Will not charge tuition, fees, or other mandatory payments for attendance at the public charter school or for participation in its programs, except to non-resident students or for field trips or similar activities. *See §2204(c)(2), DC School Reform Act.*
4. Will provide the D.C. Public Charter School Board student enrollment data required for submission to the Office of the Chief Financial Officer and the District of Columbia Public Schools Office of Categorical Programs. *See §2204(c)(12), DC School Reform Act.*
5. Will establish an informal complaint resolution process not later than two months prior to the first date on which instruction commences. *See §2204(c)(13), DC School Reform Act.*
6. Will be nonsectarian and will not be affiliated with a sectarian school or religious institution. *See §2204(c)(15), DC School Reform Act.*
7. Will hold non-profit status under terms stated in the District of Columbia Non-profit Corporation Act prior to receiving a charter. *See §2204(c)(16), DC School Reform Act.*
8. Will offer open enrollment to all students who are residents of the District of Columbia and will use a random selection process when the school receives more applications from students of the District of Columbia than there are spaces available. *See §2206(a), (b), (c), & (d), DC School Reform Act.*
9. Will give the District of Columbia Public Charter School Board and the District of Columbia Public Schools Emergency Board of Trustees access to and the right to examine all records or documents related to the award, as well as any documents and records, including audit findings, needed to determine the performance of the school under the terms of its charter.
10. Will provide training to relevant school personnel and Board of Trustees members in financial management, governance and management, and other areas as deemed necessary by the District of Columbia Public Charter School Board.

Signature of Authorized Certifying Official 	Title Adjunct Professor of Law
Applicant Organization Thurgood Marshall Academy Charter School Development Group	Date Submitted June 5, 2000



Alliance Insurance & Financial Services, Inc.

COMPLETE INSURANCE PROTECTION

1010 VERMONT AVE. NW, SUITE 200
 WASHINGTON, DC 20005
 TEL.: (202) 638-1010
 FAX: (202) 638-2545



May 24, 2000

Ms. Lillemor McGoldrick
 Georgetown University Law Center
 600 NJ Ave, NW Room 170
 Washington DC 20001

Dear Ms. McGoldrick

I am writing you concerning the Thurgood Marshall Academy which you hope to open in 20001. I was asked to give you an estimate on what type of insurance you might need and at what cost. Please understand that this is only a ball park figure of premiums and will depend on more specific information at the time as well as the present appetite of insurance companies for the charter school risk

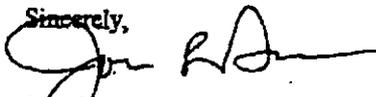
Coverages needed	limits required	estimated premium
General liability Including educators liability and abuse	2,000,000	\$2500
Umbrella liability	5,000,000	\$4000
Workers compensation	statutory	30 cents per \$100 of payroll
Directors and Officers	3,000,000	\$5000
Crime - employee dishonesty	100,000	\$500
Boiler and Machinery Usually not needed as a tenant		
Property including computers Based on \$150000 comp/100000 property		\$2000
Total annual premium		\$14,000

Some notes

We usually put charter schools with Travelers through Charity First program. There are monthly installments available with a 25% downpayment.

Please do not hesitate to call me if you should have any questions. I look forward to working with you.

Sincerely,



Joan E. Dore', CIC
President

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS



C E R T I F I C A T E

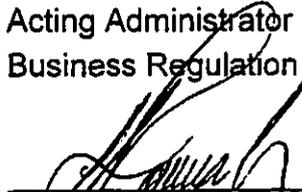
THIS IS TO CERTIFY that all applicable provisions of the District of Columbia NonProfit Corporation Act have been complied with and accordingly, this **CERTIFICATE OF INCORPORATION** is hereby issued to:

THURGOOD MARSHALL ACADEMY

IN WITNESS WHEREOF I have hereunto set my hand and caused the seal of this office to be affixed as of the **24th** day of **May**, 2000.

Lloyd J. Jordan
Director

Patricia E. Grays
Acting Administrator
Business Regulation Administration



Eldred E J Fornah
Act. Assistant Superintendent of Corporations
Corporations Division

Anthony A. Williams
Mayor

**ARTICLES OF INCORPORATION
OF
THURGOOD MARSHALL ACADEMY**

FILE
MAY 24 2006

TO:
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS
BUSINESS REGULATION ADMINISTRATION
CORPORATIONS DIVISION
941 NORTH CAPITAL STREET, N.E.
WASHINGTON, D.C. 20002

We, the undersigned natural persons of the age of twenty-one years or more, acting as incorporators of a corporation under the NON-PROFIT CORPORATION ACT (D.C. Code, 1981 edition, Title 29, Chapter 5), adopt the following Articles of Incorporation:

FIRST: The name of the corporation is Thurgood Marshall Academy.

SECOND: The period of duration is perpetual.

THIRD: The purpose for which the corporation is organized is to establish and operate a public charter school to educate the District of Columbia's youth.

Notwithstanding any other provisions of these Articles, the corporation shall not conduct or carry on any activities not permitted to be conducted or carried on by an organization exempt from tax under Section 501(c)(3) of the Internal Revenue Code of 1986, or by an organization contributions to which are to be deductible under Section 170 (c)(2) of such Code.

FOURTH: The corporation will have no members.

FIFTH: The corporation shall not be authorized to issue shares of stock.

SIXTH: The election of directors is provided in the bylaws.

SEVENTH: Conduct of the internal affairs of the corporation, including distribution of the assets on dissolution or final liquidation, is provided in the bylaws in accordance with the District of Columbia Nonprofit Corporation Act.

Upon the dissolution of the corporation or in the winding up of its affairs, the assets of the corporation shall be distributed exclusively for charitable or educational purposes or to organizations which are then exempt from federal tax under Section 501(c)(3) of the Internal Revenue Code of 1986, and to which contributions are then deductible under Section 170 (c)(2) of such Code.

EIGHTH: The address, including street and number of the initial registered office of the corporation is and the name of the initial registered agent at such address is

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

NINTH: The number of directors constituting the board of directors is 7, and the names and addresses, including street and number and zip code of the persons who are to serve as directors until the first annual meeting or until their successors are elected and shall qualify are:

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

Mr. John J. Commisso
26 Sunset Drive, Apartment 4
Alexandria, Virginia 22301

Mr. Thomas E.M. Hutton
6 Sunset Drive, Apartment. 2
Alexandria, Virginia 22301

Ms. Megan E. Blamble
1855 Calvert St., N.W., #102
Washington, D.C. 20009

Ms. Lillemor McGoldrick
2129 Florida Avenue, NW Apt. 303
Washington, DC 20008

Ms. Jacquelyn Davis
1745 Q. Street, N.W. Apt. A
Washington, DC 20009

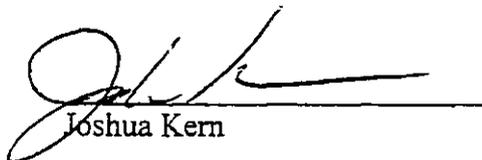
Ms. Joy Moses
2400 16th Street, N.W. Apt. #625
Washington, D.C. 20009

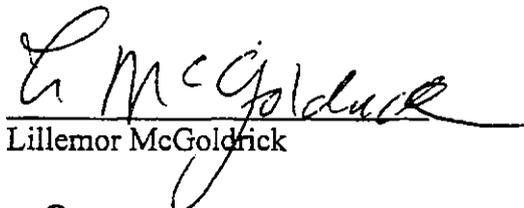
TENTH: The name and address, including street and number and zip code, of each incorporator is:

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

Ms. Lillemor McGoldrick
2129 Florida Avenue, NW Apt. 303
Washington, DC 20008

Mr. Richard Roe
600 New Jersey Avenue, NW
Room 128
Washington, DC 20001


Joshua Kern


Lillemor McGoldrick


Richard Roe

Incorporators

DATE 5/24/00

I, Teruko R. Scruven, a Notary Public, hereby certify that on the day of May 24, 2000, Joshua Kern, Lillemor McGoldrick, and Richard Roe appeared before me and signed the foregoing document as incorporators, and have averred that the statements therein contained are true.



My Commission Expires
April 14, 2001

APPENDIX A: LETTERS OF SUPPORT



GEORGETOWN UNIVERSITY LAW CENTER

Office of the Dean

May 31, 2000

District of Columbia Public
School Charter School Board
1717 K Street, NW; Suite 802
Washington, D.C. 20006

Dear District of Columbia Public Charter School Board:

I write in support of the charter school application for the Thurgood Marshall Academy. I can think of no greater social need today than the need for all children to be offered a quality and well-rounded education, and I am confident that the Thurgood Marshall Academy will provide children with such an educational opportunity.

The Thurgood Marshall Academy, developed by a group of Georgetown law students and faculty supervisors, promises to be a charter school of high quality that has a focus on law and civic engagement. The Academy will also serve as a model for law-related education and promises to engage its students in innovative and challenging ways.

As you know, law students in Georgetown University Law Center's Street Law Clinic have been teaching demanding year-long law courses in the District of Columbia Public Schools for decades, and coaching hundreds of D.C. public high school students in the annual city-wide mock trial tournament. The motivation behind the Thurgood Marshall Academy's Charter School Development Group came from several law students and lawyers who have participated in this longstanding clinic's work in the D.C. public schools. These founders of the Thurgood Marshall Academy are drawing from their experience working in the D.C. schools through the Street Law program, as well as from their significant other educational and professional – experiences.

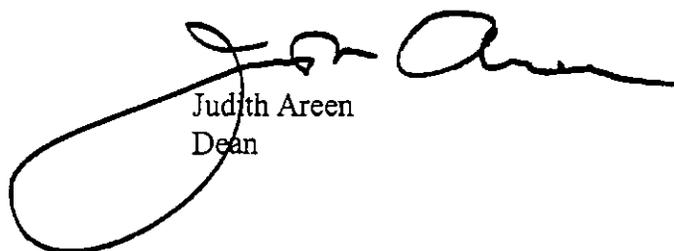
I have been very impressed by the work, commitment, and thorough research of the Thurgood Marshall Charter School Development Group. There are many resources here at the law school which the Thurgood Marshall Academy founders will be able to use as they move forward with the development of the school, including the support and guidance of key faculty members, children's tutoring and mentoring services provided by law students, support from Law Center alumni, and assistance from a student organization created for the sole purpose of supporting the efforts of Thurgood Marshall Academy. I am proud that Georgetown University

District of Columbia Public Charter School Board
May 31, 2000
Page 2

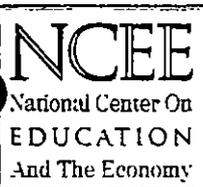
Law Center has incubated this project during its formative months, and am confident that the Thurgood Marshall Academy will provide an excellent education to public high school students in the District of Columbia.

I recommend approval of Thurgood Marshall Academy's charter and look forward to working with its founders as they plan for its opening the following year.

Sincerely,



Judith Areen
Dean



May 31, 2000

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Marc S. Tucker
President

Thurgood Marshall Academy
Charter School Development Group
111 F Street NW
Suite 128
Washington, DC 20001

Attention: Lee McGoldrick

Dear Ms. McGoldrick:

It is with great enthusiasm that the National Center on Education and the Economy supports the charter school application for the Thurgood Marshall Academy. The Center has been proud to assist students and faculty from Georgetown University Law Center in developing this proposal, and we are prepared to include this school in our network of high schools through the America's Choice School Design comprehensive school reform initiative.

As a result of our extensive contact through this spring term, we have come to understand that your vision for a high school coincides clearly and directly with our thinking about what makes a good school. We believe, as you have so clearly stated in your application documents, that high expectations for all students are a cornerstone of an effective school. Through the ACSN network we are prepared to assist the staff of Thurgood Marshall in organizing its school around the high school performance standards that are detailed in the New Standards, a joint project of the Center and the University of Pittsburgh.

As a member of our reform network, we will provide technical assistance and professional development to the staff of Thurgood Marshall, and we will include them in all network activities. Beginning with our workshop series on "Using Standards," and including a program on "Planning for Results," the academy will receive a full range of training in all of our programs, activities, and curriculum. Because of the size of the school and its charter school status, we will extend our services at a reduced rate to this new school, with the fee to be negotiated between the Center and the

700 Eleventh Street, NW
Suite 750
Washington, DC 20001
{phone} 202 783 3668
{fax} 202 783 3672
{email} info@ncee.org
{web} www.ncee.org

Thurgood Marshall Academy
Page 2

Academy. It is important to note that we are currently worked with Nueva Esperanza, a new charter school in Philadelphia, and we expect to charge them \$40,000 for an engagement year in our network.

We have been most impressed with the knowledge and skills of the faculty and students at Georgetown Law and with their passion for high school reform. We stand ready to become their partner in providing improved educational opportunities for students within the District of Columbia.

Sincerely,



Walter Gibson
Senior Associate
National Center on Education and the Economy



SOUTHEAST WHITE HOUSE

June 1, 2000

District of Columbia Public Charter School Board
1717 K Street, N.W., Suite 802
Washington, DC 20006

Dear District of Columbia Public Charter School Board:

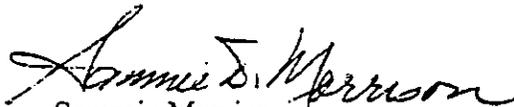
This is a letter of recommendation for the Thurgood Marshall Academy Charter School to be located here in Southeast Washington, DC.

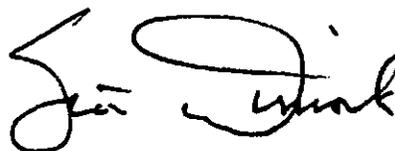
The Southeast White House, formerly the Randle House, on Pennsylvania Avenue SE has been involved with serving residents in Southeast for more than four years in the spirit of Christ. Our Friends Mentoring Program, with it's subsidiary Sibling Program work with over 100 children in intensive mentoring. The People's House, a resource referral system with over 3,500 organizations and agencies that serve the disadvantaged in the city is also housed at the Southeast White House.

We have known some of the principle organizers of the Thurgood Marshall Academy for some months, as they have attempted to relate to the community. With Lee McGoldrick and Joshua Kern teaching law classes at Ballou Senior High, they have become aware of the needs of senior high students. Lee and Joshua, besides caring for the students, seem to be of the highest character with a commitment to the project that will carry through to its accomplishment. They have a quality to who they are that will greatly benefit the students they with whom they would be working.

We are very excited about this new venture of opening a charter school in Ward 8, and we wholeheartedly recommend them and their school to you.

Sincerely,


Sammie Morrison


Scott Dimock

STREET LAW^{INC.}

Educating the world about law, democracy, and human rights

Public Charter School Board
D.C. Charter School Resource Center
1155 15th St. NW
Suite 300
Washington, DC 20005

May 26, 2000

Dear District of Columbia Public Charter School Board:

Street Law Inc. strongly supports the development of Thurgood Marshall Academy and looks forward to the approval of its application to become a charter school.

Since it began in 1972 with Georgetown University law students teaching at Wilson and Eastern high schools, Street Law has expanded to classrooms and community settings in the District of Columbia, throughout the United States and abroad. Our Street Law practical law textbook for high school students is the most widely used law text in the country—it is used in our programs in all fifty states. We feel this charter school presents an excellent opportunity to bring our interactive teaching methodologies, materials and practical law precepts home to even more youth in the District.

One of our guiding principles is that law is an everyday presence in everyone's life and that every person deserves and requires an understanding of their rights and responsibilities to live a full life. Because the founders of Thurgood Marshall Academy have participated in Georgetown University Law Center's Street Law Clinic, we feel they are well qualified to teach students how and why to make the law and democracy work for them.

We look forward to the opportunity to assist the school's staff as they integrate law-related topics and methods into the school's curriculum . In fact, we believe that this four-year social studies/law program, when fully developed, can act as a national model for other existing or potential law-related high schools across the country.

In short, we are enthusiastic supporters of the Thurgood Marshall Academy Development Group, and strongly support the group's charter school application.

Sincerely,

Ed O'Brien

Ed O'Brien
Executive Director



SPACEHAB
WE MEAN BUSINESS IN SPACE™

SPACEHAB, Inc.
300 D Street, SW • Suite 814
Washington, DC 20024
(202) 488-3500
(202) 488-3100 fax

May 30, 2000

District of Columbia Public Charter School Board
1717 K Street, NW
Washington, DC 20006

Dear Public Charter School Board Members:

I am writing to enthusiastically support the Thurgood Marshall Academy charter school application. Having both previously worked with and thoroughly discussed the mission of the school with its founders, I am convinced that the school will be a tremendous asset to Washington, D.C.'s high school students and that SPACEHAB, Inc. can play a significant role in the school's success.

SPACEHAB is excited to partner with the Thurgood Marshall Academy to develop its science curriculum and learning expeditions. By selecting the Marshall Academy for our Space Technology And Research Students (S*T*A*R*S) program, students and teachers will have the opportunity to work with our astronauts, scientists, and engineers to design an experiment that will be flown on a space shuttle mission. As part of the S*T*A*R*S program, teachers will benefit from semester-long units with lesson plans that incorporate the life sciences, physics, and chemistry and culminate with educational expeditions of experiments for space flight. Additionally, SPACEHAB is interested in working with the Marshall Academy to develop additional science curriculum that we can pilot at the school and use as a national model of science learning.

S*T*A*R*S is designed to stimulate students' imaginations, increase academic excellence in math and science, and promote interest in engineering, mathematical and science careers. S*T*A*R*S challenges students to play the role of a "Virtual Astronaut" and participate in experiments flown aboard the United States Space Shuttle. It is an interactive learning experience enabling students to take part in humankind's greatest adventure - the exploration of space. The S*T*A*R*S program will be one of the most memorable experiences in any participating student's education. By utilizing the unique fascination that students have with outer space to teach basic science concepts, the S*T*A*R*S program has the real and lasting impact of encouraging students to pursue science and engineering careers or, at a minimum, to better understand science, math, and the world they live in.

The first S*T*A*R*S experiments were flown on Space Shuttle mission STS-93 in July 1999. One of the experiments from a school in Albany, Georgia was designed to determine if caterpillars could metamorphose successfully into butterflies in the weightless environment of

space. The experiment was successful and one of the butterflies from this mission is now on permanent display at the Smithsonian National Air and Space Museum in Washington, D.C.

S*T*A*R*S classrooms can:

- Complete science and space activities and lessons,
- Receive special experiment equipment like that used in space research,
- Conduct control experiments in their own classrooms,
- Join online experiment forums with real astronauts and scientists,
- View live space experiment data via the Internet to see how the orbiting experiment is different than their control experiment,
- Explore the interactive S*T*A*R*S website with games, learning activities, and news about space,
- Discover how students from around the world are learning and having,
- Meet other S*T*A*R*S students and share ideas online

A typical S*T*A*R*S experiment might consist of a closed ecosystem, similar to our own planet, in which small animals and plants will interact with the environment to maintain a cycle of life. The participating students would perform experiments in their classrooms and then collaborate via the Internet to determine various experimental parameters that would be used to design the actual experiment that would fly on the Space Shuttle. The students and teachers would then participate in an online learning experience that leads up to the launch of their experiment. During the mission, students would be able to view the experiment as it is performed on the Space Shuttle via the Internet and compare the results with the control experiment in their classroom.

SPACEHAB is the world's leading provider of commercial payload processing services for manned and unmanned payloads. SPACEHAB is the first company to commercially develop, own and operate habitable modules that provide laboratory facilities and logistics resupply aboard NASA's Space Shuttles. The company also supports NASA astronaut training at the Johnson Space Center in Houston. We are excited to work with the Thurgood Marshall Academy and committed to its success.

Sincerely,



David A. Rossi
President

Enclosures

Sumner Partners

Real Estate Investment and Development

June 2, 2000

Professor Richard L. Roe
Georgetown University Law Center
111 F Street, N.W., Suite 128
Washington, D.C. 20001

Dear Professor Roe:

I am writing this letter in support of the Thurgood Marshall Academy Charter School you and a group of students at Georgetown Law Center are establishing. As you know, Sumner Partner's expertise and experience is in real estate and property development, and we have been engaged as project manager on school projects. Recently, we served as project manager for the Norwood School's \$10 million expansion and addition, which I am pleased to say was completed under budget and on time. We would be interested in helping your group in your search for a suitable educational facility.

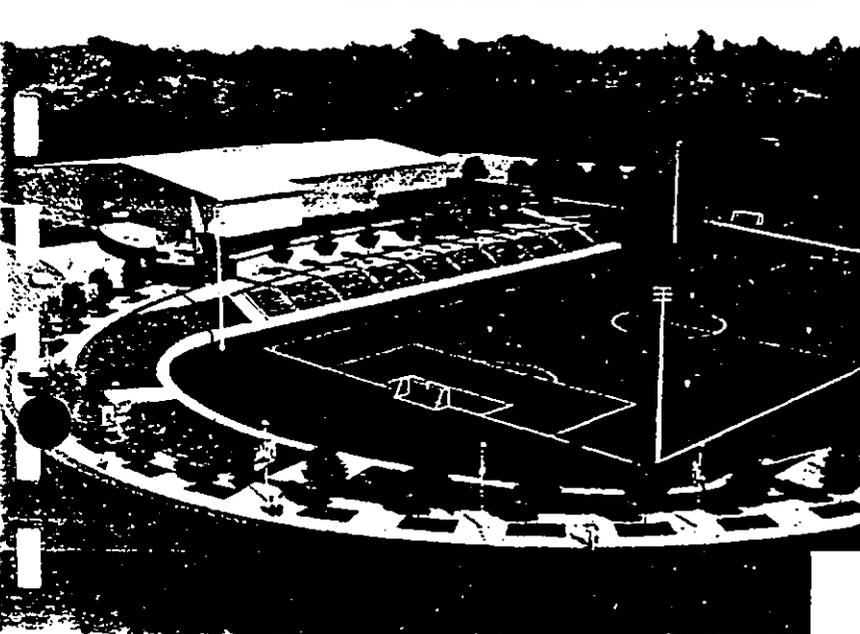
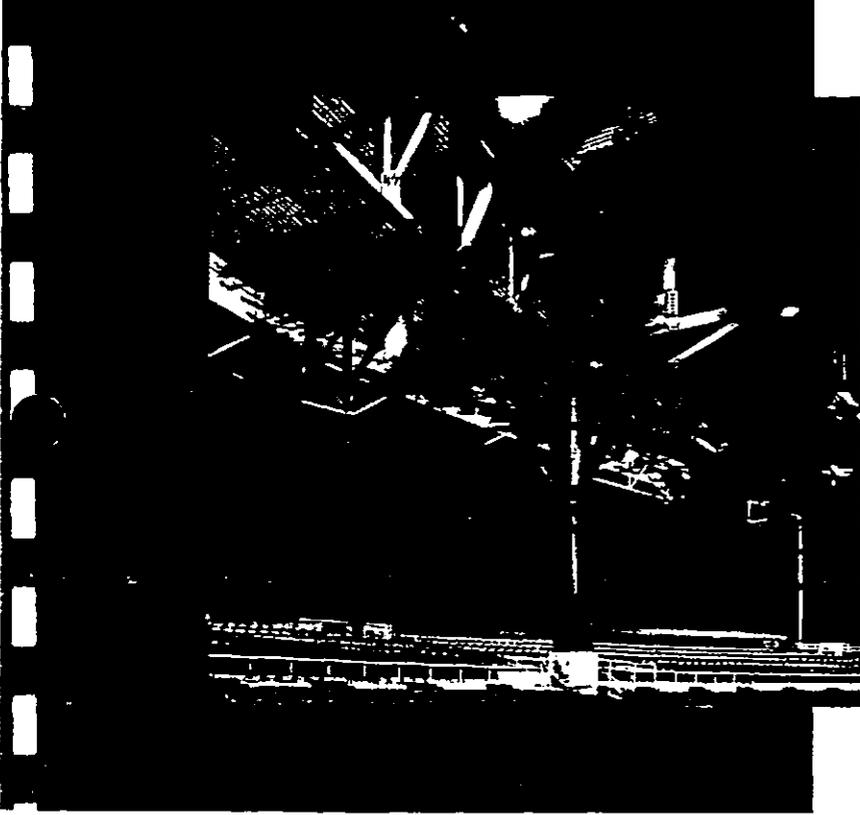
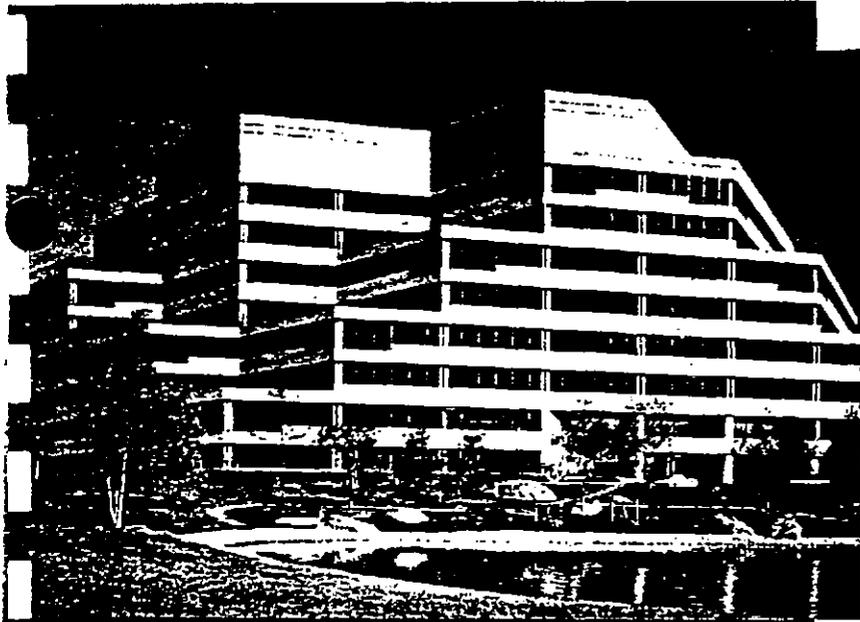
You have informed me that you need to acquire the use of a facility for your school and that, depending upon available properties, your facility may need significant redesign and renovation. I would be able to advise you in a number of regards in connection with this project. First, I can help your group develop a needs assessment for your facility, based on your objectives, needs and available resources. Essentially, this will involve your undertaking of a detailed inventory of the school's anticipated activities and related space needs, which I would review. Second, I can contact colleagues in the commercial real estate field who may be able to help you locate a facility. Third, when you have located a potentially suitable facility, I would be able to visit the site and assess its appropriateness in light of your need and resources. Fourth, I would be able to advise you in securing an effective and economical development team to undertake and complete any design and construction necessary. While I probably would be unable to serve as project manager, I would be able to advise you on the progress of your project. I hope to be able to continue this assistance as your school grows in the coming years.

Your group's efforts to establish a law-related charter school for underserved children in the Southeast of Washington, D.C. is both ambitious and laudable. I believe that a well-designed and constructed facility will contribute significantly to the goals of educational achievement and success you have for your students, and am happy to assist you to that end. I look forward to working with your group on this project.

Sincerely yours,

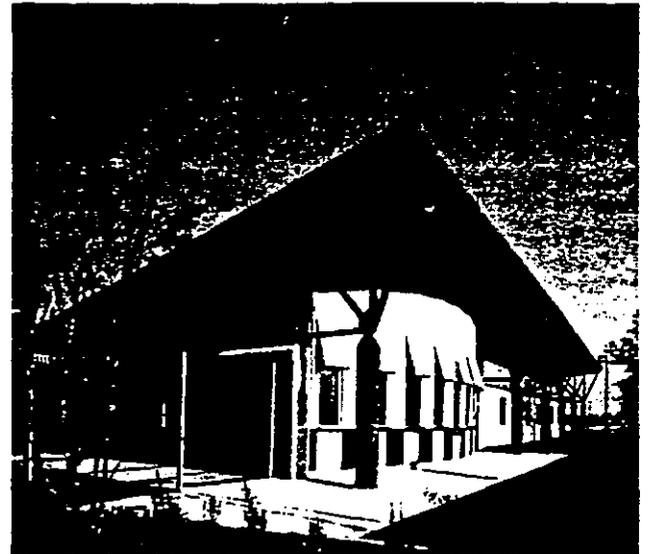


Steven M. Klebanoff
President



Sumner Partners is a real estate development and investment firm providing comprehensive real estate solutions to clients and users throughout the Mid-Atlantic region. Our clients are typically corporations, institutions, and private entities in search of timely, cost-effective turnkey solutions to their expanding real estate requirements. Sumner Partners principals have developed or acquired over \$300 million in real estate assets. These projects range from large scale mixed-use and residential projects to suburban retail, industrial, apartment and office buildings to special purpose educational, athletic and entertainment facilities.

As both a developer/owner and project manager, Sumner Partners seeks opportunities where our distinct competence and energies are rewarded with better returns and real estate decisions for our clients and partners. Sumner Partner's expertise in site acquisition, market analysis, development and construction management, and debt and equity financing enables Sumner Partners to provide effective turnkey real estate solutions for our clients. Our experience in sophisticated land development transactions and complex building projects makes Sumner Partners unique in its ability to manage the most complex real estate assignments from the earliest stages of conception and site acquisition through construction completion and occupancy.

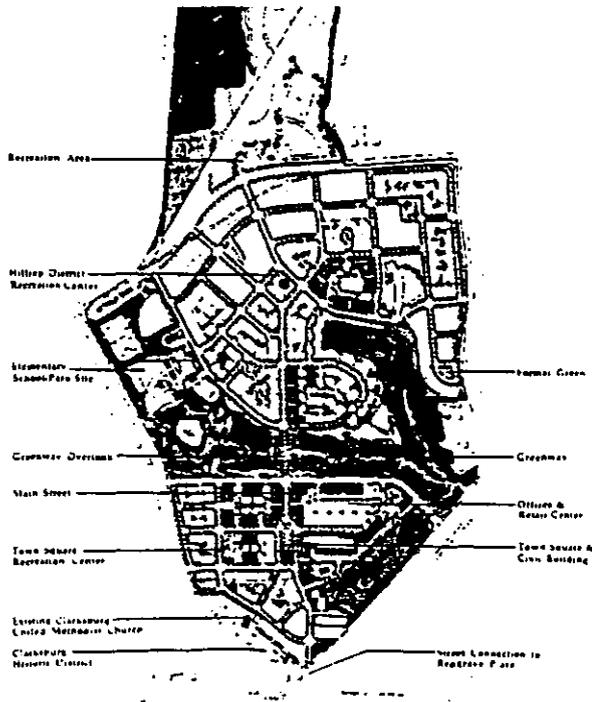


Specific project experience of the firm's principals covers a wide range of building types:

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- Retail
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- Caisson, Pile and PIP Foundations
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As a medium size development company, Sumner Partners has retained, through its growth, a commitment to principal involvement in every transaction we undertake. It is impossible in a brochure to communicate adequately the experience, dedication, intelligence and attention to detail we bring to every transaction in which we are involved. Therefore, we welcome the opportunity to sit down with you to discuss your real estate requirements and objectives in detail.





GEORGETOWN UNIVERSITY MEDICAL CENTER

Child Development Center

Center for Child Health and Mental Health Policy

May 24, 2000

Rick Roe
Professor of Law
111 F Street NW
Rm 128
Washington, DC 20001

Dear Professor Roe:

It was with pleasure that I read your draft proposal to design and implement the Thurgood Marshall Academy. Your articulated mission and philosophy which forms the foundation for the design of this proposed charter school is grounded in strong educational and management principles. The design of your proposed standards-based curriculum, with an emphasis on the law, human rights, and related societal issues has the potential to respond to the needs of the student population, their families, and community. Your proposal to address the needs of children and their families within their own community is consistent with the mission of the Georgetown University Child Development Center (GUCDC).

The GUCDC, established more than three decades ago, has a long history of partnerships in the District of Columbia designed to improve the quality of life for children with disabilities and their families. Our work has targeted underserved and vulnerable populations including: families with children who are homeless; children and youth who live in poverty with limited access to community resources; and those from culturally and linguistically diverse groups. Our training, services, and supports are built upon the philosophies of family-centered supports and self-determination of individuals with, or at-risk for disabilities.

The GUCDC is excited about this proposed chartered school and applauds your continued commitment to meeting the needs of children, youth and families living in vulnerable environments in the District of Columbia.

Sincerely,

Nancy Striffler,
Associate Director
for Training and Clinical Services

**APPENDIX B: AMERICA'S CHOICE SCHOOL DESIGN NETWORK'S
NEW STANDARDS**

INTRODUCTION

ABOUT NEW STANDARDS

New Standards is a collaboration of the Learning Research and Development Center of the University of Pittsburgh and the National Center on Education and the Economy, in partnership with states and urban school districts. The partners are building an assessment system to measure student progress toward meeting national standards at levels that are internationally benchmarked.

The Governing Board includes chief state school officers, governors and their representatives, and others representing the diversity of the partnership, whose jurisdictions enroll nearly half of the Nation's students.

New Standards was founded by Lauren Resnick, Director of the Learning Research and Development Center (LRDC), and Marc Tucker, President of the National Center on Education and the Economy (NCEE). The Executive Director is Eugene Paslov. New Standards staff is based at the LRDC and NCEE as well as the American Association for the Advancement of Science, the Fort Worth Independent School District, the National Council of Teachers of English, and the University of California Office of the President. Technical studies are based at LRDC and Northwestern University, with an advisory committee of leading psychometricians from across the nation.

The New Standards assessment system has three interrelated components: performance standards, an on-demand examination, and a portfolio system.

The performance standards are derived from the national content standards developed by professional organizations, e.g., the National Council of Teachers of Mathematics, and consist of two parts:



Performance descriptions—descriptions of what students should know and the ways they should demonstrate the knowledge and skills they have acquired in the four areas assessed by New Standards—English Language Arts, Mathematics, Science, and Applied Learning—at elementary, middle, and high school levels.



Work samples and commentaries—samples of student work that illustrate standard-setting performances, each accompanied by commentary that shows how the performance descriptions are reflected in the work sample.

The performance standards were endorsed unanimously by the New Standards Governing Board in June 1996 as the basis for the New Standards assessment system.

The on-demand examination, called the **reference examination** because it provides a point of reference to national standards, is currently available in English Language Arts and Mathematics at grades 4, 8, and 10. It assesses those aspects of the performance standards that can be assessed in a limited time frame under standardized conditions. In English

Language Arts, this means reading short passages and answering questions, writing first drafts, and editing. In Mathematics, this means short exercises or problems that take five to fifteen minutes and longer problems of up to forty-five minutes. The reference examination stops short of being able to accommodate longer pieces of work—reading several books, writing with revision, conducting investigations in Mathematics and Science, and completing projects in Applied Learning—that are required by New Standards performance standards and by the national content standards from which they are derived.

The **portfolio system** complements the reference examination. It provides evidence of achievement of the performance standards that depend on extended pieces of work (especially those that show revision) and accumulation of evidence over time. In 1995-96, 3,000 teachers and almost 60,000 students participated in a field trial of the portfolio system. The portfolio system includes instructions for students, teachers, and administrators and example portfolios that contain concrete examples of expectations for students and teachers to refer to as they prepare portfolios.

The 1995-96 portfolio field trial was the second year of field testing the system in English Language Arts and Mathematics, and the first year of developmental testing for Science and Applied Learning. The materials used in the 1995-96 trial were revised to take account of the experience of the first year, with the goal of making the portfolio system easier to understand and implement.

ABOUT THE PERFORMANCE STANDARDS

We have adopted the distinction between content standards and performance standards that is articulated in *Promises to Keep: Creating High Standards for American Students* (1993), a report commissioned by the National Education Goals Panel. Content standards specify "what students should know and be able to do"; performance standards go the next step to specify "how good is good enough."

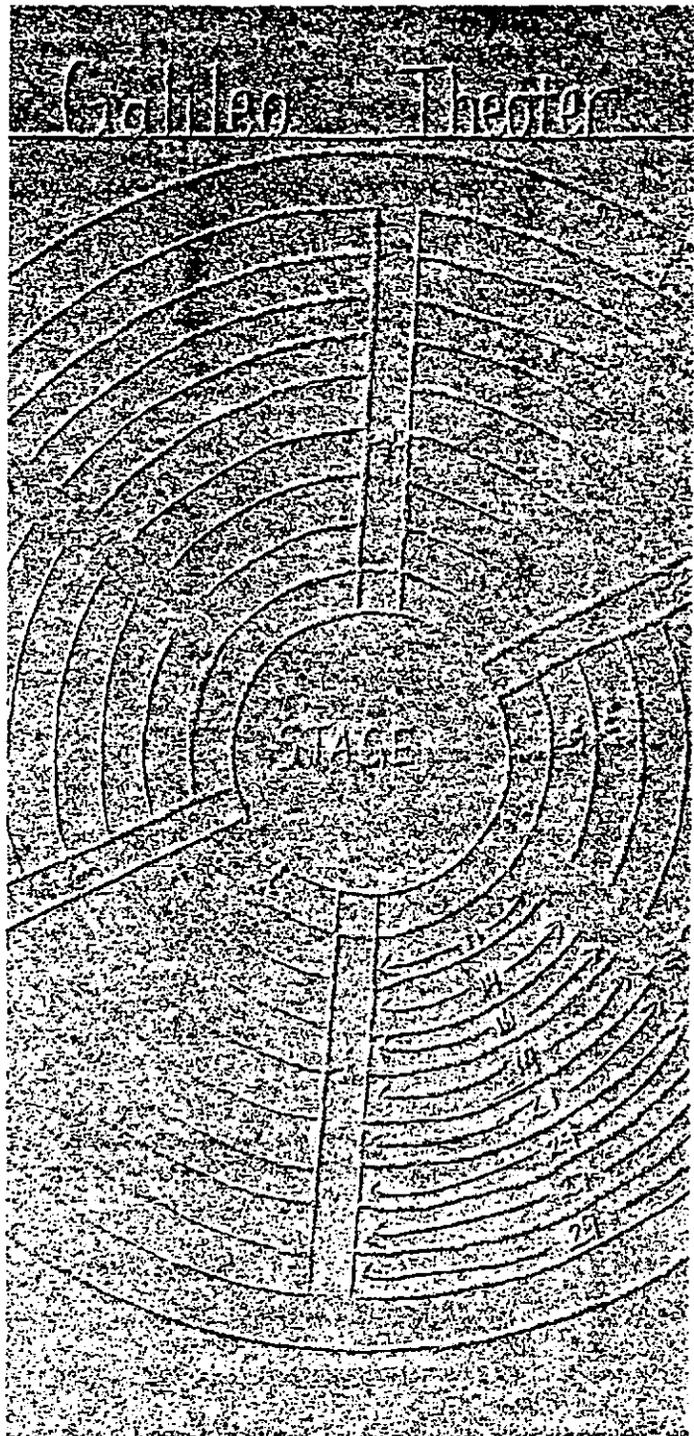
These standards are designed to make content standards operational by answering the question: how good is good enough?

Where do the performance standards come from?

These performance standards are built directly upon the consensus content standards developed by the national professional organizations for the disciplines. The Mathematics performance standards are based directly on the content standards produced by the National Council of Teachers of Mathematics (1989). (See "Introduction to the Mathematics performance standards," page 48.) Similarly, the performance standards for English Language Arts were developed in concert with the content standards produced by the National Council of Teachers of English and the International Reading Association (1996). (See "Introduction to the English Language Arts performance standards," page 20.)

The Science performance standards are built upon the National Research Council's *National Science Education Standards* (1996) and the American Association for the Advancement of Science's Project 2061 *Benchmarks for Science Literacy* (1993). (See "Introduction to the Science performance standards," page 80.)

The case of the Applied Learning performance standards is a little different. Applied Learning focuses on connecting the work students do in school with the demands of the twenty-first century workplace. As a newer focus of study, Applied Learning does not have a distinct professional constituency producing content standards on which performance standards can be built. However, the Secretary's Commission on Achieving Necessary Skills (SCANS) laid a foundation for the field in its report, *Learning a Living: A Blueprint for High Performance* (1992) which defined "Workplace Know-how." We worked from this foundation and from comparable international work to produce our own "Framework for Applied Learning" (New Standards, 1994). The Applied Learning performance standards have been built upon this framework. (See "Introduction to the Applied Learning performance standards," page 106.)



STANDARDS FOR STANDARDS

In recent years several reports on standards development have established "standards for standards," that is, guidelines for developing standards and criteria for judging their quality. These include the review criteria identified in *Promises to Keep*, the American Federation of Teachers' "Criteria for High Quality Standards," published in *Making Standards Matter* (1995), and the "Principles for Education Standards" developed by the Business Task Force on Student Standards and published in *The Challenge of Change* (1995). We drew from the criteria and principles advocated in these documents in establishing the "standards" we have tried to achieve in the New Standards performance standards.

Standards should establish high standards for all students.

The New Standards partnership has resolved to abolish the practice of expecting less from poor and minority children and children whose first language is not English. These performance standards are intended to help bring all students to high levels of performance.

Much of the onus for making this goal a reality rests on the ways the standards are implemented. The New Standards partners have adopted a Social Compact, which says in part, "Specifically, we pledge to do everything in our power to ensure all students a fair shot at reaching the new performance standards...This means they will be taught a curriculum that will prepare them for the assessments, that their teachers will have the preparation to enable them to teach it well, and there will be...the resources the students and their teachers need to succeed."

There are ways in which the design of the standards themselves can also contribute to the goal of bringing all students to high levels of performance, especially by being clear about what is expected. We have worked to make the expectations included in these performance standards as clear as possible. For some standards it has been possible to do this in the performance descriptions. For example, the Reading standard includes expectations for students to read widely and to read quality materials. Instead of simply exhorting them to do this, we have given more explicit direction by specifying that students should be expected to read at least twenty-five books each year and that those books should be of the quality and complexity illustrated in the sample reading list provided for each grade level. In Mathematics, we have gone beyond simply listing problem solving among our expectations for students. We set out just what we mean by problem solving and what things we expect students to be able to do in problem solving and mathematical reasoning. In addition, by providing numerous examples we have indicated the level of difficulty of the problems students are expected to solve.

The inclusion of work samples and commentaries to illustrate the meaning of the standards is intended to help make the standards clearer. Most of the stan-

dards are hard to pin down precisely in words also. In the Writing standard, for example, the work samples show the expected qualities of writing for the various kinds of writing required and the commentaries explain how these qualities are demonstrated in the work samples. The work samples and commentaries are an integral part of the performance standards.

The work samples will help teachers, students, and parents to picture work that meets standards and establish goals to reach for. Students need to know what work that meets standards looks like if they are to strive to produce work of the same quality. They also need to see themselves reflected in the work samples if they are to believe that they too are capable of producing such work. We have included work samples drawn from a diverse range of students: from students studying in a wide variety of settin-

Standards should be rigorous and world class.

Is what we expect of our students as rigorous and demanding as what is expected of young people in other countries—especially those countries whose young people consistently perform as well as or better than ours?

That is the question we are trying to answer when we talk about developing world class standards.

Through successive drafts of these performance standards, we compared our work with the national and local curricula of other countries, with textbook assessments, and examinations from other countries, and, where possible, with work produced by students in other countries. Ultimately, it is the work students produce that will show us whether claims for world class standards can be supported.

We shared the *Consultation Draft* with researchers in other countries and asked them to review it in terms of their own country's standards and in light of what is considered world class in their field. Included among these countries were Australia, Belgium, Canada, the Czech Republic, Denmark, England, Wales, Finland, France, Germany, Japan, the Netherlands, New Zealand, Norway, Poland, Scotland, Singapore, Sweden, and Switzerland. We asked these reviewers to tell us whether each standard is at least as demanding as its counterpart abroad and whether the set of standards represents an appropriately thorough coverage of the subject areas. We also shared the *Consultation Draft* with recognized experts in the field of international comparisons of education, each of whom is familiar with the education systems of several countries.

Our reviewers provided a wealth of constructive responses to the *Consultation Draft*. Most confirmed their responses to the English Language Arts, Mathematics, and Science standards, though some commended the inclusion of standards for Applied Learning. The reviewers supported the approach we adopted to "concretize" the performance standards through the inclusion of work samples (similar



approaches are being used in some other countries, notably England and Wales and Australia). Some of the reviewers were tentative in their response to the question of whether these performance standards are at least as demanding as their counterparts, noting the difficulty of drawing comparisons in the absence of assessment information, but offered comparative comments in terms of the areas covered by the standards. Some provided a detailed analysis of the performance descriptions together with the work samples and commentaries in terms of the expectations of students at comparable grade levels in other countries.

The reviews confirmed the conclusion we had drawn from our earlier analyses of the curricula, textbooks, and examinations of other countries: while the structure of curricula differs from country to country, the expectations contained in these performance standards represent a thorough coverage of the subject areas. No reviewer identified a case of significant omission. In some cases, reviewers noted that the range of expectations may be greater in the New Standards performance standards than in other countries; for example, few countries expect young people to integrate their learning to the extent required by the standards for investigation in New Standards Mathematics. At the same time, a recent study prepared for the Organisation for Economic Co-operation and Development reports that many countries are moving towards expecting students to engage in practical work of the kind required by the New Standards Science standards (Black and Atkin, 1996). The reviews also suggest that these performance standards contain expectations that are at least as rigorous as, and are in some cases more rigorous than, the demands made of students in other countries. None of the reviewers identified standards for which the expectations expressed in the standards were less demanding than those for students in other countries.

We will continue to monitor the rigor and coverage of the New Standards performance standards and assessments in relation to the expectations of students in other countries. In addition to the continued collection and review of materials from other countries, our efforts will include a review of the New Standards performance standards by the Third International Mathematics and Science Study, collaboration with the Council for Basic Education's plan to collect samples of student work from around the world, continued review of the American Federation of Teachers' series, *Defining World Class Standards*, and collaborative efforts with visiting scholars at the Learning Research and Development Center.

Standards should be useful, developing what is needed for citizenship, employment, and life-long learning.

We believe that the core disciplines provide the strongest foundation for learning what is needed for citizenship, employment, and life-long learning. Thus, we have established explicit standards in the core areas of English Language Arts, Mathematics,

and Science. But there is more. In particular, it is critical for young people to achieve high standards in Applied Learning—the fourth area we are working on.

Applied Learning focuses on the capabilities people need to be productive members of society, as individuals who apply the knowledge gained in school and elsewhere to analyze problems and propose solutions, to communicate effectively and coordinate action with others, and to use the tools of the information age workplace.

Applied Learning is not about “job skills” for students who are judged incapable of, or indifferent to, the challenges and opportunities of academic learning. They are the abilities all young people will need, both in the workplace and in their role as citizens. They are the thinking and reasoning abilities demanded both by colleges and by the growing number of high performance workplaces, those that expect people at every level of the organization to take responsibility for the quality of products and services. Some of these abilities are familiar; they have long been recognized goals of schooling, though they have not necessarily been translated clearly into expectations for student performance. Others break new ground; they are the kinds of abilities we now understand will be needed by everyone in the near future. All are skills attuned to the real world of responsible citizenship and dignified work that values and cultivates mind and spirit.

Many reviewers of drafts of these performance standards noted the absence of standards for the core area of social studies, including history, geography, and civics. At the time we began our work, national content standards for those areas were only in early stages of development; we resolved to focus our resources on the four areas we have worked on. As consensus builds around content standards in this additional area, we will examine the possibilities for expanding the New Standards system to include it.

Standards should be important and focused, parsimonious while including those elements that represent the most important knowledge and skills within the discipline.

As anyone who has been involved in a standards development effort knows, it is easier to add to standards than it is to limit what they cover. It is especially easier to resolve disagreements about the most important things to cover by including everything than it is to resolve the disagreements themselves. We have tried not to take the easier route. We adopted the principle of parsimony as a goal and have tried to practice it. At the same time, we have been concerned not to confuse parsimony with brevity. The performance descriptions are intended to make explicit what it is that students should know and the ways they should demonstrate the knowledge and skills they have acquired. For example, the standards relating to conceptual understanding in Mathematics spell out the expectations of students in some detail.

The approach we have adopted distinguishes between standards as a means of organizing the

knowledge and skills of a subject area and as a reference point for assessment, on the one hand, and the curriculum designed to enable students to achieve the standards, on the other. The standards are intended to focus attention on what is important but not to imply that the standards themselves should provide the organizing structure for the curriculum. In English Language Arts, for example, we have established a separate standard for conventions, grammar, and usage. This does not imply that conventions, grammar, and usage should be taught in isolation from other elements of English Language Arts. In fact, all of the work samples included in this book to illustrate the Conventions standard also illustrate parts of the Writing standard. What we are saying is that the work students do should be designed to help them achieve the Conventions standard. This means that conventions, grammar, and usage should not only be among the things assessed but should also be a focus for explicit reporting of student achievement.

Standards should be manageable given the constraints of time.

This criterion follows very closely on the last one, but focuses particularly on making sure that standards are "doable." One of the important features of our standards development effort is the high level of interaction among the people working on the different subject areas. We view the standards for the four areas as a set at each grade level; our publication of the standards by grade level reflects this orientation. This orientation has allowed us to limit the incidence of duplication across subject areas and to recognize and use opportunities for forging stronger connections among subject areas through the work that students do. A key to ensuring the standards are manageable is making the most of opportunities for student work to do "double" and even "triple duty." Most of the work samples included in this book demonstrate the way a single activity can generate work that allows students to demonstrate their achievement in relation to several standards within a subject area. Several of the work samples show how a single activity can allow students to demonstrate their achievement in relation to standards in more than one subject area. (See, for example, "Interview With Aspirin," page 96.)

Standards should be adaptable, permitting flexibility in implementation needed for local control, state and regional variation, and differing individual interests and cultural traditions.

These standards are intended for use in widely differing settings. One approach to tackling the need for flexibility to accommodate local control, state and regional variation, and differing individual interests and cultural traditions, is to make the standards general and to leave the job of translating the standards into more specific statements to the people who use them. We have not adopted that approach. These standards need to be specific enough to guide the New Standards assessment system; we have tried to

make them specific enough to do so. We have also tried to achieve the degree of specificity necessary to do this without unduly limiting the kinds of flexibility outlined above. Most of the standards are expressed in a way that leaves plenty of room for local decisions about the actual tasks and activities through which the standards may be achieved.

However, the specificity needed for standards intended to guide an assessment system does place some limits on flexibility. To tackle these apparently contradictory demands on the standards, we have adopted the notion of "substitution." This means that when users of these standards identify elements in the standards that are inconsistent with decisions made at the local level, they can substitute their own. An example of this is the Reading standard in English Language Arts. The Reading standard includes the requirement that students should read the equivalent of twenty-five books each year and specifies that they should read material of the quality and complexity illustrated in the sample reading list. We have included the reading list so as to be clear about the quality of reading material we are talking about at each grade level. But we do not claim that the titles on this list are the only ones that would be appropriate. Thus, users who have established their own reading lists and are satisfied with them can replace the lists provided with their own. There is, however, one important proviso: substitution only works when what is substituted is comparable with the material it replaces both in terms of the quality and the quantity of expectation.

Standards should be clear and usable.

Making standards sufficiently clear so that parents, teachers, and students can understand what they mean and what the standards require of them is essential to the purpose for establishing standards in the first place. It is also a challenge because while all of these groups need to understand what the standards are, the kinds of information they need are different. The most obvious difference is between the way in which the standards need to be presented to elementary school students so that they know what they should be striving to achieve and the way in which those same standards need to be presented to teachers so that they can help their students get there. If the standards were written only in a form that elementary school students could access, we would have to leave out information teachers need to do their job.

These standards are being presented in several formats. This version of the standards is written primarily for teachers. It includes technical language about the subject matter of the standards and terms that educators use to describe differences in the quality of work students produce. It could be described as a technical document. That does not mean that parents and students should not have access to it. We have tried to make the standards clear and to avoid jargon, but they do include language that may be difficult for students to comprehend and more detail

than some parents may want to deal with.

The standards are also included in the portfolio materials provided for student use. In these materials, the standards are set out in the form of guides to help students select work to include in their portfolios.

A less technical version of the standards is in preparation. It is being written with parents and the community in general in mind. The standards will be the same but they will be explained in more generally accessible language.

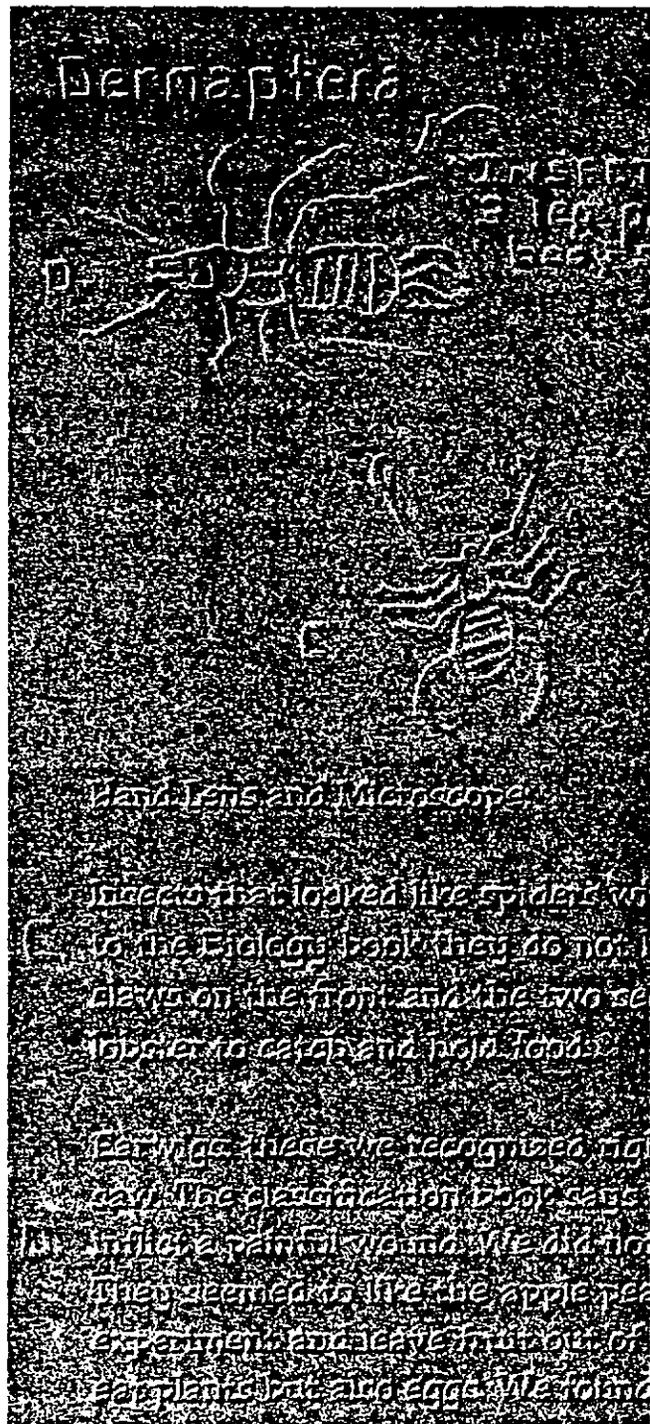
Standards should be reflective of broad consensus, resulting from an iterative process of comment, feedback, and revision including educators and the general public.

This publication is the result of progressive revisions to drafts over a period of eighteen months. Early drafts were revised in response to comment and feedback from reviewers nominated by the New Standards partners and the New Standards advisory committees for each of the subject areas, as well as other educators.

The *Consultation Draft*, published in November 1995, was circulated widely for comment. Some 1,500 individuals and organizations were invited to review the *Draft*. The reviewers included nominees of professional associations representing a wide range of interests in education, subject experts in the relevant fields, experienced teachers, business and industry groups, and community organizations. In addition, we held a series of face-to-face consultations to obtain responses and suggestions. These included detailed discussions with members of key groups and organizations and a series of meetings at which we invited people with relevant experience and expertise to provide detailed critique of the *Consultation Draft*. We also received numerous responses from people who purchased the *Consultation Draft* and who took the trouble to complete and return the response form that was included with each copy.

The process of revision of the performance standards was further informed by a series of independently-conducted focus group meetings with parents and other members of the community in several regions of the country and with teachers who were using the *Consultation Draft*.

The reviewers provided very supportive and constructive commentary on the *Consultation Draft*, both at the broad level of presentation and formatting of the performance standards and at the detailed level of suggestions for refinements to the performance descriptions for some of the standards. These comments have significantly informed the revisions made to the standards in the preparation of this publication.



APPENDIX C: STREET LAW

The D.C. Street Law Clinic

Since 1972, the D.C. Street Law Clinic at Georgetown University Law Center has provided law-related educational services in the District of Columbia and has served as a model for Street Law programs both nationally and internationally. The Clinic's purpose is to provide legal education to laypersons while also aiding in the professional development of the law students at Georgetown. The Clinic seeks to provide a greater understanding of the law to those outside the legal profession and promote the use of interactive educational methods to develop academic, critical thinking, and civic skills.

The Clinic provides a wide array of educational services in the D.C. community. The Street Law High School Clinic works with local public high schools to provide a year long course in law. The Street Law Community Clinic works through adult education centers to provide introductory legal education to laypersons and impart practical advocacy skills. The Street Law Clinic also sponsors a variety of special outreach projects specifically geared to further the goals of the high school and community clinical programs. Further, through these special projects, Street Law is able to sponsor both an Even Start and a Family Literacy Project in the D.C. area.

Georgetown law students act as teachers both in local high schools and the community, and clinic faculty develop and oversee the programs, as well as evaluate their success. Through instructional seminars in pedagogy, methodology and advocacy, faculty at the clinic prepare Georgetown law students to teach effectively to high school and adult learners.

The Street Law High School Clinic

The D.C. Street Law High School Clinic links approximately twenty-four law school students with the D.C. Public High Schools, where the law students, in cooperation with the D.C. Public School High School social studies teacher, teach a year-long course in Street Law.

The course, designed to introduce the high school students to a legal system that touches their lives on a daily basis, concentrates on providing high school students with the skills to become problem-solvers through their knowledge of legal principles, primarily in the areas of criminal, tort, and family law, as well as constitutional rights and civil liberties. Moreover, the objectives of the Street Law courses correlate well with the D.C. Public Schools' curriculum.

Students learn both substantive law and civic skills through the program. In learning substantive topics in law, the students learn not only what the law is, but are engaged to think critically about what the law should be. For example, in examining the First Amendment right to freedom of speech, students assess whether this right should be balanced with other societal interests such as the protection of others against injurious or dangerous words and conduct. Students who participate in the program are encouraged to understand their role, and the role of law, in a democratic society, while they also acquire pragmatic skills such as how to write an effective letter of complaint.

The centerpiece of the program is the annual citywide mock trial competition. High school students play the roles of lawyers and witnesses in a hypothetical case based on cutting-edge legal issues brought before actual judges at the Superior Court. In addition to learning communications and preparation skills, trial procedures, and teamwork, students practice the spectrum of cognitive skills as they comprehend a complicated fact pattern, apply the facts to the law, analyze and evaluate factual and legal issues, and synthesize the many components into a unified presentation.

The Street Law Community Clinic

The Street Law Community Clinic, modeled after the Street Law High Schools Clinic, is a course about law affecting one's daily life offered to adult learners. Law students teach a semester-long course one evening each week in practical law in a community setting.

Presently, the course is offered to homeless parents in transitional shelter or emergency housing whose children attend Bright Beginnings, a model preschool program for homeless children located in the Perry School Community Center, four blocks north of the Law Center. Adults from the community surrounding the Perry School may also take the course. The course is also offered at a local public housing project to community residents.

The Community Clinic focuses on the practical law affecting the participants' daily lives, including small claims court, landlord-tenant law, public benefits, domestic violence, dispute resolution, consumer protections, education, etc. The course utilizes interactive methods, which promote discourse and provide authentic, meaningful reading and writing opportunities. Through teaching and community participation in the clinic, Georgetown law students acquire skills in research, critical thinking, effective communication with lawyers and clients.

Street Law Special Projects

Mock Trial Tournament

Each year, the D.C. Street Law High School Clinic culminates with a Mock Trial Tournament. Each participating District of Columbia high school class sends a team to compete in a hypothetical trial in which students play advocates, clients and witnesses on opposing sides of a cutting-edge legal and significant social policy issue. For example, Mock Trial 2000 focused on the criminal case of *Martha Monroe v. State of Newcal*, in which Ms. Monroe had killed her husband, but asserted the defense of Battered Women's Syndrome, an emerging legal defense to murder when a woman who has been continuously battered over a significant period of time psychologically sees no other alternative to free herself from the cycle of abuse.

Coached by their law student instructors and lawyers from mentor law firms, the high school students prepare over a six week period to be lawyers and witnesses in a complex and controversial case. During that time, they master the facts, analyze the witness statements, statutes, case law and documents, hone their oral skills, practice courtroom procedures, and master trial skills and rules of evidence. The contestants litigate a hypothetical lawsuit based on a complex scenario composed by the clinic staff. Superior Court judges, local attorneys and law students volunteer their time to serve as judges and scorers.

The two preliminary rounds of the competition are held at the Superior Court in D.C. Approximately 400 students in up to 40 teams from all street law classes participate in the tournament. Over 400 parents, teacher, Principals, and friends have observed the trials each night. The final round of the tournament takes place in the moot courtroom at the Georgetown University Law Center.

Mentor Program

Another outstanding feature of the Street Law High School Clinic is the Mentor program, in which each Street Law class is paired with a law firm or legal organization. The Mentor Firm or organization is typically involved in Street Law by: 1. visiting the class to teach about certain aspects of the law in which the firm or organization is involved; 2. taking the students on a field trip to a Superior Court trial, a Congressional hearing, or to the U.S. Supreme Court; 3. inviting the students to the firm or organization itself, where the students learn about the operations of a law firm/agency, observe potential careers from legal secretary to lawyer, and perhaps examine the development of a case in some detail; 4. helping the class to prepare for the mock trial competition.

Teen Dating Violence Prevention Program

This event presents a three-day curriculum on preventing and resolving teen domestic violence for D.C. high school students. Superior Court Judges and Commissioners, legal experts in domestic violence matters, and law students from Columbus School of Law join the Street Law classes to present relevant issues of teen dating violence and discuss preventive measures with the high school students. The Teen Dating Violence Prevention Program, is conducted in collaboration with the D.C. Domestic Violence Coordinating Council, the D.C. Superior Court, and the Families and the Law Clinic of Catholic University Columbus School of Law.

The D.C. Family Literacy Project

The D.C. Family Literacy Project helps incarcerated parents develop the literacy of their children through enhancing their own literacy-building and parenting abilities. Parents learn new ideas in child development and family literacy --such as reading to children, storytelling, expressive arts and crafts--and put them into practice during special family visits. The Project is a collaboration among Georgetown University Law Center, the D.C. Public Library, and the D.C. Department of Corrections. Each year the program runs three instructional cycles which consists of two components: weekly two-hour educational seminars and two-hour interactive family visits integrated with these seminars.

Georgetown Even Start Program

Georgetown Even Start is a comprehensive, and innovative family literacy program for homeless families in the District of Columbia. The core approach is to engage homeless parents in meaningful and extensive literacy activities in two areas of greatest concern: their social well-being and the literacy development of their children. By participating in a combination of family literacy and adult literacy activities, homeless families in temporary shelters in D.C. experience meaningful literacy success both in life skills and as full partners in the education of their children. The Project is a collaboration among the D.C. Family Literacy and D.C. Street Law Projects of Georgetown Law Center and partners -- the Child Development Center of Georgetown University Medical School, Bright Beginnings preschool, Walker-Jones Elementary School, the Children's Service division of the D.C. Public Library, the Washington Legal Clinic for the Homeless, and First Book.

APPENDIX D: BIOGRAPHICAL INFORMATION OF FOUNDERS

MEGAN ELAN BLAMBLE

1855 Calvert St., NW, #102, Washington, DC 20009

(202)588-5954

blamblem@law.georgetown.edu

EDUCATION **Georgetown University Law Center, Washington, DC**

J.D. expected May 2000

Activities: *Georgetown Journal on Poverty Law and Policy* (Notes Editor); Equal Justice Foundation; Women's Legal Alliance

Bucknell University, Lewisburg, PA

B.A. in International Relations and Spanish, May 1995, magna cum laude

Honors: Phi Beta Kappa Honor Society; Phi Eta Sigma Honor Society
Omicron Delta Kappa Leadership Honor Society

Activities: Bucknell Dance Company (President); Social Justice College; Amnesty International

La Universidad de Las Condes, Santiago, Chile

Junior Year Semester Abroad, Spring 1994

Lived with a host family while studying and participating in a part-time internship with the Chilean Commission on Human Rights.

LEGAL EXPERIENCE

Legal Aid Society, Juvenile Rights Division, New York, NY

Legal Intern and NAPIL National Summer Legal Corps Member, Summer 1999

Worked one-on-one with an attorney specializing in child protective work; assisted with case preparation by conducting fact investigation, interviewing clients and witnesses, performing research and writing assignments, and digesting pre-trial discovery and case records for various legal proceedings.

Street Law, Inc., Washington, DC

Project Assistant and Intern, 1998-99

Wrote educational material for *Youth Act!*, a program empowering young people to tackle local problems at the policy level and to advocate for creative and meaningful changes in their communities; produced a *Youth Act!* Advocacy Training Manual and written summaries of various social issues to post on a new interactive *Youth Act!* website.

DC Children's Advocacy Center, Washington, DC

Legal Intern and Equal Justice Foundation Grant Recipient, Summer 1998

Assisted with day-to-day operations of the Center; updated the case tracking system for all families and child victims assisted in 1998; helped to coordinate two training sessions relating to joint investigations of child sexual abuse; completed an independent research paper that was published and distributed as a training resource for DC prosecutors entitled *Using Videotaped Investigative Interviews of Child Victims in Court*.

The United Methodist Church, Women's Division, Office of Public Policy, Washington, DC

Sally Graham Ernst Public Policy Intern, September - June 1995-6

Monitored federal legislation pertaining to women, children and youth; lobbied Congress on issues of welfare reform, food policy and health care; wrote legislative updates for distribution to a network of over 1,000 local United Methodist Women chapters; wrote educational material for *100% Vote* - a campaign to encourage 100% voter registration and participation in the 1996 elections.

CLINICAL EDUCATION

Family Opportunity Clinic, Georgetown University Law Center

Fall 1999

Provided direct legal representation to indigent families residing in the District of Columbia on matters concerning special education, children's SSI, and the receipt of TANF, Medicaid and other public benefits; represented a client in a special education administrative hearing and Individual Educational Plan (IEP) meetings and reviews related to their children's educational needs.

Street Law Clinic, Georgetown University Law Center

Academic Year 1998-99

Taught a class about legal rights and responsibilities to a class of 25 high school juniors and seniors in a DC public high school three days a week; introduced students to basic legal concepts and principles of criminal law, family law, and individual rights; coached the students in a citywide Mock Trial Competition in which the students worked together to conduct an entire trial about whether a student can sue a school for negligence based on his/her lack of basic skills post-graduation.

OTHER EXPERIENCE

Office of Public Interest and Community Service, Georgetown University Law Center

Work-Study Student Intern, Academic Year 1999-2000

Work with staff to promote a variety of public interest programs, trainings, job fairs and job resources for students interested in pursuing legal jobs in the public interest; lend technical and administrative support to student groups doing various *pro bono* or volunteer projects serving the surrounding DC community.

Visions in Action, Johannesburg, South Africa

International Development Volunteer, January - July 1997

Volunteered two days a week at the Johannesburg Legal Aid Bureau, advising clients and helping them acquire legal representation; volunteered three days a week at the National Institute for Crime Prevention and the Rehabilitation of Offenders' (NICRO) Prisoners Awaiting Trial Program, alternately visiting the Johannesburg Women's and Juvenile prisons to offer those awaiting trial assistance in applying for legal aid and contacting their families; co-authored a curriculum for NICRO's diversion program for juvenile offenders awaiting parole; volunteered one shift per week as a crisis hotline counselor for abused women at People Opposing Women Abuse (POWA).

League of Women Voters, Washington, DC

Project Assistant for Election Services, June - December 1996

Assisted in posting voter turnout information from the 1996 elections on the Internet; compiled summaries and analyses of state ballot initiatives to be posted on the MSNBC *Decision '96* website; analyzed trends in the initiative process and their influence on the 1996 elections.

The Fresh Air Fund, New York, NY

Social Work Assistant, Summer 1995

Ensured the safety and emotional well-being of over 7,000 underprivileged children visiting summer host families; performed on-call crisis intervention as needed.

Friendly Towner Intern, Summers 1994 & 1993

Coordinated the trips of over 700 city children to and from their summer host families.

OTHER SKILLS

Proficient in Spanish (both oral and written)

Trained in crisis hotline counseling for victims of violence

Trained in conflict resolution and mediation techniques

Enthusiast of all forms of dance, especially modern, flamenco and West African

PAMELA M. CHERRY

Post Office Box 1956
Washington, D.C. 20013-1956

703-739-1084
pmcherry61@aol.com

EDUCATION

Georgetown University Law Center, Washington, DC

Juris Doctor, Expected May 2000

GPA: 8.9/12 (B)

Activities: Equal Justice Foundation
American Bar Association, Student Member
National Bar Association, Student Member

Papers: *The Master's Tools Will Never Dismantle the Master's House: Educational Injustice and the Tools for Reform* (unpublished)
Treating Juveniles as Adults: An Inappropriate Response to Juvenile Crime (in progress)

Marymount University, Arlington, Virginia

Master of Education, Elementary Education, December 1990

Honors: Delta Epsilon Sigma National Honor Society

State University of New York at Albany, Albany, New York

Bachelor of Arts, Psychology, August 1983

Awards: National Merit Scholarship Recipient

Honors: Dean's List - Spring 1982, Spring 1983

EXPERIENCE

Citizens' Commission on Civil Rights, Washington, DC

Legal Intern/Researcher, Title I Project, January 1999 – Present

Research and analyze data, develop protocol, and interview school, district, and state level school administrators to compile the information necessary to assess the use of federal funds allocated to states earmarked to assist in the education of poor and minority students as Congress considers reauthorization of the program, and other legal research as requested by attorneys.

Children's Defense Fund, Washington, DC

Legal Intern, Summer 1999

Summarized potential legislation relating to issues impacting juvenile justice; provided analysis of the effect of changes in legislation; researched funding streams for community-based alternative to incarceration project for youths; compiled information relating to foster care initiatives in proposed legislation.

Sheridan School, Washington, DC

Fairfax County Public Schools, Suffolk City Public Schools – Virginia

Prince George's County Public Schools, Montgomery County Public Schools – Maryland

Elementary Educator, February 1991 – August 1998

Planned and instructed entire academic curriculum at the elementary level; provided leadership for grade-level team members, and school improvement team, determining curriculum changes and budget allocations; developed guidelines for school accreditation; and interviewed potential candidates for new assistant principal.

Sheridan School, Washington, DC

Director, Sheridan Gap Camp, Summers 1991, 1992, 1993

Established summer camp for area youths. Responsible for devising curriculum, managing budget, selecting and supervising staff, and managing all administrative aspects of the camp.

Virginia Department of Probation & Parole, Norfolk, Virginia

Probation and Parole Officer, May 1989 – August 1989

New York City Department of Probation, New York, New York

Probation Officer, August 1983 – May 1989

Investigated and prepared reports to assist judges in sentencing individuals convicted of both felony and misdemeanor offenses. Following sentence to probation, or release to parole, provided counseling, employment, education, and substance abuse referrals and assistance.

JOHN JOSEPH COMMISSO

26 Sunset Drive, Apartment 4
Alexandria, Virginia 22301

(703) 299-9943
commissj@law.georgetown.edu

EDUCATION

Georgetown University Law Center, Candidate for Juris Doctor, May 2000

Journal: *The Georgetown Law Journal*: Book Reviews and Symposia Editor

Activities: Family Opportunity Clinic; Death Penalty Project: Founder; Outstanding Public Service Award

Boston College, Bachelor of Science in Accounting, May 1994

Honors: *Summa Cum Laude*

Wall Street Journal Award for outstanding achievement in major course of study

Beta Gamma Sigma and Golden Key National Honor Societies

Activities: Accounting Academy: Director of Tutoring; Intramural Ice Hockey

EXPERIENCE

Goodwin, Procter & Hoar LLP, Washington, D.C.

Summer Associate, June - August 1999

- Conducted research and drafted memoranda regarding consumer financial services litigation, federal regulation of the banking industry, and affordable housing and economic development.
- Completed assignments related to collateral estoppel, opposition to class certification, stay of court order pending appeal, Freedom of Information Act request, Office of Federal Housing Enterprise Oversight rulemaking, privacy of financial information, Internet privacy, and affordable housing joint venture.

Office of Senator Edward M. Kennedy, Washington, D.C.

Assistant to Education Advisor, June - August 1998

- Researched and analyzed public policy, legislation, and court decisions to help develop and promote progressive legislation to improve the quality of public education.
- Wrote memoranda to Senator Kennedy analyzing current legislative initiatives and court decisions involving issues such as bilingual education, single-gender public schools, and private religious school vouchers.
- Drafted opinion editorial, published in the *Baltimore Sun*, which discussed child literacy.
- Prepared statements delivered by Senator Kennedy during Congressional debates and included in the Congressional Record on issues including child literacy, school construction, and class size reduction.

Georgetown University Law Center, Washington, D.C.

Research Assistant to Professor Craig Hoffman, part-time, June - August 1998

- Prepared research exercises designed to familiarize law students with legal research and proper Bluebook citations.
- Researched case law to help Professor Hoffman prepare memorandum drafting exercise for first-year law students.

Price Waterhouse LLP, Boston, MA

Staff accountant, September 1995 - August 1997, Intern, Summer 1993

- Audited financial statements of public and private businesses, hospitals, savings bank, and investment companies.
- Assisted in the preparation and filing of debt registration statement with Securities and Exchange Commission.
- Supervised and evaluated team members.
- Passed all four sections of the Certified Public Accountant Examination.

Loaned Executive to the United Way of Massachusetts Bay, August - October 1996

- Volunteered to work on full-time, *pro bono* project with the United Way during the fund raising campaign season.

Tibetan Resettlement Project-Austin, Austin, TX

*Americorps*VISTA, Volunteer in Service to America, June 1994 - June 1995*

- Served with not-for-profit organization providing relocation, reunification, legal, education, employment, and housing services to Tibetan immigrants who did not qualify for government-funded refugee services.
- Acted as link between local immigration attorneys and national resettlement project. Assisted immigrants with Immigration and Naturalization Service visa applications for family members. Advocated for immigrants seeking travel visas from Indian Consulate. Aided immigrants with health care and health insurance issues.
- Wrote grant proposals. Chaired fund raising committee and organized fund raising events.
- Coordinated public relations effort. Drafted and distributed press releases for print, television, and radio.

JACQUELYN DAVIS

1745 Q Street, NW, Apt. A . Washington, DC 20009 . (202) 232-6151 . jacquelyndav@earthlink.com

PROFESSIONAL EXPERIENCE

Frank W. Ballou High School, Street Law Teacher Washington, DC, 9/99-present

- Teach practical law, procedure, and critical thinking skills to high school juniors and seniors.

Hands On DC, Co-Founder; President, Board of Directors Washington, DC, 10/94-present

- Created a volunteer-led non-profit organization to refurbish DC public schools, raise scholarship funds for low-income DC youth, and involve community residents and businesses in volunteer service to area schools.
- Assist with volunteer recruitment, event logistics, school site selection, and fundraising.
- Since 1994, Hands On DC has refurbished over 100 public schools, involved 19,000 community volunteers, and raised \$360,000 for scholarships.

Legal Aid Society – Juvenile Rights Division, Legal Summer Associate New York, NY, 6/99-8/99

- Researched and drafted motions, affirmations, affidavits, and memoranda for child protection and juvenile justice cases.
- Interviewed children, foster parents, caseworkers, and witnesses.
- Prepared cases for trial by drafting witness examinations, opening statements and closing arguments.

U.S. Congressman Nick Lampson (TX), Chief of Staff Washington, DC, 1/97-9/98

- Developed legislative agenda, directed communications, and advised Congressman on politics and policy.
- Managed twenty-two person staff, three Congressional offices, and \$950,000 budget.
- Drafted press releases, speeches, mailings, and newsletters.

Lampson for Congress, Campaign Manager Beaumont, TX, 11/95-12/96

- Designed and managed campaign strategy, communications, \$1.65 million fundraising effort, and field operations, securing 53%-47% victory.

U.S. Congressman Peter DeFazio (OR), Senior Policy Aide Washington, DC, 1/94-11/95

- Served as domestic policy advisor.
- Built coalitions and drafted legislation, including the Drive-Through-Delivery bill mandating insurance coverage for new mothers up to 48 hours after delivery.

Clinton-Gore '92 Campaign, Aide to George Stephanopoulos Little Rock, AR, 8/92-11/92

- Drafted campaign position papers and statements for special constituent groups.

RI Governor's Policy Office, Policy Assistant Providence, RI, 1/92-5/93

- Drafted report for Governor analyzing the effects of FY91 budget cuts on education.

EDUCATION

Georgetown University Law Center, Juris Doctor, expected 2001 Washington, DC

- *National Mock Trial.*

Brown University, Bachelor of Arts – Public Policy, December 1993 Providence, RI

- *Honors:* Governor Licht Award for education policy work, Swearer Community Service Award, Taubman Scholarship.
- *Study Abroad:* Spanish Studies, Universidad de Valencia, Spain.

Howard University, Visiting Student, Fall 1993 Washington, DC

Melody Fowler-Green

666 G St. NE · Washington, DC 20002 · (202) 546-1881

EDUCATION:

Georgetown University Law Center, Washington, DC

Juris Doctor, expected May 2000

Dean's List, 1998-1999

Editor-in-Chief, GEORGETOWN JOURNAL ON POVERTY LAW AND POLICY

Activities: Equal Justice Foundation; Women's Legal Alliance; Student Representative to the Law Journal Committee; Georgetown Outreach; Political Coordinator, OutLaw; Committee for the Journal of Gender and the Law; ATLA; Skadden Public Interest Fellowship Semi-Finalist.

University of Cincinnati, Cincinnati, Ohio

Master of Arts in Women's Studies, Interdisciplinary, June 1997

Thesis: *Complex Subjectivity: Legal Theory and Title VII at the Crossroads of Race and Gender*

Activities: Student representative to the Graduate Advisory Council

University of Michigan-Flint, Flint, Michigan

Bachelor of Arts in Theatre, August 1994

Activities: Editing team for *Qua*, U of M-Flint Literary Magazine, 1994

Honors: Flint Scholar, 1994; Morgan Trust Competitive Scholarship; Meritorious Achievement in Costume Design, American College Theatre Festival, Jan. 1993

EXPERIENCE:

Martens, Ice, Geary, Klass, Legghio & Gorchow, Southfield, Michigan 5/99 - 8/99

Summer Associate. Researched a variety of union-side labor and employment issues; drafted briefs for federal and state court; drafted complaints; prepared legal memorandum; wrote client letters; took affidavits.

American Foreign Service Association, Washington, DC 9/98 - 5/99

Law Clerk, Labor Management in Department of State. Research a variety of labor and employment issues; prepare legal memoranda; draft unfair labor practice charges; assist in pursuing union members' grievances against employer agencies.

Partnership for Civil Justice, Inc., Washington, DC 5/98 - 8/98

Law Clerk. Researched various legal issues including veteran's benefits, employment discrimination, and consumer rights; assisted in all stages in litigation preparation.

Professor Mari Matsuda, Georgetown University Law Center 5/98 - 10/98

Research Assistant. Researched and wrote memoranda about labor relations in post World War II Chicago; developed computer based filing system.

College of Arts and Sciences, University of Cincinnati 9/96 - 7/97

Adjunct Professor in Women's Studies. Taught Introduction to Women's Studies. Developed syllabus; evaluated student writing; lectured; led class discussion; advised students.

Friends of Women's Studies, University of Cincinnati 8/95 - 8/97

Secretary and Bookkeeper. Redesigned and maintained the database; organization and contact for the board and 450 community members; bulk mailings; public relations; graphic design; deposited membership dues; coordinated all fundraising events.

PAPERS AND PRESENTATIONS:

"Title VII and Postmodern Feminist Legal Theory at the Intersection of Race and Gender," paper, *Feminist Graduate Student Conference*, Loyola University, Chicago, Illinois, Feb. 1997.

"Women and Violence in Media: Revenge and Political Pleasure," multi-media presentation, University of Cincinnati Feminist Coalition guest speaker series; Hillel Student Center, 1996-97; also presented to a number of freshman classes at the request of professors.

"Third Wave Feminist Activism: Integrating Theory and Practice," presentation and roundtable at Cincinnati chapter of NOW, June, 1996.

COMMUNITY SERVICE:

Community Service Award, Georgetown Office of Public Interest and Community, March 2000.

District of Columbia Central Kitchen (CCNV), volunteer one weekend a month, 1998-present

Hamilton County Women's Shelter, volunteer, 1996

Camp Rising Sun, volunteer speaker, 1997, 1998

Flint Youth Theatre, 1991-1994

Lapeer County Schools, Day for the Arts, guest presenter, 1995, 1996.

PERSONAL INTERESTS:

Science fiction, hiking, camping, and banjo.

THOMAS HUTTON

6 Sunset Dr., Apt. 2
Alexandria, VA 22301

(703) 299-8875
tommarlyn@erols.com

EDUCATION

Georgetown University Law Center (GULC), Washington, D.C.

J.D. Candidate, May 2000

Honors: Dean's List 1998, 1999

Office of Public Interest & Community Service Public Service Award, 2000
Center for Computer-Assisted Legal Instruction Excellence for the Future Award
for excellent achievement in the study of Multi-party Dispute Resolution, 1999
Center for Computer-Assisted Legal Instruction Excellence for the Future Award
for excellent achievement in the study of Government Processes, 1998

Journal: Project Editor, American Criminal Law Review

Co-author, Financial Institutions Fraud, *Fourteenth Survey of White Collar Crime*,
36 Am. Crim. L. Rev. 715 (1999).

Activities: Charter school development group for proposed public high school
Student committee to improve Loan Repayment Assistance for public interest lawyers
Asian Pacific American Legal Resource Center, student-initiated legal assistance program

University of Hawai'i at Mānoa, Honolulu, HI

Public Administration Graduate Certificate, May 1999.

Connecticut College, New London, CT

B.A. International Relations, *cum laude*, Distinction in Major, May 1989

Honors: Pi Sigma Alpha National Political Science Honor Society
German Consulate Book Prize for Excellence in German
Leach Fund Grant for Study Abroad, Germany, Spring 1988

PROFESSIONAL EXPERIENCE

Harrison Institute for Public Law Housing & Community Dev't Clinic, GULC, Washington, D.C.

Legal Intern: Providing legal and business services to community development corporation for mixed-income housing development and supplemental services. Work includes feasibility analysis of rental housing rehabilitation, feasibility analysis of community development credit union, financing and document work for business microloan program, development of public funding sources, assistance with governance and contractual issues. August 1999 - present.

Drummond, Woodsum & MacMahon, Portland, ME

Summer Associate: Worked at private law firm representing most of Maine's schools districts as well as private sector clients; conducted legal research and writing on topics including disability discrimination by schools and by private employers, unfair labor practices, contracts, tax, bankruptcy, unfair trade practices, corporate opportunity doctrine, and school liability for student suicide; drafted corporate merger documents; briefed Native American tribal clients during settlement discussions. Summer 1999.

Center for Law and Education, Washington, D.C.

Law Clerk: Conducted legal research, legislative analysis, federal and state advocacy, and public outreach on public education issues facing disadvantaged students, including school reform, ability tracking, vocational education, school-to-work opportunities, and standards and assessment. Work with Illinois parents group resulted in strengthening state vocational education plan provisions. Co-authoring parents' guide to high school reform. Full-time Summer 1998, part-time Sept. 1998-present.

Georgetown University Law Center, Washington, D.C.

Research Assistant to Associate Dean J. Peter Byrne: Researched Free Exercise and Establishment Clause issues relating to regulation of religiously affiliated educational institutions. Summer 1998.

Office of the Lieutenant Governor, Honolulu, HI

Executive Assistant: Researched policy issues of education and economic development; conducted media relations for Lt. Governor Mazie K. Hirono and department; wrote speeches and coordinated appearances; initiated and coordinated volunteer and intern program; revamped Secretary of State functions in response to 50% reduction-in-force. 1995-97.

Researcher: Developed departmental legislation and shepherded through Legislature; wrote and presented legislative testimony; performed issues research; resolved community inquiries and complaints; supervised office during transition between administrations. 1994-95.

Mazie Hirono for Lieutenant Governor Campaign, Honolulu, HI

Campaign Coordinator: Coordinated internal and public communications; supervised development of position statements; wrote speeches and prepared candidate for public appearances; participated in development and production of advertising; coordinated campaign logistics; oversaw campaign finances; recruited, trained, and coordinated volunteers. 1994.

Office of Hawai'i State Representative Mazie Hirono, Honolulu, HI

Office Manager: Supervised all legislative and community operations and staff of legislative office; attended community meetings and functions on behalf of Representative. 1993-94.

Hawai'i State Department of Transportation, Honolulu, HI

Information Specialist: Developed and promoted traffic congestion management programs in new agency; drafted request-for-proposal and purchase-of-service contract for subsidized statewide vanpool program; developed proposal for state employee flextime policy and departmental pilot program; wrote and edited reports and promotional materials. 1992-93.

Office of Hawai'i State Representative David Hagino, Honolulu, HI

Committee Clerk: Coordinated operations of House Committee on Water, Land Use, and Hawaiian Affairs among chair, members, and staff; wrote committee reports and redrafted legislation; served as public contact for constituents, media, and lobbyists. 1992.

OTHER**Friends of Mazie Hirono**

Coordinated interim operations of campaign organization, including fundraising, organizational development, and administrative and volunteer support. 1994-97.

The Sounds of Aloha Chorus

Served on board of directors of musical, educational, and service organization; directed public relations; initiated development program; initiated and coordinated public education and outreach to disadvantaged public schools to generate support for primary and secondary school music programs. 1992-97.

Hawai'i Music Education Task Force

Participated in development of community proposal for statewide blueprint for music education in public school system. 1996-97.

Joshua M. Kern

3133 Connecticut Avenue NW #410A, Washington, DC 20008, (202) 462-8667
Internet: joshkern@ix.netcom.com

Education

Georgetown University Law Center, Washington, DC

Juris Doctor expected, May 2001

GPA: 3.41, Dean's List

Journal: Law & Policy in International Business (LPIB)

Other: Street Law Clinic

AB Freeman School of Business, Tulane University, New Orleans, LA & Prague, Czech Republic

Master of Business Administration, May 1995

GPA: 3.70, Dean's List

Major: Finance, General Management

Other: Studied international business in Czech Republic

Tulane University, Economics, Cum Laude, New Orleans, LA

Bachelor of Arts, May 1994

GPA: 3.58, Cum Laude

Honors: Admitted into accelerated 5 year MBA program

Certificate in business law

Experience

Teacher, Ballou High School, Washington, DC

Taught Street Law to high school juniors and seniors as part of Georgetown University Law Center's clinical program. Created a student-centered learning environment to foster academic achievement and promote active engagement in our democratic system of government.

Morgan, Lewis and Bockius, Philadelphia, PA

Summer Associate: (Summer 2000).

Speiser Krause, Arlington, VA

Law Clerk: Assist African American farmers who suffered discrimination at the hands of the USDA with the preparation of their class action claim forms. Interview farmers at meetings throughout the country (Summer 1999).

District of Columbia's Public Defender Service (PDS), District of Columbia

Investigator: Research criminal cases, including locating witnesses, conducting interviews, and drafting motions (April, 1998 to present).

Maryland Legal Aid Service, Riverdale, MD

Volunteer: Performed legal intake for indigent clients. Tasks included advising clients on filing for bankruptcy, managing debt, and effectively handling creditors (September, 1998 to December, 1998).

Perspective Technology Corporation, Vienna, VA

Senior Consultant: Served as telecommunications consultant to MCI. Responsible for redesigning the Provisioning Department's systems, procedures and workflows. Analyzed and designed current systems and workflows. Authored proposals for recommended improvements. Maintained project budgets, addressed and resolved implementation issues, and trained MCI employees (1997-1998).

American Management Systems, Inc., Portland, OR

Manager: Assisted in large-scale implementation of AMS's integrated accounting and financial software at the United States Department of Agriculture (USDA). Responsible for developing, testing, and maintaining an intranet website to augment USDA's support services. Served as point of contact for all USDA employees located at regional office. Participated in conversion team responsible for designing software to USDA specific files (1996-1997).

American Management Systems, Inc., Arlington, VA

Systems Consultant: Developed system configuration requirements through client interaction and analysis of current business processes. Designed and tested all critical enhancements to the software. Developed system integration plans, which includes external interfaces and business process re-engineering. Served as member of the technical team responsible for developing the AMS intranet (1995-1996).

LILLEMOR M. McGOLDRICK

2129 Florida Avenue, NW, Apartment 303

Washington, DC 20008

lillemor@aol.com 202 232 2694

EXPERIENCE

Georgetown University Law Center, Washington, DC; August 1999-present

Adjunct Professor of Law, Clinical Programs; Faculty Supervisor: Instruct and train law students to teach law courses in all District of Columbia public high schools. Conduct two weekly seminars for law students on topics including education reform, the charter school movement, educational theory, methodology and practice, as well as substantive law. Observe and evaluate law students' performance. Write and supervise city-wide mock trial competition. Administer mentor program, which links each high school class with mentors from the legal community.

Washington Lawyers' Committee For Civil Rights & Urban Affairs, Washington, DC; Summer 1998

Equal Justice Foundation Fellow, Public Education Reform and Legal Services Projects: Provided counsel to Parents United for the D.C. Public Schools on legal and policy issues related to reform of the D.C. Public Schools. Worked with school officials and education advocacy organizations to develop solutions to problems facing the D.C. Public Schools. Drafted coalition letters, talking points, memoranda, statutory text and analysis. Conducted in-depth research on various education issues, including per-pupil funding mechanisms, ideal school and class size, and parental involvement.

U.S. Senator Edward M. Kennedy, Washington, DC; Summer 1997

Congressional Fellow, Office of Education: Briefed the Senator's Education Counsel and Education Policy Advisor on issues related to K-12 and higher education. Researched and wrote briefing books, memoranda, program and proposal summaries, talking points and fact sheets on topics including teacher recruitment, preparation, induction and professional development, education technology, and federal education programs to assist disadvantaged youth. Drafted official statements, speeches and press releases.

District Intern Teacher Certification Program, Los Angeles, CA; 1995-1996

Instructor: Led classes for educators seeking a California Teaching Credential. Specialized in portfolio assessment.

John Marshall High School, Los Angeles, CA; 1993-1996

English Teacher: Organized and managed classroom activities for secondary English and transitional English programs. Instructed 5-6 classes per day, ranging from remedial to Advanced Placement. Additional responsibilities included Chair of HIV/AIDS Awareness Outreach Program, Chair of the Coalition of Essential Schools Reform Committee, Student Support Group Facilitator (substance abuse intervention), Assistant Coach of Academic Decathlon Team, Member of the Parent Involvement Committee.

Teach For America, Los Angeles, CA; 1993-1995

Corps Member: Collaborated with other urban educators, and prepared portfolios on curriculum development, lesson planning and classroom management. Taught middle school English as part of the program's Summer Teacher Training Institute.

EDUCATION

Georgetown University Law Center, Washington, DC, *Juris Doctorate*, May 1999

Honors: *Magna Cum Laude* (GPA: 10.986/12.0); Order of the Coif; Public Interest Law Scholar; Academy of Trial Lawyers' Award; Dean's List; Equal Justice Foundation Fellow

Journal: Georgetown Journal on Poverty Law & Policy, Editorial Board Member and published author

Clinics: Federal Legislation Clinic; Street Law Clinic (teaching law in D.C. public high schools)

Activities: Public Interest Law Community Service Program, Member and Project Organizer; Equal Justice Foundation, Member; Project Northstar, Tutor

Teacher Certification Program, Los Angeles, CA, State of California Teaching Credential, June 1995

McGill University, Montreal, Quebec, Canada, Bachelor of Arts, Honors English Literature, June 1993

Honors: First Class Honors (GPA: 3.74/4.0); James McGill Academic Scholarship Recipient; Rhodes Scholarship National Finalist; Dean's Honor List; Oxford University Summer Scholar

Activities: Montreal Children's Hospital, On-Floor Volunteer and Charity Benefit Fundraiser; McGill University, Community Safety Patrol; Head Start Program, Teacher's Aide

PUBLICATIONS

Note, "Reforming Urban School Systems: Putting the Public Back in Public Education," 6.1. Georgetown Journal on Poverty Law & Policy 111(1999); "Texas and the Charitable Choice Provision of the Personal Responsibility and Work Opportunity Act of 1996," 5 Georgetown Journal on Fighting Poverty 69 (1997).

BAR

Member of the Maryland Bar Association. Awaiting bar admission in District of Columbia.

NATHANIEL LINCOLN MILLS

1227 31ST Street, NW
Washington, DC 20007
(202) 903-7707
millsn@law.georgetown.edu

EDUCATION

Georgetown University Law Center, Washington, DC

J.D. Candidate, May 2001

Mock Trial: Champion, 1999-2000 Greenhalgh Mock Trial Competition
2000-2001 NACDL National Trial Team (Criminal Defense)
Moot Court: Sutherland Cup Team (Constitutional Law)
Clinic: Street Law (Teaching Law in D.C. Public High School System)
Criminal Justice, 2000-2001 (Indigent Criminal Defense)
Activities: Student Ambassadors; Georgetown Outreach;
D.C. Bar Public Service Activities Corporation

Northwestern University, Evanston, IL

B.S. in Theater, June 1995

Activities: Mainstage Theater (several lead roles); Student Filmmaking Project;
Special Olympics (Keynote Speaker and Celebrity Volunteer);
Lyric Opera of Chicago

EXPERIENCE

Cardozo High School, Washington, DC

Teacher, 1999-2000

Taught Street Law to high school juniors and seniors as part of Georgetown University Law Center's clinical program. Utilized experiential learning techniques to foster academic achievement and citizenship awareness in a learner-centered environment.

Public Defender Service for the District of Columbia, Washington, DC

Law Clerk, Summer 1999

Worked with Appellate and Trial Division attorneys and the Deputy Director. Drafted motions and memos, interviewed clients, and conducted investigations in Southeast D.C. Assisted in drafting grant proposal seeking funding for emerging issues in indigent defense.

United States Olympic Team

Speedskater, 1992, 1994, 1998

Represented the United States at three Olympic Games and four World Championships. Captained 1998 U.S. Olympic Speedskating Team in Nagano, Japan. Former United States Champion and American Record Holder. Member of U.S. National Team for eight years.

Olympikids, Washington, DC

Athlete Representative, 1995-present

Active participant in United States Olympic Committee's *Olympikids* and *Champions in Life* community outreach programs. Frequently visit urban elementary schools in Washington D.C. area to foster health awareness, promote goal setting, and encourage dreaming.

New University Television (NUTV), Calgary, Alberta, Canada

Associate Producer, 1997-98

Created, edited, and coordinated television programming for *Full Frontal NUTV*, a semi-weekly cable "tele-magazine" show. Performed as On-Air Host for several episodes.

Central Intelligence Agency, Langley, VA

Law Clerk, Summer 2000

INTERESTS

Part-time Actor (Screen Actor's Guild eligible member); Guitarist/Singer; Chronic Golfer

Joy Moses

2400 16th Street, NW Apt. 625
Washington, DC 20009

(202) 265-0570
mosesjl@law.georgetown.edu

EDUCATION

Georgetown University Law Center, Washington, DC

Juris Doctor, expected May 20001

Study Abroad: **Georgetown Program In Florence, Italy**, Summer 1999

Clinic: Street Law

Activities: Thurgood Marshall Charter School Development Group

Black Law Students Association

Georgetown Children's Advocacy Group

Stanford University, Stanford, CA

Bachelor of Arts in Psychology and Communication, June 1997

Activities: The Stanford Daily, Writer

Black Pre-Law Society

Stanford Gospel Choir, Singer

EXPERIENCE

Family Opportunity Clinic, Georgetown University Law Center, Washington, DC

Summer Assistant/Teaching Assistant, Summer 1999-Present

Interview and counsel clients in need of special education services; develop cases and gather facts from clients and experts; research legal remedies; assist in the preparation of course materials; advise student advocates.

American Society of Heating, Refrigerating, and Air Conditioning Engineers, Atlanta, GA

Editorial Assistant, 11/97-8/98

Proofread and edited chapters for an annual technical handbook, maintained contact with contributors via phone and mail, assisted in layout process using Framemaker Software.

Black Community Services Center, Stanford University

Media Coordinator, 1/97-6/97, 9/94-6/95

Wrote and edited news articles, assisted with layout, co-supervised a staff of 15, planned meetings, advised writers about interview techniques and possible contacts. Worked approximately 15 hours a week while maintaining a full course schedule.

Department of Psychology, Stanford University

Research Assistant to Professor Claude Steele, 1/95-6/96

Conducted experiments on human subjects and assisted in the processing of data.

Summerbridge, San Francisco, CA

Teacher, Summer 1996

Taught Math and English to fifth and sixth graders, developed programming and activities, led assemblies, conducted meetings, mentored children.

KRON-TV, San Francisco, CA

Newsroom Intern, Summer 1995

Assisted news reporters in the field, collected and analyzed background research, acted as a liaison to concerned viewers.

VOLUNTEER EXPERIENCE

Tutor and Mentor, Students Offering Alternative Realities (S.O.A.R.), Stanford, CA

Tutored, mentored, and organized activities for high school students in East Palo Alto, CA.

PROFESSOR RICHARD L. ROE

Richard L. Roe is Professor of Law at Georgetown University Law Center and the Clinic Director of the D.C. Street Law program there. He received his J.D. degree in 1977 from the University of Maine School of Law and is a graduate of Yale College (AB, 1969).

Professor Roe directs the two-semester clinical program, Street Law: High Schools, in which law students teach year-long elective courses in District of Columbia high schools. Courses treat legal and civic dimensions of criminal, tort, consumer, housing, family and individual rights law. Additional responsibilities include training of District of Columbia teachers in law-related education and conducting the annual city-wide mock trial competition. In 1999-2000, nineteen law students serve as instructors in nineteen classes in fourteen public senior high schools, reaching over 600 high school students throughout the city. Professor Roe also directs the Street Law in the Community clinic, in which law students teach a twelve-week course in practical law in community settings, such as adult education programs, homeless settings, and public housing projects. In 1999-2000, twelve law students participated.

Professor Roe established and directs the D.C. Family Literacy Project, which helps incarcerated parents of young children to build their capacities to develop their children's literacy. This project, a collaboration among the D.C. Department of Corrections, the Corrections Corporation of America, the D.C. Public Library, First Book, and other local literacy providers, presently conducts programs for incarcerated men and women at D.C. correctional facilities and their families. He also directs the Georgetown Even Start program, which helps homeless families read with their children.

Professor Roe teaches Literacy and the Law, a seminar at the Law Center exploring the connections between emergent literacy and legal understandings, and other connections between literacy and law. This innovative course, co-taught with Professor John Hirsh of the Georgetown University English Department, is both interdisciplinary and interdepartmental (both law students and English graduate students are enrolled) and includes a service-learning practicum, in which participating students read with children in a neighborhood housing project near the Law Center.

He directed the clinical program, Street Law: Corrections, for more than 10 years until June, 1995. In this program, law students taught inmates in the District of Columbia adult correctional facilities. These courses treated criminal law and procedure, prisoners' rights, and selected topics of consumer, family and housing law.

From August 1977 to August 1983 Professor Roe was a Program Director for the National Institute for Citizen Education in the Law (now Street Law, Inc.). The Street Law, Inc. promotes law-related education by publishing curriculum, training teachers and lawyers, and providing assistance in program implementation in law schools, public and private school districts, and community and other settings. His responsibilities included: instructing teachers, attorneys and other persons in substantive law and educational methodology; planning and writing curricula in practical law and law in American history; the development of a practical law curriculum for adult basic education and English as a second language; and training correctional administrators.

His presentations include: in March, 1998, a panelist on parenting and family literacy for incarcerated parents at the Correctional Education Association annual Leadership Forum; in April 1993, 1996, 1999 and January, 2000, presentations on family literacy and children's literature and the law, National Conference on Family Literacy; in July, 1991, a panel presentation on "Adult and Family Literacy: Addressing the Present and Future Needs of Incarcerated Individuals," for the Correctional Education Association in Washington, D.C.; in July, 1990, the keynote address, "Student Speech in the First Amendment," Center for Research and Development in Law-Related Education, Wake Forest Law School;

in March, 1989, a presentation entitled "Teaching About the Law: Developing Educational Skills," at the Third Annual Teachers' Conference, D.C. Department of Corrections. Professor Roe has conducted numerous training and awareness sessions, particularly for visiting foreign lawyers, judges, and government officials, and has made radio and television appearances on Georgetown University Forum and World Net.

Professor Roe has published, "Valuing Student Speech: The Work for the Schools as Conceptual Development," 79 Cal. L. Rev. 1269 (1991), which examines recent cognitive research and applies it to the learning environment of schools and the role of students expression in schools. He has written numerous short articles for American Bar Association publications, most recently "Teaching about Due Process of Law," in the 1998 Law Day Planning Guide. He is editor and co-author of Great Trials in American History, text and teacher's manual, West Publishing Company, 1985. His present research focuses on how children develop their legal culture.

APPENDIX E: ABOUT THURGOOD MARSHALL

Thurgood Marshall was born on July 2, 1908 in Baltimore Maryland. Marshall was one of the most well-known figures in the history of civil rights in America and the first Black Supreme Court Justice. He served on the Court for 24 years until June 28, 1991 when he announced his retirement due to advancing age and deteriorating health. He passed away January 24, 1993.

Marshall graduated from Lincoln University in 1930 where he obtained his bachelor's degree. In 1933 he graduated from Howard University with his law degree. He was first in his class. Between 1933 to 1940, Marshall practiced law in the Baltimore, MD. area.

Marshall served as legal director of the NAACP. His tenure, from 1940 to 1961, was a pivotal time for the organization, as eliminating racial segregation was one of its prime directives. Marshall, along with his mentor Charles Hamilton (who was the first Black lawyer to win a case before the Supreme Court), developed a long-term strategy for eradicating segregation in schools. They first concentrated on graduate and professional schools, believing that White judges would be more likely to sympathize with the ambitious young Blacks in those settings. As the team won more and more cases, they turned toward elementary and high schools.

This culminated in the landmark 1954 decision *Brown v. The Board of Education* which declared segregation of public schools illegal. By this time, Marshall was an experienced Supreme Court advocate, having already presented many cases before them, including challenges against white-only primary elections and restrictive covenants. He presented each of his cases in what would become his hallmark style: straightforward and plain-spoken. When asked for a definition of "equal" by Justice Frankfurter, Marshall replied, "Equal means getting the same thing, at the same time and in the same place."

President John Kennedy appointed Marshall to the United States Court of Appeals for the Second Circuit in 1961. It was not an easy confirmation: a group of Southern senators held up his confirmation for months, and he served initially under a special appointment made during a Congressional recess. Still, from 1961 to 1965, he managed to write 112 opinions on that court, none of which were overturned on appeal. In fact, several of his dissenting opinions were eventually adopted as majority opinions by the Supreme Court. From 1965 to 1967, he served as Solicitor General under President Johnson. By the time Marshall succeeded Justice Tom Clark on the Supreme Court, he had argued 32 cases before that body, winning 29 of them. President Johnson said at the time that appointing Marshall on the Supreme Court was "the right thing to do, the right time to do it, the right man and the right place."

On the Court, Marshall said little during argument sessions, except to train his sarcasm on lawyers struggling through their arguments or sometimes on a fellow Justice. During a death penalty argument in 1981, Justice Rehnquist suggested that an inmate's repeated appeals had cost the state too much money. Justice Marshall interrupted, "It would have been cheaper to shoot him right after he was arrested, wouldn't it?"

In fact, Marshall is often remembered for his dissents. Of these, one of his best known is a 63 page opinion in *San Antonio School District v Rodriguez*. The court held, 5-4, that the Constitution's guarantee of equal protection was not violated by the property tax system used

in Texas and most other states to finance public education. Marshall accused the majority of "unsupportable acquiescence in a system which deprives children in their earliest years of the chance to reach their full potential as citizens."

Thurgood Marshall is survived by his wife, Cecilia, and two sons. Thurgood Jr., previously a lawyer on the staff of the Senate Judiciary Committee, is currently the legislative-affairs coordinator for the Office of Vice President. John is a member of the Virginia state police.

A. Thurgood Marshall Timeline:

- 1930: Mr. Marshall graduates with honors from Lincoln U. (cum laude)
- 1933: Receives law degree from Howard U. (magna cum laude); begins private practice.
- 1934: Begins to work for Baltimore branch of NAACP
- 1935: With Charles Houston, wins first major civil rights case, *Murray v. Pearson*
- 1936: Becomes assistant special counsel for NAACP in New York
- 1940: Wins first of 29 Supreme Court victories (*Chambers v. Florida*)
- 1944: Successfully argues *Smith v. Allwright*, overthrowing the South's "white primary"
- 1948: Wins *Shelley v. Kraemer*, in which Supreme Court strikes down legality of racially restrictive covenants
- 1950: Wins Supreme Court victories in two graduate-school integration cases, *Sweatt v. Painter* and *McLaurin v. Oklahoma State Regents*
- 1951: Visits South Korea and Japan to investigate charges of racism in U.S. armed forces. He reported that the general practice was one of "rigid segregation".
- 1954: Wins *Brown v. Board of Education of Topeka*, landmark case that demolishes legal basis for segregation in America
- 1961: Defends civil rights demonstrators, winning Supreme Circuit Court victory in *Garner v. Louisiana*; nominated to Second Court of Appeals by President J.F. Kennedy
- 1961: Appointed Circuit Judge, makes 112 rulings, later upheld by Supreme Court (1961-1965)
- 1965: Appointed U.S. Solicitor General by President Lyndon Johnson; wins 14 of the 19 cases he argues for the government (1965-1967)
- 1967: Becomes first African American elevated to U.S. Supreme Court (1967-1991)
- 1991: Retires from the Supreme Court
- 1993: Dies at 84 on January 24

APPENDIX F: WALTON FAMILY FOUNDATION AWARD LETTER

THE WALTON FAMILY FOUNDATION, INC.

P.O. Box 2030
Bentonville, AR 72712

Telephone: 501-464-1570
Facsimile: 501-464-1580
www.wffhome.com

May 24, 2000

Mr. Nathaniel Mills
Thurgood Marshall Academy
Charter School
C/o Street Law, Inc.
600 New Jersey Avenue, NW
Washington, DC 20001

Dear Mr. Mills,

It is my pleasure to inform you that The Walton Family Foundation, Inc. (The Foundation) has approved a grant to the Thurgood Marshall Academy Charter School. This grant is made in response to your grant request and is subject to the following terms and conditions:

Grant Terms and Conditions:

1) Purpose: To provide funds for items outlined in your application (revised budget) dated May 1, 2000.

2) The Foundation makes this grant on the reasonable assumption that the Thurgood Marshall Academy Charter School will become an approved educational organization that is a public entity or will be designated 501 (c) (3) status by the Internal Revenue Service.

3) Grantee: The Thurgood Marshall Academy Charter School. In the event that the grantee does secure 501 (c) (3) status by the Internal Revenue Service, the Grantee agrees to immediately notify The Foundation in writing if Grantee's federal tax status is revoked or altered or if revocation or alteration is imminent. Grantee also agrees to notify The Foundation in writing if these grant moneys are no longer used for the specified purpose. Loss of tax exempt status by the grantee or change in the use of funds from the specified purpose will cause this agreement to become null and void and all obligations of the Foundation will terminate. Grantee agrees that no part of the funds received from this grant will be used to carry on propaganda, influence legislation, influence the outcome of a public election, or any voter registration drive.

4) Amount: Ten Thousand Dollars (\$10,000.00).

5) Payable: Upon receipt of the signed copy of this letter as acknowledgment of these terms and conditions herein stated.

6) Reporting: An annual report on use of funds and a short narrative describing the outcomes achieved through the use of these funds will be submitted to The Foundation by June 30, 2001, using the enclosed evaluation form. The Foundation reserves the right to retain an outside firm to audit the grantee's financial records.

7) Expenditure Responsibility: In the event the grantee is not a public entity or does not receive the designated 501 (c) (3) status, Thurgood Marshall Academy Charter School will be required to submit an Expenditure Responsibility report to The Foundation based upon the following:

Grant funds may not be used for any of the following purposes: to attempt to influence legislation or the outcome of any specific public election; to carry on, directly or indirectly, any voter registration drive; to make grants to individuals or to other organizations, which do not comply with the requirements of Sec. 4945(d)(3) or (4), or undertake any activities for a non charitable purpose.

Under the applicable laws of the United States, all grant funds must be expended for charitable, scientific, literary, or educational purposes. This grant is made solely for the purposes stated in this letter, and the grant funds as well as any interest earned thereon may not be expended for any other purpose with the Foundation's prior approval in writing. It is understood that the funds will be used in accordance with the terms of this letter. Any funds not expended or committed for the purposes of the grant will be returned to the Foundation.

The Thurgood Marshall Academy Charter School agrees to provide annual narrative and financial reports on the use of grant funds to the Foundation's Board of Directors and a final report when the grant funds are fully expended. Each report should include a narrative account of what was accomplished by the expenditure of funds (including a description of progress made toward achieving the goals of the grant) and an annual financial statement.

Although the grant funds need not be physically segregated, such funds should be accounted for on your books in a manner which provides for ease of reference and verification. Records of receipts and expenditures under the grant, as well as copies of reports submitted to the Foundation, should be kept for at least four years following completion of such receipts and expenditures. Your books and records are to be made available for the Foundation's inspection at reasonable times.

The foregoing conditions comply with obligation under United States law to make reasonable efforts and establish adequate procedures to see that grant funds are spent solely for the purposes for which they were granted, and to obtain full and complete reports on how grant funds have been expended. Changes in United States laws, or in regulations interpreting them, may require the Foundation to ask that more detailed reports be submitted or that other steps be taken. The Foundation would promptly inform you of any such changes.

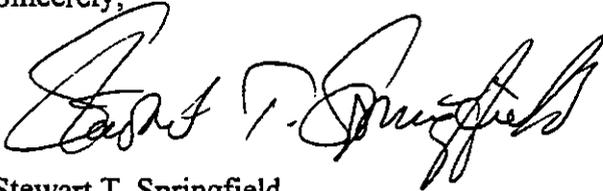
The Foundation will include information on this grant in its periodic public reports.

8) Acknowledgment: Please sign the enclosed copy of this letter as acknowledgment of these terms and conditions herein stated and return to me in the enclosed envelope.

9) The Walton Family Foundation, Inc. reserves the right to review and approve any publicity concerning this grant prior to release.

10) The Foundation desires that all of the Grantee's resources be dedicated to accomplishing Grantee's philanthropic purposes. Therefore, Grantee agrees that it will not recognize the Foundation or any of its Board of Directors or staff, with giving circle membership, commemorative items, recognition plaques or gratuities of any sort.

Sincerely,



Stewart T. Springfield
Executive Director

Acknowledgment:

Nathaniel Mills
Thurgood Marshall Academy Charter School

Date



AMENDMENT TO APPLICATION
THURGOOD MARSHALL ACADEMY
PUBLIC CHARTER HIGH SCHOOL

DATE: MARCH 16, 2001

SUBMITTED TO:

The District of Columbia Public Charter School Board

SUBMITTED BY:

Josh Kern, Executive Director
Joseph C. Feldman, Principal

10/11/19

10/11/19

10/11/19

10/11/19

10/11/19

10/11/19

10/11/19

10/11/19

10/11/19

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- V. Charter Implementation Timetable**
- VI. America's Choice**
- VII. Existing Contracts**
- VIII. Incorporation Documents**
- IX. Title X Funds**

Thurgood Marshall Academy Charter School Amendments to Charter Application

#1: Define what skills students will be able to demonstrate in order to attain “proficient” or “passing” on the school assessments

Following this narrative is the set of New Performance Standards developed by the National Center on Education and the Economy, used by the school and aligned with the America’s Choice curriculum and professional development. For each of the school “levels” (Lower School—ninth and tenth grades—and Upper School—eleventh and twelfth grades), there are standards within each academic subject that students must achieve in order to be promoted from one level to the next. For example, one of the New Performance Standards for English/Language Arts is the research paper (E2a—Writing a Report). Based on the standard, the teachers and school leaders will use a rubric that describes gradations of competencies for that specific task at the Lower School level. (See attached example for E2a.) Throughout the school year, each teacher will devote instructional time and curriculum to prepare students to achieve specific performance standards as measured by the rubric. When a student does not demonstrate proficiency according to the rubric during the school year (achieving “Below the Standard” in Conventions, for example), students and teachers will address those weaknesses—either individually or as a class (or school) depending on how widespread the weakness. (See #2, below.) Knowing the final performance expectations, staff can create curriculum and devote sufficient instructional time (and when necessary, additional strategies and resources) that coherently prepares students for the high-stakes assessment.

Structurally, our school will be organized into a Lower School and Upper School. The Lower School, for students’ ninth and tenth grade years, will address students’ academic needs to ensure that by the end of the tenth grade those students will perform at the “Proficient” level on school standards for each academic subject. If students demonstrate proficiency, they will be promoted to the Upper School, two years of intensive studies to satisfy high school requirements. Similarly, if they can demonstrate proficiency in their college preparatory courses in the Upper School, they will be permitted to graduate. These high stakes assessments of proficiency are only the endpoint; aligning their curriculum with the standards, teachers will integrate this type of authentic assessment of proficiency into their instruction and use periodic student assessment to guide their instructional strategies for individual students, entire classes, and the whole student body. (See #2, below.)

[From the NCEE New Performance Standards]

ENGLISH LANGUAGE ARTS

E2: WRITING

Writing is a process through which a writer shapes language to communicate effectively. Writing often develops through a series of initial plans and multiple drafts and through access to informed feedback and response. Purpose, audience, and context contribute to the form and substance of writing as well as to its style, tone, and stance.

E2a: The student produces a report that:

- Engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- Develops a controlling idea that conveys a perspective on the subject;
- Creates an organizing structure appropriate to purpose, audience, and context;
- Includes appropriate facts and details;
- Excludes extraneous and inappropriate details;
- Uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- Provides a sense of closure to the writing.

STANDARD E2A: WRITING THE REPORT

Performance Indicators	EXEMPLARY	ABOVE THE STANDARD	MEETS THE STANDARD	BELOW THE STANDARD
Student Voice	<ul style="list-style-type: none"> Engages the reader Confident writing style Student voice is evident Paper has individual identity 	<ul style="list-style-type: none"> Style is straight-forward but not original Student voice is present but inconsistent 	<ul style="list-style-type: none"> Writing is clear, with signature aspects of student author 	<ul style="list-style-type: none"> Writing is unclear with no particular style, individuality, or student voice
Effective Organization --controlling idea --organizing structure --range of appropriate strategies	<ul style="list-style-type: none"> Has clearly defined organizing idea, thesis, or question Complex argument clearly presented and supported by specific and relevant evidence: explanation of why opposing arguments are less valid Clear, compelling introduction; conclusion that effectively synthesizes the strands of its main argument. All aspects of the paper support the overall structure. Clear, effective transition in which ideas flow logically from each other. 	<ul style="list-style-type: none"> Has clearly defined organizing idea, thesis, or question Clear introduction and well constructed, thoughtful conclusion. Most aspects of the paper support the overall structure. Clear transitions. Presentation of clear argument supported by reasonable evidence; some opposing arguments countered. 	<ul style="list-style-type: none"> Organizing idea may be too broad or ill-defined, but present Transitions may be abrupt or minimal but reader generally follows Evidence not clearly connected to the organizing idea but the reader is able to make the connection 	<ul style="list-style-type: none"> No stated organizing idea Paper disjointed, unfocused No discernable introduction or conclusion Evidence may be present but does not support any particular idea
Effective and appropriate use of evidence	<ul style="list-style-type: none"> Detailed evidence drawn mainly from primary sources Evaluation of substantial number of opposing/varied sources Effective analysis of all sources 	<ul style="list-style-type: none"> Some evidence drawn from primary sources Evaluation of some opposing or varied sources Works thoroughly with all sources 	<ul style="list-style-type: none"> Adequate use of primary sources Adequate use of opposing/varied sources Refers to and analyzes several sources 	<ul style="list-style-type: none"> Inadequate use/absence of primary sources No variation in types, opinions, or perspectives of resources Has irrelevant information as evidence
Conventions	<ul style="list-style-type: none"> Grammar and punctuation are nearly flawless Appropriate documentation of sources (bibliography and citations) Uses quotations and paraphrasing to sustain argument 	<ul style="list-style-type: none"> Some grammar and punctuation errors but writing is solid overall Appropriate documentation of sources Uses quotations and paraphrasing to sustain argument 	<ul style="list-style-type: none"> Some grammar and punctuation errors, but does not impair understanding of content Sources are correctly documented though occasional errors in paraphrasing and quotations 	<ul style="list-style-type: none"> Grammar and punctuation errors interfere with understanding of content Sources used not documented consistently or documented correctly

INTRODUCTION

ABOUT NEW STANDARDS

New Standards is a collaboration of the Learning Research and Development Center of the University of Pittsburgh and the National Center on Education and the Economy, in partnership with states and urban school districts. The partners are building an assessment system to measure student progress toward meeting national standards at levels that are internationally benchmarked.

The Governing Board includes chief state school officers, governors and their representatives, and others representing the diversity of the partnership, whose jurisdictions enroll nearly half of the Nation's students.

New Standards was founded by Lauren Resnick, Director of the Learning Research and Development Center (LRDC), and Marc Tucker, President of the National Center on Education and the Economy (NCEE). The Executive Director is Eugene Paslov. New Standards staff is based at the LRDC and NCEE as well as the American Association for the Advancement of Science, the Fort Worth Independent School District, the National Council of Teachers of English, and the University of California Office of the President. Technical studies are based at LRDC and Northwestern University, with an advisory committee of leading psychometricians from across the nation.

The New Standards assessment system has three interrelated components: performance standards, an on-demand examination, and a portfolio system.

The performance standards are derived from the national content standards developed by professional organizations, e.g., the National Council of Teachers of Mathematics, and consist of two parts:



Performance descriptions—descriptions of what students should know and the ways they should demonstrate the knowledge and skills they have acquired in the four areas assessed by New Standards—English Language Arts, Mathematics, Science, and Applied Learning—at elementary, middle, and high school levels.



Work samples and commentaries—samples of student work that illustrate standard-setting performances, each accompanied by commentary that shows how the performance descriptions are reflected in the work sample.

The performance standards were endorsed unanimously by the New Standards Governing Board in June 1996 as the basis for the New Standards assessment system.

The on-demand examination, called the **reference examination** because it provides a point of reference to national standards, is currently available in English Language Arts and Mathematics at grades 4, 8, and 10. It assesses those aspects of the performance standards that can be assessed in a limited time frame under standardized conditions. In English

Language Arts, this means reading short passages and answering questions, writing first drafts, and editing. In Mathematics, this means short exercises or problems that take five to fifteen minutes and longer problems of up to forty-five minutes. The reference examination stops short of being able to accommodate longer pieces of work—reading several books, writing with revision, conducting investigations in Mathematics and Science, and completing projects in Applied Learning—that are required by New Standards performance standards and by the national content standards from which they are derived.

The **portfolio system** complements the reference examination. It provides evidence of achievement of the performance standards that depend on extended pieces of work (especially those that show revision) and accumulation of evidence over time. In 1995-96, 3,000 teachers and almost 60,000 students participated in a field trial of the portfolio system. The portfolio system includes instructions for students, teachers, and administrators and example portfolios that contain concrete examples of expectations for students and teachers to refer to as they prepare portfolios.

The 1995-96 portfolio field trial was the second year of field testing the system in English Language Arts and Mathematics, and the first year of developmental testing for Science and Applied Learning. The materials used in the 1995-96 trial were revised to take account of the experience of the first year, with the goal of making the portfolio system easier to understand and implement.

ABOUT THE PERFORMANCE STANDARDS

We have adopted the distinction between content standards and performance standards that is articulated in *Promises to Keep: Creating High Standards for American Students* (1993), a report commissioned by the National Education Goals Panel. Content standards specify "what students should know and be able to do"; performance standards go the next step to specify "how good is good enough."

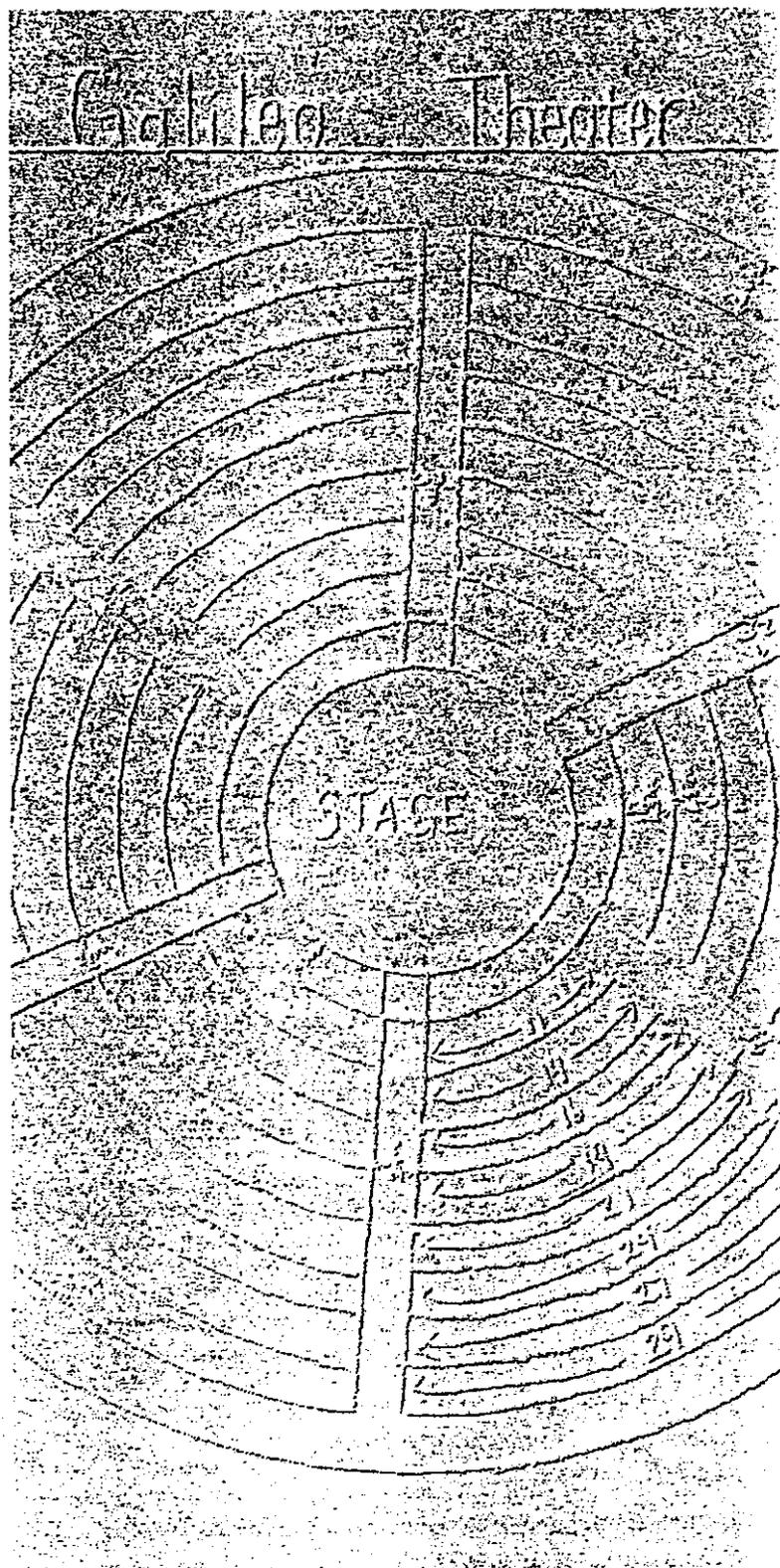
These standards are designed to make content standards operational by answering the question: how good is good enough?

Where do the performance standards come from?

These performance standards are built directly upon the consensus content standards developed by the national professional organizations for the disciplines. The Mathematics performance standards are based directly on the content standards produced by the National Council of Teachers of Mathematics (1989). (See "Introduction to the Mathematics performance standards," page 48.) Similarly, the performance standards for English Language Arts were developed in concert with the content standards produced by the National Council of Teachers of English and the International Reading Association (1996). (See "Introduction to the English Language Arts performance standards," page 20.)

The Science performance standards are built upon the National Research Council's *National Science Education Standards* (1996) and the American Association for the Advancement of Science's Project 2061 *Benchmarks for Science Literacy* (1993). (See "Introduction to the Science performance standards," page 80.)

The case of the Applied Learning performance standards is a little different. Applied Learning focuses on connecting the work students do in school with the demands of the twenty-first century workplace. As a newer focus of study, Applied Learning does not have a distinct professional constituency producing content standards on which performance standards can be built. However, the Secretary's Commission on Achieving Necessary Skills (SCANS) laid a foundation for the field in its report, *Learning a Living: A Blueprint for High Performance* (1992) which defined "Workplace Know-how." We worked from this foundation and from comparable international work to produce our own "Framework for Applied Learning" (New Standards, 1994). The Applied Learning performance standards have been built upon this framework. (See "Introduction to the Applied Learning performance standards," page 106.)



STANDARDS FOR STANDARDS

In recent years several reports on standards development have established "standards for standards," that is, guidelines for developing standards and criteria for judging their quality. These include the review criteria identified in *Promises to Keep*, the American Federation of Teachers' "Criteria for High Quality Standards," published in *Making Standards Matter* (1995), and the "Principles for Education Standards" developed by the Business Task Force on Student Standards and published in *The Challenge of Change* (1995). We drew from the criteria and principles advocated in these documents in establishing the "standards" we have tried to achieve in the New Standards performance standards.

Standards should establish high standards for all students.

The New Standards partnership has resolved to abolish the practice of expecting less from poor and minority children and children whose first language is not English. These performance standards are intended to help bring all students to high levels of performance.

Much of the onus for making this goal a reality rests on the ways the standards are implemented. The New Standards partners have adopted a Social Compact, which says in part, "Specifically, we pledge to do everything in our power to ensure all students a fair shot at reaching the new performance standards...This means they will be taught a curriculum that will prepare them for the assessments, that their teachers will have the preparation to enable them to teach it well, and there will be...the resources the students and their teachers need to succeed."

There are ways in which the design of the standards themselves can also contribute to the goal of bringing all students to high levels of performance, especially by being clear about what is expected. We have worked to make the expectations included in these performance standards as clear as possible. For some standards it has been possible to do this in the performance descriptions. For example, the Reading standard includes expectations for students to read widely and to read quality materials. Instead of simply exhorting them to do this, we have given more explicit direction by specifying that students should be expected to read at least twenty-five books each year and that those books should be of the quality and complexity illustrated in the sample reading list provided for each grade level. In Mathematics, we have gone beyond simply listing problem solving among our expectations for students. We set out just what we mean by problem solving and what things we expect students to be able to do in problem solving and mathematical reasoning. In addition, by providing numerous examples we have indicated the level of difficulty of the problems students are expected to solve.

The inclusion of work samples and commentaries to illustrate the meaning of the standards is intended to help make the standards clearer. Most of the stan-

dards are hard to pin down precisely in words alone. In the Writing standard, for example, the work samples show the expected qualities of writing for the various kinds of writing required and the commentaries explain how these qualities are demonstrated in the work samples. The work samples and commentaries are an integral part of the performance standards.

The work samples will help teachers, students, and parents to picture work that meets standards and to establish goals to reach for. Students need to know what work that meets standards looks like if they are to strive to produce work of the same quality. They also need to see themselves reflected in the work samples if they are to believe that they too are capable of producing such work. We have included work samples drawn from a diverse range of students and from students studying in a wide variety of settings.

Standards should be rigorous and world class.

Is what we expect of our students as rigorous and demanding as what is expected of young people in other countries—especially those countries whose young people consistently perform as well as or better than ours?

That is the question we are trying to answer when we talk about developing world class standards.

Through successive drafts of these performance standards, we compared our work with the national and local curricula of other countries, with textbooks, assessments, and examinations from other countries and, where possible, with work produced by students in other countries. Ultimately, it is the work students produce that will show us whether claims for world class standards can be supported.

We shared the *Consultation Draft* with researchers in other countries and asked them to review it in terms of their own country's standards and in light of what is considered world class in their field. Included among these countries were Australia, Belgium, Canada, the Czech Republic, Denmark, England and Wales, Finland, France, Germany, Japan, the Netherlands, New Zealand, Norway, Poland, Scotland, Singapore, Sweden, and Switzerland. We asked these reviewers to tell us whether each standard is at least as demanding as its counterparts abroad and whether the set of standards represents an appropriately thorough coverage of the subject areas. We also shared the *Consultation Draft* with recognized experts in the field of international comparisons of education, each of whom is familiar with the education systems of several countries.

Our reviewers provided a wealth of constructive responses to the *Consultation Draft*. Most confined their responses to the English Language Arts, Mathematics, and Science standards, though several commended the inclusion of standards for Applied Learning. The reviewers supported the approach we adopted to "concretize" the performance standards through the inclusion of work samples (similar

approaches are being used in some other countries, notably England and Wales and Australia). Some of the reviewers were tentative in their response to the question of whether these performance standards are at least as demanding as their counterparts, noting the difficulty of drawing comparisons in the absence of assessment information, but offered comparative comments in terms of the areas covered by the standards. Some provided a detailed analysis of the performance descriptions together with the work samples and commentaries in terms of the expectations of students at comparable grade levels in other countries.

The reviews confirmed the conclusion we had drawn from our earlier analyses of the curricula, textbooks, and examinations of other countries: while the structure of curricula differs from country to country, the expectations contained in these performance standards represent a thorough coverage of the subject areas. No reviewer identified a case of significant omission. In some cases, reviewers noted that the range of expectations may be greater in the New Standards performance standards than in other countries; for example, few countries expect young people to integrate their learning to the extent required by the standards for investigation in New Standards Mathematics. At the same time, a recent study prepared for the Organisation for Economic Co-operation and Development reports that many countries are moving towards expecting students to engage in practical work of the kind required by the New Standards Science standards (Black and Atkin, 1996). The reviews also suggest that these performance standards contain expectations that are at least as rigorous as, and are in some cases more rigorous than, the demands made of students in other countries. None of the reviewers identified standards for which the expectations expressed in the standards were less demanding than those for students in other countries.

We will continue to monitor the rigor and coverage of the New Standards performance standards and assessments in relation to the expectations of students in other countries. In addition to the continued collection and review of materials from other countries, our efforts will include a review of the New Standards performance standards by the Third International Mathematics and Science Study, collaboration with the Council for Basic Education's plan to collect samples of student work from around the world, continued review of the American Federation of Teachers' series, *Defining World Class Standards*, and collaborative efforts with visiting scholars at the Learning Research and Development Center.

Standards should be useful, developing what is needed for citizenship, employment, and life-long learning.

We believe that the core disciplines provide the strongest foundation for learning what is needed for citizenship, employment, and life-long learning. Thus, we have established explicit standards in the core areas of English Language Arts, Mathematics,

and Science. But there is more. In particular, it is critical for young people to achieve high standards in Applied Learning—the fourth area we are working on.

Applied Learning focuses on the capabilities people need to be productive members of society, as individuals who apply the knowledge gained in school and elsewhere to analyze problems and propose solutions, to communicate effectively and coordinate action with others, and to use the tools of the information age workplace.

Applied Learning is not about “job skills” for students who are judged incapable of, or indifferent to, the challenges and opportunities of academic learning. They are the abilities all young people will need, both in the workplace and in their role as citizens. They are the thinking and reasoning abilities demanded both by colleges and by the growing number of high performance workplaces, those that expect people at every level of the organization to take responsibility for the quality of products and services. Some of these abilities are familiar; they have long been recognized goals of schooling, though they have not necessarily been translated clearly into expectations for student performance. Others break new ground; they are the kinds of abilities we now understand will be needed by everyone in the near future. All are skills attuned to the real world of responsible citizenship and dignified work that values and cultivates mind and spirit.

Many reviewers of drafts of these performance standards noted the absence of standards for the core area of social studies, including history, geography, and civics. At the time we began our work, national content standards for those areas were only in early stages of development; we resolved to focus our resources on the four areas we have worked on. As consensus builds around content standards in this additional area, we will examine the possibilities for expanding the New Standards system to include it.

Standards should be important and focused, parsimonious while including those elements that represent the most important knowledge and skills within the discipline.

As anyone who has been involved in a standards development effort knows, it is easier to add to standards than it is to limit what they cover. It is especially easier to resolve disagreements about the most important things to cover by including everything than it is to resolve the disagreements themselves. We have tried not to take the easier route. We adopted the principle of parsimony as a goal and have tried to practice it. At the same time, we have been concerned not to confuse parsimony with brevity. The performance descriptions are intended to make explicit what it is that students should know and the ways they should demonstrate the knowledge and skills they have acquired. For example, the standards relating to conceptual understanding in Mathematics spell out the expectations of students in some detail.

The approach we have adopted distinguishes between standards as a means of organizing the

STANDARDS FOR STANDARDS

knowledge and skills of a subject area and as a reference point for assessment, on the one hand, and the curriculum designed to enable students to achieve the standards, on the other. The standards are intended to focus attention on what is important but not to imply that the standards themselves should provide the organizing structure for the curriculum. In English Language Arts, for example, we have established a separate standard for conventions, grammar, and usage. This does not imply that conventions, grammar, and usage should be taught in isolation from other elements of English Language Arts. In fact, all of the work samples included in this book to illustrate the Conventions standard also illustrate parts of the Writing standard. What we are saying is that the work students do should be designed to help them achieve the Conventions standard. This means that conventions, grammar, and usage should not only be among the things assessed but should also be a focus for explicit reporting of student achievement.

Standards should be manageable given the constraints of time.

This criterion follows very closely on the last one, but focuses particularly on making sure that standards are "doable." One of the important features of our standards development effort is the high level of interaction among the people working on the different subject areas. We view the standards for the four areas as a set at each grade level; our publication of the standards by grade level reflects this orientation. This orientation has allowed us to limit the incidence of duplication across subject areas and to recognize and use opportunities for forging stronger connections among subject areas through the work that students do. A key to ensuring the standards are manageable is making the most of opportunities for student work to do "double" and even "triple duty." Most of the work samples included in this book demonstrate the way a single activity can generate work that allows students to demonstrate their achievement in relation to several standards within a subject area. Several of the work samples show how a single activity can allow students to demonstrate their achievement in relation to standards in more than one subject area. (See, for example, "Interview With Aspirin," page 96.)

Standards should be adaptable, permitting flexibility in implementation needed for local control, state and regional variation, and differing individual interests and cultural traditions.

These standards are intended for use in widely differing settings. One approach to tackling the need for flexibility to accommodate local control, state and regional variation, and differing individual interests and cultural traditions, is to make the standards general and to leave the job of translating the standards into more specific statements to the people who use them. We have not adopted that approach. These standards need to be specific enough to guide the New Standards assessment system; we have tried to

make them specific enough to do so. We have also tried to achieve the degree of specificity necessary to do this without unduly limiting the kinds of flexibility outlined above. Most of the standards are expressed in a way that leaves plenty of room for local decisions about the actual tasks and activities through which the standards may be achieved.

However, the specificity needed for standards intended to guide an assessment system does place some limits on flexibility. To tackle these apparently contradictory demands on the standards, we have adopted the notion of "substitution." This means that when users of these standards identify elements in the standards that are inconsistent with decisions made at the local level, they can substitute their own. An example of this is the Reading standard in English Language Arts. The Reading standard includes the requirement that students should read the equivalent of twenty-five books each year and specifies that they should read material of the quality and complexity illustrated in the sample reading list. We have included the reading list so as to be clear about the quality of reading material we are talking about at each grade level. But we do not claim that the titles on this list are the only ones that would be appropriate. Thus, users who have established their own reading lists and are satisfied with them can replace the lists provided with their own. There is, however, one important proviso: substitution only works when what is substituted is comparable with the material it replaces both in terms of the quality and the quantity of expectation.

Standards should be clear and usable.

Making standards sufficiently clear so that parents, teachers, and students can understand what they mean and what the standards require of them is essential to the purpose for establishing standards in the first place. It is also a challenge because while all of these groups need to understand what the standards are, the kinds of information they need are different. The most obvious difference is between the way in which the standards need to be presented to elementary school students so that they know what they should be striving to achieve and the way in which those same standards need to be presented to teachers so that they can help their students get there. If the standards were written only in a form that elementary school students could access, we would have to leave out information teachers need to do their job.

These standards are being presented in several formats. This version of the standards is written primarily for teachers. It includes technical language about the subject matter of the standards and terms that educators use to describe differences in the quality of work students produce. It could be described as a technical document. That does not mean that parents and students should not have access to it. We have tried to make the standards clear and to avoid jargon, but they do include language that may be difficult for students to comprehend and more detail

than some parents may want to deal with.

The standards are also included in the portfolio materials provided for student use. In these materials, the standards are set out in the form of guides to help students select work to include in their portfolios.

A less technical version of the standards is in preparation. It is being written with parents and the community in general in mind. The standards will be the same but they will be explained in more generally accessible language.

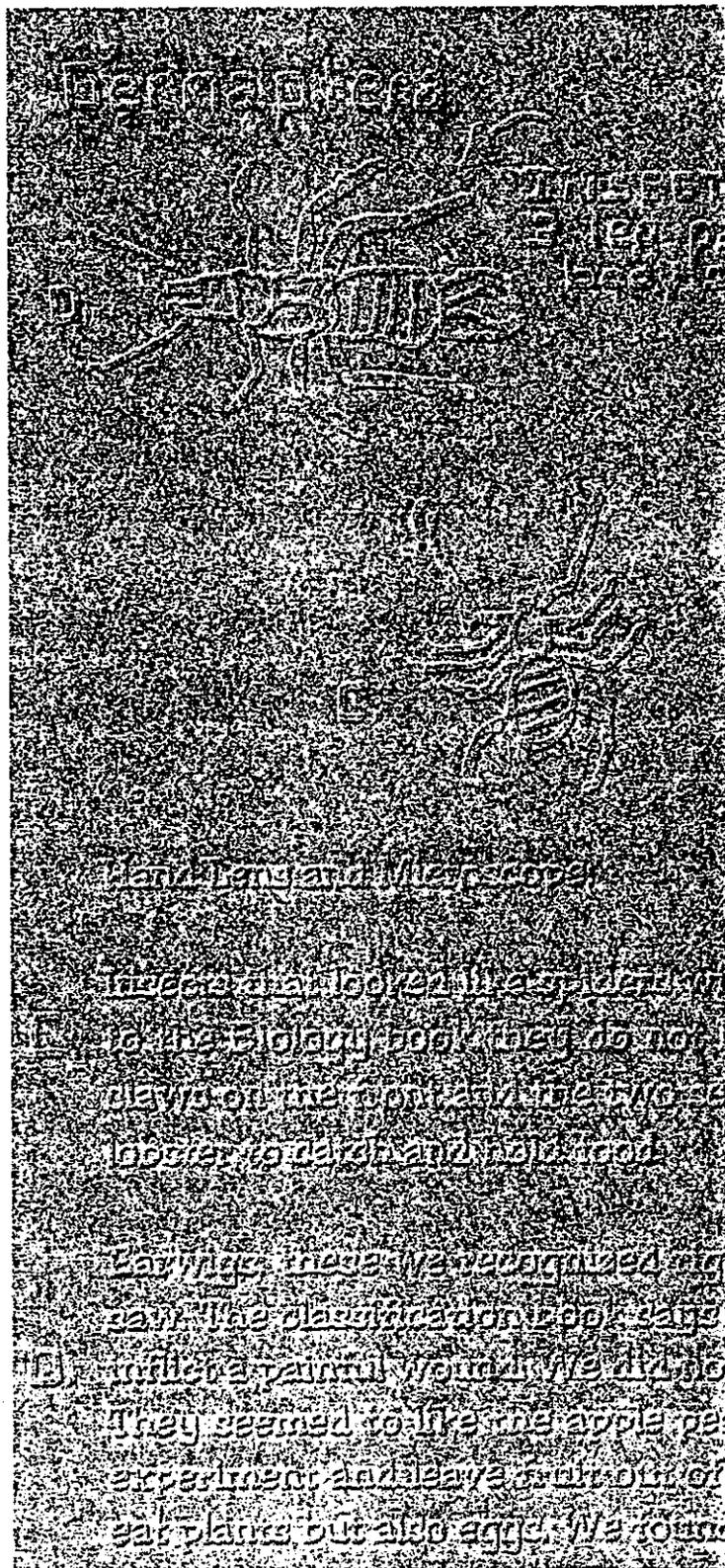
Standards should be reflective of broad consensus, resulting from an iterative process of comment, feedback, and revision including educators and the general public.

This publication is the result of progressive revisions to drafts over a period of eighteen months. Early drafts were revised in response to comment and feedback from reviewers nominated by the New Standards partners and the New Standards advisory committees for each of the subject areas, as well as other educators.

The *Consultation Draft*, published in November 1995, was circulated widely for comment. Some 1,500 individuals and organizations were invited to review the *Draft*. The reviewers included nominees of professional associations representing a wide range of interests in education, subject experts in the relevant fields, experienced teachers, business and industry groups, and community organizations. In addition, we held a series of face-to-face consultations to obtain responses and suggestions. These included detailed discussions with members of key groups and organizations and a series of meetings at which we invited people with relevant experience and expertise to provide detailed critique of the *Consultation Draft*. We also received numerous responses from people who purchased the *Consultation Draft* and who took the trouble to complete and return the response form that was included with each copy.

The process of revision of the performance standards was further informed by a series of independently-conducted focus group meetings with parents and other members of the community in several regions of the country and with teachers who were using the *Consultation Draft*.

The reviewers provided very supportive and constructive commentary on the *Consultation Draft*, both at the broad level of presentation and formatting of the performance standards and at the detailed level of suggestions for refinements to the performance descriptions for some of the standards. These comments have significantly informed the revisions made to the standards in the preparation of this publication.



HOW TO READ THESE PERFORMANCE STANDARDS

The standards for high school are set out in an overview on page 19. The overview provides the names of the standards for each of the four areas: English Language Arts, Mathematics, Science, and Applied Learning. To help you navigate your way through the book, a different color is used for each area.

High school level means the end of tenth grade.

The standards for high school are set at the level of achievement expected of students at approximately the end of tenth grade or the end of the common core. (For a definition of common core, see "Introduction to the performance standards for Mathematics," page 48.) Some students will achieve this level of performance earlier than the end of tenth grade. Some students will reach it later than the end of tenth grade. What is important is that students

have the opportunity to meet the standards. (See "Deciding what constitutes a standard-setting performance," page 12.)

Each standard is identified by a symbol.

Turn to the performance descriptions for English Language Arts on pages 22-27. There are seven standards for English Language Arts, each identified by a symbol. The symbol for the Reading standard is **1**. This symbol appears throughout the book wherever there is a reference to this standard.

1 Most standards are made up of several parts.

Most of the standards are made up of several parts, for example, the Reading standard has three parts. Each part is identified by a lower case letter; for example, the part of the Reading standard that refers to reading informational materials is **1a**. These symbols are used throughout the book wherever there is a reference to the relevant part of a standard.

Performance descriptions tell what students are expected to know and be able to do.

Each part of a standard has a performance description. The performance description is a narrative description of what students are expected to know and be able to do. It is shown in color.

2 Examples are the kinds of work students might do to demonstrate their achievement of the standards.

Immediately following the performance descriptions for the standard are examples of the kinds of work students might do to demonstrate their achievement. The examples also indicate the nature and complexity of activities that are appropriate to expect of students at the grade level. However, we use the word "example" deliberately. The examples are intended only to show the kinds of work that students might do and to stimulate ideas for further kinds of work. None of the activities shown in the examples is necessarily required to meet the standard.

3 Cross-references highlight the links between the examples and the performance descriptions.

The symbols that follow each example show the part or parts of the standard to which the example relates.

4 Cross-references also highlight links among the standards.

Often the examples that go with the English Language Arts performance descriptions include cross-references to other parts of the English Language Arts standards.

5 Cross-references also highlight opportunities for connecting activities across subject areas.

Some cross-references shown following the examples identify parts of standards in other subject areas. These cross-references highlight examples for which the same activity may enable students to demonstrate their achievement in more than one subject matter.

Performance Description Page

1 Reading

Example of a student who understands informational text and shows evidence of a sustained and thoughtful understanding of the text. "Comprehension" means understanding the main idea and supporting details presented in the structure of the text and connecting relevant information from the text. In broadening the scope of a responsible comprehension, students may make connections between parts of a text, among several texts, and between texts and other experiences; make inferences and applications of a text; and evaluate texts critically and analytically.

2 Example of a student who understands informational text and shows evidence of a sustained and thoughtful understanding of the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

3 Example of a student who understands informational text and shows evidence of a sustained and thoughtful understanding of the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

4 Example of a student who understands informational text and shows evidence of a sustained and thoughtful understanding of the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

5 Example of a student who understands informational text and shows evidence of a sustained and thoughtful understanding of the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

Work Sample & Commentary: Inxay on Ballet: Misha's Gone Modern

6 The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

7 The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

8 The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

9 The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

10 The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text. The student used a variety of strategies to read and understand the text.

NOT ALL PERFORMANCE STANDARDS ARE THE SAME

As you read these performance standards, you will notice that the standards are not all the same. The most obvious difference is in the way in which the performance descriptions for the standards are written. We did not impose a single style on the way in which the standards were written although we probably intended to do so when we began work. The reason we abandoned the idea of a single style is that during the course of the development process, it became increasingly apparent that the various standards are different in nature and have different purposes that lend themselves to different kinds of presentation. But the style we have adopted for each standard is not entirely idiosyncratic. There are some patterns that help make sense of the different styles and of the nature and purposes of the standards for which those styles have been used.

The first distinction that most people notice is the difference between the way the performance descriptions for the Mathematics and Science standards are written, on the one hand, and the way the performance descriptions for the English Language Arts and Applied Learning standards are written, on the other. But closer inspection reveals that the differences among the standards do not fall out as neatly as that division would suggest. Each subject area includes different styles of standards and the styles apply across subject areas.

We have identified four categories or kinds of standards, distinguished by their relationship to products of student learning and by the range of evidence required to demonstrate achievement of the standards. The distinctions are broad rather than neat, and we have sought only to define them generally rather than precisely. These differences among the standards have consequences for what it means to “meet a standard” and, therefore, for the ways in which we can use samples of student work to illustrate standard-setting performances.

Standards that describe a piece of work or a performance

One kind of standard is characterized by **E2**, Writing. Each part of this standard literally describes a piece of work that students are expected to produce and the knowledge and skills that should be evident in that work. For this kind of standard there is a one to one relationship between each part of the standard and a piece of work.

Standards that fit this category generally are the parts of **E1**, **E2**, **E3**, **E5b**, **M3**, **S3**, **A1**, **A2**, and **A5**.

Standards of this kind have several features:

- A single piece of work can meet the standard. In fact all of the requirements of the standard usually must be evident in a single piece of work for it to be judged as meeting the standard.
- The qualities that must be evident in a piece of work for it to meet the standard can be stated explicitly and are listed in bullet points as part of the per-

formance description. These qualities can be thought of as assessment criteria or as a rubric for work that meets the standard.

Work samples and commentaries to illustrate standard-setting performances for standards of this kind include: “Ixnay on Ballet: Misha’s Gone Modern,” page 28, “Compost,” page 104, and “Caring for Your Campus Lawn,” page 118.

Standards that describe conceptual understanding

A second kind of standard is characterized by **M1**, Number and Operation Concepts. This standard describes conceptual understanding.

Standards that fit this category are **E5a**, **M1**, **M2**, **M3**, **M4**, **S1**, **S2**, **S3**, and **S4**.

These standards have several features:

- The standard is made up of a number of distinct parts. It is most unlikely that any single piece of work will demonstrate all parts of the standard. In fact, it is common for a single piece of work to relate only to some aspects of one part of the standard. Thus, the standard can usually only be met by multiple pieces of work.

- Conceptual understanding is developmental. Any one piece of work may contain elements of conceptual understanding that are below what is expected for the grade level and elements that either meet or exceed what is expected for the grade level. Judging whether the work is “good enough” often means making an on-balance judgment. The developmental nature of conceptual understanding makes it difficult to specify in more than general terms the qualities that need to be present in a piece of work for it to be judged as “good enough.” These expectations need to be defined concept by concept.

In **M1**, **M2**, **M3**, and **M4**, the expectations have been defined more closely through progressive drafts of these performance standards.

S1, **S2**, **S3**, and **S4** are derived from the *National Science Education Standards* and the *Benchmarks for Science Literacy*, each of which contains detailed explication of the concepts and the expectations of students for conceptual understanding at different grade levels.

Work samples and commentaries to illustrate standard-setting performances for standards of this kind include: “Dreams: Can Money Make Them Come True?” page 40, “Cubes,” page 64, and “Density of Sand,” page 86.

Standards that describe skills and tools

The third kind of standard is made up of the standards that describe skills and tools, such as analytical skills. It is characterized by **53**, Scientific Tools and Technologies.

Standards that fit this category generally are **41**, **45**, **M6**, **47**, **55**, **56**, **57**, **43**, and **44**.

These standards have several features:

- As with the standards that describe conceptual understanding, it is most unlikely that any single piece of work will demonstrate all parts of the standard. In fact, it is common for a single piece of work to relate only to some aspects of one part of the standard. Thus, the standard can only be met by multiple pieces of evidence.
- Also, like conceptual understanding, use of skills and tools is developmental. Any one piece of work may contain evidence of use of skills and tools that is below what is expected for the grade level and evidence of use that either meets or exceeds what is expected for the grade level. Deciding whether the work is “good enough” often means making an on-balance judgment.
- What distinguishes these standards from the other kinds is the body of evidence needed to demonstrate that the standard has been met. Here, sufficiency refers not only to the idea of coverage but also to a notion of consistency of application. We want to be confident that the work in question is representative of a body of work.

Ideally, work that provides evidence for these standards also provides evidence for other standards. This is the case for all of the work samples in this book that illustrate parts of these standards.

Work samples and commentaries to illustrate standard-setting performances for standards of this kind include: “School Bond Levy,” page 36, “Galileo’s Theater,” page 76, and “Are Oysters Safe to Eat?” on page 94.

Standards that describe an accomplishment based on effort

The fourth category is closely related to the first, standards that describe a piece of work or a performance; it could be regarded as a sub-category of those standards. It is characterized by **41a**, Read at least twenty-five books or book equivalents each year.

This part of the Reading standard is designed to encourage and reward effort. It is designed on principles similar to those that apply to the merit badges that have long formed a part of the system of encouragement and rewards for young people in community youth organizations like the Boy Scouts of America and the Girl Scouts of the U.S.A. The twenty-five book requirement is designed to encourage students to develop a habit of reading by requiring that they read a lot. The requirement is challenging, especially since the reading is expected to be of the quality of the materials included in the sample

reading list, but it is also confined. This part of the standard is not made more complex by requirements for evidence of depth of reading and comprehension. The message is, if you invest the effort, you will meet the requirement.

An example of a work sample and commentary to illustrate a standard-setting performance for this part of the Reading standard is “Books, Tomes, Novels, Treasures,” page 46.

The differences among standards described here have implications for their assessment. (See “How the assessments are connected to the performance standards,” page 14.)

THE WORK SAMPLES

The work samples and commentaries form an essential element of the performance standards because they give concrete meaning to the words in the performance descriptions and show the level of performance expected by the standards.

Genuine student work

In all cases, the work samples are genuine student work. While they illustrate standard-setting performances for parts of the standards, many samples are not "perfect" in every respect. Some, for example, include spelling errors, clumsy grammatical constructions, or errors of calculation. We think it is important that the standards be illustrated by means of authentic work samples and accordingly have made no attempt to "doctor" the work in order to correct these imperfections: the work has been included "warts and all." Where errors occur, we have included a note drawing attention to the nature of the mistakes and commenting on their significance in the context of the work. In some cases, for example, the work was produced as a first draft only (in which case it would be expected that the errors would be corrected in work presented as finished work), or there is evidence in the rest of the work to suggest that an error was a slip rather than an error in conceptual understanding.

In other words, we have tried to adopt reasonable expectations for correctness, but not to overlook errors where they arise. We have also resolved to apply those expectations consistently to all the work samples. We have paid attention to spelling, for example, not only in the work samples included to illustrate the English Language Arts standards, but also in those samples included to illustrate standards in the other subject areas. Similarly, we reviewed all work samples for accuracy in relation to mathematical and scientific content.

Work produced by a diverse range of students

The work samples in this book were produced by a diverse range of students in a wide variety of settings. The work comes from places as different from one another as rural communities in Vermont and Iowa, urban communities in Fort Worth, Pittsburgh, San Diego, and New York City, and suburban communities in Washington, California, and Colorado. It comes from students with a wide range of cultural backgrounds, some of whom have a first language other than English. And it comes from students studying in regular programs and from students studying in special education programs. Some of the work was produced under examination conditions in timed settings; most of it was produced in the context of on-going class work and extended projects. Most of the work was produced in school, but some samples were produced through out-of-school programs, such as 4-H and a community youth program.

What unites the work samples is that they all help to illustrate the performance standards by demonstrating standard-setting performances for parts of one or more of the standards.

Deciding what constitutes a standard-setting performance

The work samples published in this book were selected from a much wider range of samples. The samples came from students working on producing New Standards portfolios, from students' work on New Standards reference examinations, from other work produced by students in the classrooms of schools of the states and urban school districts that form the New Standards partnership, and from work produced by students in schools that are involved in related programs.

The collections of student work were reviewed through a variety of strategies to tap the judgment of teachers and subject experts about the "level of performance" at which each of the standards for high school should be set. We define the high school level as being the expectations for student performance at approximately the end of tenth grade or the end of the common core. (For a definition of common core, see "Introduction to the performance standards for Mathematics," page 48.) We used grade level as our reference point because it is in common use and most people understand it. However, "at approximately the end of tenth grade" begs some questions. Do we mean the level at which our tenth graders currently perform? Or, do we mean the level at which our tenth graders might perform if expectations for their performance were higher and the programs through which they learn were designed to help them meet those higher expectations? And, do we mean the level at which the highest-achieving tenth graders perform or the level at which most tenth graders perform?

We established our expectations in terms of what we should expect of students who work hard in a good program; that is, our expectations assume that students will have tried hard to achieve the standards and they will have studied in a program designed to help them to do so. These performance standards are founded on a firm belief that the great majority of students can achieve them, providing they work hard, they study a curriculum designed to help them achieve the standards that is taught by teachers who are prepared to teach it well, and they have adequate resources to succeed.

Some of the work samples included in this book were also included in the *Consultation Draft*; some appeared in earlier drafts as well. The appropriateness of these work samples as illustrating standard-setting performances has been the subject of extensive review, through discussions among our subject advisory committees and through round table discussions among experienced teachers and subject experts. Some of the work samples included in earlier drafts did not pass the scrutiny of these reviews and are not included in this book. Many of the new work samples were identified in the course of meetings set up to score portfolios produced through the New Standards portfolio field trial in 1995-96; others were identified in the process of scoring tasks on New Standards reference examinations. These scor-

ing meetings involve multiple scoring and discussion of samples among experienced teachers and subject experts. Cross-referencing the selection of work samples to illustrate the performance standards with the scoring of work produced through the two elements of the New Standards assessment system is critical to ensuring the development of coherence among all the parts of the system.

We used this process of progressive iterations of review of work samples, both in relation to the performance descriptions and in relation to our definition of high school level, to arrive at agreement about the meaning of high school level.

Inevitably, agreement about what work constitutes a standard-setting performance was easiest to achieve for those parts of the standards that relate to familiar kinds of expectations for student work. The parts of the Writing standard that refer to familiar and often-practiced kinds of writing such as narrative account are good examples of this. Not only did we have access to a wide range of samples from which to choose, but teachers and experts in the field have a long tradition of discussion and assessment of the features of good writing for a narrative account. Work samples to illustrate some other parts of the standards are much harder to find; for example, work samples to illustrate the investigations and projects standards in Mathematics and Science and work samples to illustrate each of the Applied Learning standards. Overall, we had access to relatively few work samples for Science and Applied Learning, since work on these areas within the New Standards system is at an early stage by comparison with the work in English Language Arts and Mathematics.

The comprehensiveness of the work samples

This book contains more than thirty samples of student work and additional samples are contained in the videotape that accompanies the book. We have sought to include work samples that illustrate standard-setting performances for each of the standards and for as many of the parts of the standards as possible. The range of work samples has been expanded considerably over progressive drafts of the standards. But the collection is still not comprehensive. We have included work samples to illustrate only some parts of the conceptual understanding standards in Mathematics and Science, for example, and work samples to illustrate only some of the kinds of projects and investigations included in those standards.

Limiting the number of samples was a deliberate decision. We decided that we would make best use of a print format by seeking to illustrate as many parts of the standards as possible but restricting the overall number of work samples to a manageable number. We also decided to restrict the work samples to samples that illustrate standard-setting performances in relation to parts of the standards, rather than include work samples that illustrate performances that are not of sufficient quality or that exceed expectations for the standards. (With regard to the latter point,

collections of work samples that illustrate performances at a range of performance levels do exist within the New Standards system, as part of the Released Tasks and scoring guides for the reference examinations and in the example portfolios; see page 16.)

It is arguable whether any given collection of work samples, regardless of how large, would be adequate for illustrating every part of the standards. Similarly, it is arguable whether any such collection could also demonstrate the range of ways that students might produce work that illustrates standard-setting performances and illustrate the standards more fully by including work that demonstrates a range of levels of performance. To be really useful, such a collection would also need to be capable of being updated to include more effective illustrations of the standards as work that serves the purpose becomes available—a need that we have already noted exists in relation to some of the standards. A publication format that could perform all of those functions presents a tall order, indeed. However, electronic formats hold the promise of making it possible to build a collection of this sort and to make it easily accessible. We hope to make use of the potential of electronic formats in the future.

HOW WILL THE PERFORMANCE STANDARDS BE USED?

The primary audience for these performance standards is teachers. We hope that teachers will use the standards to:

- Help students and parents understand what work that meets standards looks like;
- Inform discussions with their colleagues as they plan programs to help students learn to high standards;
- Challenge assumptions about what we can expect from students;
- Communicate the meaning of high standards to district administrators, school board members, and the public so they can work together to build learning environments that challenge all students.

New Standards will use the performance standards to provide:

- The basis of design specifications for the New Standards assessment system;
- The basis for reporting student scores on assessments within the New Standards system; and
- The basis for linking the New Standards assessment system with the standards and assessment systems of the members of the New Standards partnership.

Assessment based on standards

Performance standards define a student's academic responsibilities and, by implication, the teaching responsibilities of the school. How do we determine whether students have lived up to their academic responsibilities? We assess their work—is it "good enough" by comparison with the standards.

Assessment that serves the purpose of telling us how well students are performing by comparison with standards (standards-referenced assessment) differs from assessment designed to compare students to average performances (norm-referenced assessment). New Standards assessments are standards-referenced assessments. They start with performance standards and they take seriously the type, quality, and balance of performances spelled out by the standards. Assessment systems of this kind look a lot like a sampling of questions and assignments from a standards-based curriculum.

Common examples of standards-referenced examinations are the Advanced Placement (AP) exams of the College Board. The Scholastic Achievement Test (SAT), also from the College Board, is a contrasting example of a norm-referenced test. The AP exams look like the work (type, quality, and balance) students do in the AP courses whereas the SAT looks very different from the work students do in their college preparatory courses. Other well established standards-based examinations include licensure exams for many occupations such as pilots, architects, and electricians.

Unlike the AP or licensure exams, with explicit courses of study that have been debated and agreed

upon in an open, public forum (e.g., the College Board, the state bar association or the board of realtors), many individual teacher's grades are based solely on their experience as students and teachers. Unless they participate in an external program like the AP or the International Baccalaureate, teachers rarely have the opportunity to see or discuss an end-of-course examination with others who teach the same course, no less to apply common criteria for marking. Even in the case of high school courses with departmental final examinations, the majority of the feedback to students throughout the school year is based on their individual teacher's judgment. And in the vast majority of the instances, especially in the elementary and middle school years, the individual teacher's standards apply almost exclusively.

It can be argued that the teacher, the person closest to the student's work, is in the best position to assess the student's accomplishment. However, the problem with an assessment system based on individual teacher judgment is that students in different classes, with different teachers, in different schools, work to widely varying standards. There is no common reference for teachers, students, or the public to compare performance across individuals or classrooms. This leads to wide variation in expectation and opportunity. Students get good grades one year for trying hard, then fail the following year for being too far below the average on a test.

New Standards has designed an assessment system that provides a common reference point for students, parents, teachers, and the public who want to judge student performance on the quality and quantity of student work that is expected at a particular level. The New Standards assessment system is based on these performance standards. It has three parts: reference examinations, portfolios, and teacher assessment. While each part of the system can be used independently, the most complete picture of performance referenced to the performance standards comes from using all three.

How the assessments are connected to the performance standards

The performance standards define a domain of expected student performances. Take the Reading standard as an example (see page 22). This standard begins with a definition of reading that describes what we expect students to *be able to do* at approximately the end of tenth grade or the end of the common core. The performance descriptions go on to spell out expectations for what students *will accomplish* in terms of the quantity, quality, range, and concentration of their reading. Furthermore, students are expected to *put their reading to work* and the standards say so; students have to produce work based on their reading of specific types of text.

We assess the different elements of the domain defined by a standard by using assessment methods appropriate to the expected performances.

In the English Language Arts reference examination

students read a selection of grade-level appropriate passages. The passages include both literary and informational selections and may include selections from public documents and functional documents. Students answer two types of questions about the passages. One type of question assesses "understanding of the text as a whole" as described in the definition in the Reading standard. These are straightforward questions about the gist of the text. Some of these questions ask students to write a few sentences; some are multiple choice. The second type of question about the same passages asks students to analyze the text, draw reasonable conclusions, and make interpretations—behaviors that characterize what competent readers do.

To demonstrate their achievement of the Reading standard students must also show what they have accomplished—just as people do when they apply for a job. Assessing actual accomplishments means evaluating a selection of student work according to criteria derived directly from the performance descriptions for the standards. New Standards portfolios are organized around "exhibits," each focused on an area of performance. The reading exhibit in the English Language Arts portfolio requires that students include at least four pieces of work that demonstrate their accomplishments in responding to literary and informational texts of appropriate complexity and in interpreting public documents and functional documents. The portfolio includes criteria for judging the entries in this exhibit. These criteria are drawn directly from the relevant performance descriptions. The criteria can be used by the student for self-assessment, by the teacher for feedback and grading, and by independent external scorers to report on achievement of standards to the public.

A further requirement of the reading exhibit in the portfolio, again based directly on the performance standards, is certification of what the student has read. The first part of the Reading standard (RI.1) requires that students read at least twenty-five books or book equivalents each year. The reading must include a range of literary forms and works from several writers. Students are also required to read in depth (RI.2). The appropriate assessor for these requirements is the teacher or another adult close to the student who can verify the student's claims for meeting this requirement. This component of the system for assessing achievement of the Reading standard is designed to work like a merit badge in the style of the awards developed by the Girl Scouts of the U.S.A. and the Boy Scouts of America.

In summary, students' achievement of the Reading standard is assessed through a combination of methods:

- The reference examination provides evidence of comprehension, analysis, and interpretation of literary and informational texts, related to the Reading standard as a whole and particularly to RI.1. (These parts of the reference examination also provide evidence of the first part of the Literature standard, L.1. Depending on the selection of texts, they may also

provide evidence for the first part of the Public Documents standard, PD.1, and the first part of the Functional Documents standard, FD.1.)

- The reading exhibit for the portfolio provides evidence of working with literary and informational texts, related to RI.1 and RI.2. (Entries included in this exhibit also demonstrate accomplishment in relation to L.1, L.2, and L.3 and may be used to fulfill part of the requirements of the writing exhibit.)
- Teacher assessment, in the form of certification included in the reading exhibit, provides verification of students' claims regarding the twenty-five book requirement, related to RI.1 and RI.2.

This example of how reading is assessed in the New Standards system illustrates several important points. First, the assessment methods and instruments suit the part of the standard to be assessed. Second, the criteria for judging achievement of the standard are drawn as directly as possible from the performance descriptions of the relevant standard. Third, comprehensive assessment of student achievement of the performance standards requires an appropriate combination of external on-demand assessments like the reference examination, externally-set auditable criteria like the portfolio, and teacher assessment.

The assessments are built on the basic principle that students who work hard in a good program should be able to achieve the performance standards. Students who do what is asked of them, read what they are assigned, do their homework, study for examinations, participate in class, and so on, have a right to expect all this work to pay off in learning. If it does not, there is something wrong with the program.

These standards expect students to work hard. For example, the Science standards include an expectation that every student will complete one science investigation in each of the years leading up to graduation chosen from the following: experiment, field-work, design, or secondary research. This requirement is demanding for all students, but doable. Most current college bound students are not asked do this much, let alone students who are not intending to go to college. This is not because these students are not capable of doing the work, but because their programs are not organized to give them the opportunity. However, virtually any student who works hard in a good program can produce investigations such as those identified above that meet standards for quality. By setting expectations like this, standards are raised for all students.

Raising standards for all students has important implications for the quality of curriculum and instruction. Indeed, one of the most important reasons for setting high standards is to challenge the system to perform for the students. Appropriate assessments based on these high standards can give the system feedback on how well it is doing and what it has to do next.

HOW WILL THE PERFORMANCE STANDARDS BE USED?

The reference examinations

Mathematics

The Mathematics reference examinations are targeted for grades 4, 8, and 10. Each examination consists of extended response and short answer items. Student responses are scored both holistically and dimensionally.

Students receive three scores for the Mathematics reference examination: one for understanding of mathematical concepts, one for mathematical skills, and one for problem solving and reasoning and mathematical communication.

Standards defining mathematics scores

SCORE	STANDARDS INCLUDED IN SCORE
Conceptual Understanding	M1, M2, M3, M4
Mathematical Skills	M6
Problem Solving and Reasoning/ Mathematical Communication	M5, M7

English Language Arts

The English Language Arts reference examinations are targeted for grades 4, 8, and 10. Each examination includes open-ended responses, short answer responses, essay questions, and multiple choice items. The student responses are scored holistically on two of these forms; the multiple choice responses are scanned.

Students receive four scores for the English Language Arts reference examination: one for writing, one for reading for basic understanding, one for interpretation and analysis of reading, and one for conventions, grammar, and usage of the English language.

Standards defining English Language Arts scores

SCORE	STANDARDS INCLUDED IN SCORE
Reading: Basic Understanding	1
Reading: Inference and Analysis	1
Writing	2
Writing Conventions	4

The criteria for scoring each task, for example, the writing sample or responses to the reading questions, are defined by rubrics for each score level (usually 0 to 5) and by anchor examples of student performance at each level. Trained scorers use these rubrics and anchor examples to score responses with high reliability.

Released Tasks from the reference examinations, complete with anchor examples and rubrics, are

available to assist teachers and students to prepare for the examinations. The Released Tasks also include examples of student responses scored at each of the performance levels.

Each student's level of performance on the reference examination is determined by decision rules for profiles of scores on sets of items or tasks. These rules were established by panels of judges based on the stated expectations of the performance standards, with allowance made for the usual effects of the test-taking situation.

Levels of performance

For each standards-based score, there are five levels of student performance:

H—Achieved the Standard with Honors means that in addition to meeting the standards, a number of the student's responses exceeded the basic criteria for meeting the standard or displayed features characteristic of advanced knowledge and skill.

S—Achieved the Standard means that the student's performances met the standards as set out in the New Standards performance standards.

N—Nearly Achieved the Standard means that the student's performances almost but did not quite meet the performance standards.

B—Below the Standard means that the student's performances clearly did not meet the performance standards.

L—Little Evidence of Achievement means that the student's performances demonstrated little or none of the knowledge and skill expected by the performance standards.

The portfolio system

The portfolio system complements the reference examination by requiring selections of student work that provide evidence of achievement of the performance standards. The portfolios are organized into exhibits; each focuses on an area of performance and includes clear criteria for assessment. The structure and content of the exhibits parallels the structure of the performance standards. Each exhibit is composed of one or more entries; the entry slips tell students exactly what is required and how it will be assessed. The criteria come directly from the performance descriptions for the standards. For example, the middle school Mathematics portfolio has five exhibits drawn directly from the performance standards as is shown in the chart on the next page.

Mathematics portfolio

EXHIBIT	ENTRIES	STANDARD	EXHIBIT REQUIREMENTS
Conceptual Understanding	<ul style="list-style-type: none"> • Number and Operations • Geometry and Measurement • Functions and Algebra • Probability and Statistics 	<ul style="list-style-type: none"> 1 2 3 4 	To demonstrate conceptual understanding, students are required to provide evidence that they can use the concept to solve problems, represent it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and explain it to someone else. The student must include at least two problems, and may include a third if necessary, to provide evidence of all three ways of demonstrating conceptual understanding (using, representing, and explaining).
Problem Solving	<ul style="list-style-type: none"> • Four problems 	5	The student must include four problems which, taken together, show the full range of problem solving required by the performance standard, including formulation, implementation, and conclusion. Problem solving is defined as using mathematical concepts and skills to solve non-routine, usually realistic, problems that challenge the student to organize the steps to follow for a solution.
Skills and Communication	<ul style="list-style-type: none"> • Skills • Communication <p>Entries submitted for the other three exhibits are cited as evidence. A few additional pieces of work may be included here to fill important gaps.</p>	<ul style="list-style-type: none"> 6 7 	Entry Slips list skills from 6 (e.g., compute accurately with rational numbers, use equations, formulas, and simple algebraic notation, use geometric shapes and terms correctly) and 7 (e.g., present mathematical procedures and results clearly, systematically, and correctly; use mathematical language and representations with accuracy: numerical tables and equations, formulas, functions, algebraic equations, charts, graphs, and diagrams).
Project	<ul style="list-style-type: none"> • At least one large scale project each year 	8	This exhibit requires students to put their mathematics to work. Entry slips state criteria, from 8, for assessing the following kinds of projects: data study, mathematical model of a physical system, design of a physical structure, management and planning analysis, pure mathematics investigation, and history of a mathematical idea.
Work in Progress	<ul style="list-style-type: none"> • No entries submitted 		Students keep sample work during the year as candidates for selecting as entries.

Portfolios put the standards directly in the hands of students. They help students manage their responsibility for producing work that achieves the performance standards. They also provide a focus for conversations among teachers and students about how the students' work shows evidence of meeting the performance standards and about the further work students need to do to meet the standards.

The portfolio system includes exhibit instructions and entry slips for students, and materials for teachers, including scoring materials. The scoring materials include procedures, criteria, and example exhibits of student work.

Linking the New Standards system with partners' standards and assessment systems

"Linking" is the process of establishing the extent and degree of match between the New Standards system and those of the New Standards partners. It is an essential step in the process of enabling our partners to make decisions about their use of the New Standards system, either in part or as a whole.

Linking is crucial for assuring that student work is assessed according to the same standards that guided its production.

The performance standards provide the initial point of reference for the linking process. While comprehensive linking of assessment systems requires the further step of linking scores on performances, linking standards is a necessary first step and provides a good indication of the potential for linking New Standards with partners' systems.

Introduction to the performance standards for

English Language Arts

The performance standards for English Language Arts define high standards of literacy for American students. The standards focus on what is central to the domain; they are built around reading, writing, speaking, listening, and viewing; and they acknowledge the importance of conventions, literature, public discourse, and functional documents. The standards were developed with the help of classroom teachers and content experts in concert with both the National Council of Teachers of English and the International Reading Association.

The performance standards represent a balanced view of what students should know and the ways they should demonstrate the knowledge and skills they have acquired in this domain. Students are expected to read both literature and informational texts. They are required to produce writing that is traditionally associated with the classroom, including narratives and reports, and they are also expected to exhibit increasing expertise in producing and critiquing public and functional documents. In addition, students are expected to become proficient speakers, to hone their listening skills, and to develop a critical awareness of viewing patterns and the influence of media on their lives. The work students produce in both written and spoken formats is expected to be of high quality in terms of rhetorical structures as well as the conventions of the English language.

The five standards for English Language Arts are as follows:

- 1** Reading;
- 2** Writing;
- 3** Speaking, Listening, and Viewing;
- 4** Conventions, Grammar, and Usage of the English Language;
- 5** Literature.

At the high school level, two additional standards are added:

- 6** Public Documents;
 - 7** Functional Documents.
-

The expansion of literacy at the high school level reflects the growing need for students to understand the range of materials they must deal with throughout their lives. Both public documents and functional documents are introduced in the Reading standard at the middle school level where students are required

to demonstrate a familiarity with these kinds of texts. It is important that the middle school standard anticipates the advanced degree of understanding expected at the high school level where students are expected both to critique and produce materials of these kinds.

The first part of the Reading standard, **1a**, requires students to read a wide range of materials by a range of authors on different subjects. The requirement here is fairly simple: read twenty-five books of the quality illustrated in the sample reading list. Too often students are not given the opportunity to read full length books because of curricular restraints, a lack of resources, or a lack of access to books. The missed opportunity results in a tremendous loss of potential literacy skills that can only be developed when students become habitual readers. The requirement to read twenty-five books a year provides all students the opportunity to become habitual readers and represents a realistic and worthwhile goal that can be reached if students simply invest the effort. The sample reading list is included to provide an indication of the quality and complexity of the materials students are expected to read. Any or all of the specific works on the list may be substituted with other works providing the works that are substituted are of comparable quality and complexity to those that are replaced.

The second part of the Reading standard, **1b**, requires students to "go deep" in at least one area of interest. We know that students who read regularly tend to read what interests them; note the trends in the work sample, "Books, Tomes, Novels, Treasures," page 46. This part of the Reading standard is intended to encourage all students to do what good readers do and pursue themes, authors, and genres that are of interest to them.

The third part of the Reading, **1c**, standard requires students to work with informational materials in order to develop understanding and expertise about the topics they investigate. This area of informational materials is of great importance, and for too long it has been neglected in the school curriculum. Its inclusion as a separate part of the Reading standard indicates our desire that more attention be given to reading a broad range of materials written for a variety of audiences and purposes.

The Writing standard, **2**, requires students to demonstrate accomplishment in six types of writing. Each of these writing types is defined by a distinct set of criteria, though there is clearly some overlap. The use of criteria specific to the writing types is meant to ensure that students become familiar with the strategies that characterize specific writing forms and to encourage students to use these criteria when they review and revise their work. All of the commentaries on the work samples related to the Writing standard use the language of these criteria and make

explicit how the student work sample illustrates an accomplished example. The types of writing included in this standard are all forms of writing commonly produced both in and out of school.

The Speaking, Listening, and Viewing standard, **ES**, is the only standard that has changed dramatically from previous drafts of these performance standards. The primary change is that the speaking and listening parts of the standard now revolve around a variety of social situations: one-to-one interaction, group discussion, and oral presentation, and that the viewing part of the standard now asks for evidence of an awareness of media influences. The attention to viewing represents a growing awareness that the media play an integral part in most students' lives and that students require increasingly sophisticated tools for dealing with media influences.

The Conventions, Grammar, and Usage of the English Language standard, **EA**, is listed as a separate standard even though the parts of the standard are always assessed in either a written or spoken context. The first part of the standard indicates the expectation that students should be able to represent themselves appropriately using standard English. The second part of the standard reflects the understanding that high quality work most often comes about as a result of a sustained effort represented by numerous drafts of a particular piece of work. In classrooms where high quality work is consistently produced, the revision process is most often an integral part of the curriculum.

The Literature standard, **EL**, like the Conventions standard, is listed separately even though it could easily be broken into two pieces and placed respectively within the Reading and Writing standards. However, for many people who go through school, the study of literature is the only situation in which they have the chance to explore the big ideas and the themes that emerge from social and political conflict, both in their own writing and in the writing of others. An understanding of these ideas and themes is integral for students who will one day be responsible for the negotiation of meaning important to a democracy. The first part of the Literature standard asks students to explore and critique the writing of others with these kinds of critical skills in mind. The second part of the standard asks students to produce literature with the hope that doing this will help students better understand the world that shapes both their literature and the literature of professional writers.

The Public Documents standard, **ED**, addresses the increasing need to prepare students to deal with the complexities involved in being a citizen in a democracy by focusing on those texts that address issues in the public sphere. Integral to active citizenship is an understanding of both the issues being addressed and the methods by which these issues are presented.

Students need to be able to examine critically the evidence presented to them, determine the types of evidence that are acceptable in formulating various arguments, and to make informed judgments about issues that impact them. To do so, students must learn to read with a critical eye the arguments made by other people. The first part of the Public Documents standard asks students to offer a critique of a document that addresses a current issue; the second part asks students to write responsibly about an issue currently being debated in the public sphere.

The Functional Documents standard, **EF**, recognizes the increasing need people have to communicate with one another. In the emerging literacy of a technological world, documents such as the instructions for programming a VCR, computer manuals, and corporate memoranda each serve the purpose of helping someone get something done. Students who will be asked to function efficiently in such a world need to be adept with the literacy such a world brings, which means they need to become skilled at "reading" materials such as charts and graphs, reference materials for large, complex procedures, and memoranda and other correspondence that contain the information they need to do their jobs successfully. Students must also understand how to participate in such a world as contributors, whether that means producing a set of instructions or communicating a body of data graphically. The first part of the Functional Documents standard asks students to critique a functional document in terms of its effectiveness in accomplishing its purpose; the second part asks students to successfully prepare a document that has as its primary purpose the goal of getting something done.

Reading

Reading is a process which includes demonstrating comprehension and showing evidence of a warranted and responsible interpretation of the text. "Comprehension" means getting the gist of a text. It is most frequently illustrated by demonstrating an understanding of the text as a whole; identifying complexities presented in the structure of the text; and extracting salient information from the text. In providing evidence of a responsible interpretation, students may make connections between parts of a text, among several texts, and between texts and other experiences; make extensions and applications of a text; and examine texts critically and evaluatively.

1a The student reads at least twenty-five books or book equivalents each year. The quality and complexity of the materials to be read are illustrated in the sample reading list. The materials should include traditional and contemporary literature (both fiction and non-fiction) as well as magazines, newspapers, textbooks, and online materials. Such reading should represent a diverse collection of material from at least three different literary forms and from at least five different writers.

Examples of activities through which students might produce evidence of reading twenty-five books include:

- ▲ Maintain an annotated list of works read. **1b**
- ▲ Generate a reading log or journal. **1b**
- ▲ Participate in formal and informal book talks. **1b, 3a, 3b**

1b The student reads and comprehends at least four books (or book equivalents) about one issue or subject, or four books by a single writer, or four books in one genre, and produces evidence of reading that:

- makes and supports warranted and responsible assertions about the texts;
- supports assertions with elaborated and convincing evidence;
- draws the texts together to compare and contrast themes, characters, and ideas;
- makes perceptive and well developed connections;
- evaluates writing strategies and elements of the author's craft.

Examples of activities through which students might produce evidence of reading comprehension include:

- ▲ A saturation report (a report that recounts substantial information on a topic gathered by a student over a period of time). **1c, 2a, 4a, 4b**
- ▲ Construct a review of several works by a single author. **2b, 4a, 4b, 5a**
- ▲ Produce a literary response paper. **2b, 4a, 4b, 5a**
- ▲ Produce a research report. **1c, 2a, 2b, 4a, 4b, 5a, M8f**
- ▲ Participate in formal or informal book talks. **1a, 1c, 3a, 3b, 5a**
- ▲ Create an annotated book list organized according to author, theme, or genre. **1a**

1c The student reads and comprehends informational materials to develop understanding and expertise and produces written or oral work that:

- restates or summarizes information;
- relates new information to prior knowledge and experience;
- extends ideas;
- makes connections to related topics or information.

Examples of activities through which students might produce evidence of reading informational materials include:

- ▲ Use information to support or enhance a project. **2a, 4a, 4b, M8, 5B, A3a**
- ▲ Write a report of information that draws from at least four sources. **2a, 4a, 4b**
- ▲ Incorporate expert opinions into a speech or position paper. **2e, 3c, 4a, 4b**
- ▲ Develop a proposal based on data obtained from reading informational texts. **4a, 4b**
- ▲ Use informational materials to reach a conclusion regarding a controversial topic. **2e, 4a, 4b**
- ▲ Develop a portfolio of materials regarding a particular career choice.
- ▲ Write exhibit notes for historical or artistic exhibits.

This is a sample reading list from which the students and teachers could select. This list is not exclusive. Acceptable titles also appear on lists produced by organizations such as the National Council of Teachers of English and the American Library Association. Substitutions might also be made from lists approved locally.

Fiction

Carroll, *Alice in Wonderland*;
Cisneros, *The House on Mango Street*;
Clark, *The Ox-Bow Incident*;
Golding, *Lord of the Flies*;
Hawthorne, *The Scarlet Letter*;
Hemingway, *For Whom the Bell Tolls*;
Hentoff, *The Day They Came to Arrest the Book*;
Hilton, *Goodbye, Mr. Chips*;
Kinsella, *Shoeless Joe*;
Knowles, *A Separate Peace*;
Lee, *To Kill a Mockingbird*;
McCullers, *The Heart Is a Lonely Hunter*;
Orwell, *1984*;
Paulsen, *Canyons*;
Portis, *True Grit*;
Porok, *Davita's Harp*;
Stoker, *Dracula*;
Wartski, *A Boat to Nowhere*;
Welty, *The Golden Apples*.

Non-Fiction

Angell, *Late Innings*;
Angelou, *I Know Why the Caged Bird Sings*;
Ashe, *Days of Grace*;
Beal, "I Will Fight No More Forever": *Chief Joseph and the Nez Perce War*;
Bishop, *The Day Lincoln Was Shot*;
Bloom, *The Closing of the American Mind*;
Campbell, *The Power of Myth*;
Covey, *Seven Habits of Highly Effective People*;
Galarza, *Barrio Boy*;
Hawking, *A Brief History of Time*;
Houston, *Farewell to Manzanar*;
Kennedy, *Profiles in Courage*;
Kingsley and Levitz, *Count Us In: Growing Up With Down Syndrome*;
Kingston, *Woman Warrior*;
Mazer, ed., *Going Where I'm Coming From*;

Writing



Samples illustrate performance standards on 28-47.

The examples perform each strand of the work to demonstrate achievement also indicate complexity are appropriate students of level.

The cross-referenced examples illustrate activity, and the same principles enable students to relate their work to a standard. In cross-referenced examples of which students relate their work to a standard.

2b is merely the repertoire students trade when they relate. This type requires an writing strategy.

Momaday, *The Way to Rainy Mountain*;
Rodriguez, *Hunger for Memory*;
Sternberg, *User's Guide to the Internet*;
Wright, *Black Boy*.

Poetry

Angelou, *I Shall Not be Moved*;
Bly, ed., *News of the Universe*;
Carruth, ed., *The Voice That Is Great Within Us*;
Cummings, *Collected Poems*;
Dickinson, *Complete Poems*;
Hughes, *Selected Poems*;
Knudson and Swenson, eds., *American Sports Poems*;
Longfellow, *Evangeline*;
Randall, ed., *The Black Poets*;
Wilbur, *Things of This World*.

Drama

Christie, *And Then There Were None*;
Hansberry, *A Raisin in the Sun*;
McCullers, *The Member of the Wedding*;
Pomerance, *The Elephant Man*;
Rose, *Twelve Angry Men*;
Rostand, *Cyrano de Bergerac*;
Shakespeare, *Romeo and Juliet*; *Julius Caesar*;
Van Druten, *I Remember Mama*;
Wilder, *The Skin of Our Teeth*;
Wilson, *The Piano Lesson*.

Folklore/Mythology

Burland, *North American Indian Mythology*;
Evslin, *Adventures of Ulysses*;
Pinsent, *Greek Mythology*;
Stewart, *The Crystal Cave*;
White, *The Once and Future King*.

Modern Fantasy and Science Fiction

Adams, *Watership Down*;
Asimov, *Foundation*;
Bradbury, *The Martian Chronicles*;
Clarke, *2001: A Space Odyssey*;
Clarke, *Childhood's End*;
Frank, *Alas, Babylon*;
Herbert, *Dune*;
Lewis, *Out of the Silent Planet*;
McCaffrey, *Dragonflight*;
Twain, *A Connecticut Yankee in King Arthur's Court*;
Verne, *20,000 Leagues Under the Sea*.

Magazines and Newspapers

Literary Cavalcade (Scholastic);
National Geographic;
Newsweek;
Omni;
Smithsonian;
Sports Illustrated;
Time.

Other

Computer manuals; instructions; contracts; technical materials.

Writing is a process through which a writer shapes language to communicate effectively. Writing often develops through a series of initial plans and multiple drafts and through access to informed feedback and response. Purpose, audience, and context contribute to the form and substance of writing as well as to its style, tone, and stance.

2a The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that conveys a perspective on the subject;
- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
- excludes extraneous and inappropriate information;
- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

Examples of reports include:

- An I-search essay (an essay that details a student's search for information as well as the information itself; I-search papers are developed through a variety of means, e.g., interviews, observation, as well as traditional library research). **1c, 4a, 4b**
- A saturation report (a report that recounts substantial information on a topic gathered by a student over a period of time). **1c, 4a, 4b**
- A report produced as part of studies in subjects such as science, social studies, and mathematics. **1c, 4a, 4b, M7b, M7e, M7g, S7a, S7b, S7c**
- A formal or informal research paper. **1c, 4a, 4b, 5a**
- An investigative report for a newspaper. **1c, 4a, 4b**

2b The student produces a response to literature that:

- engages the reader through establishing a context, creating a persona, and otherwise developing reader interest;
- advances a judgment that is interpretive, analytic, evaluative, or reflective;
- supports a judgment through references to the text, references to other works, authors, or non-print media, or references to personal knowledge;
- demonstrates understanding of the literary work through suggesting an interpretation;
- anticipates and answers a reader's questions;
- recognizes possible ambiguities, nuances, and complexities;
- provides a sense of closure to the writing.

Examples of responses to literature include:

- An evaluation of a piece of literature or several pieces of literature. **1b, 4a, 4b, 5a**
- A comparison of a piece of literature with its media presentation. **1b, 3d, 4a, 4b, 5a**
- A response that focuses on personalizing the theme of a literary work. **1b, 4a, 4b, 5a**
- An analysis of the significance of a section of a novel in terms of its significance to the novel as a whole. **1b, 4a, 4b, 5a**
- An evaluation of the role played by setting in a novel. **1b, 4a, 4b, 5a**

(Continued overleaf)

Writing continued

- ▲ An analysis of the effect of a minor character on the plot of a novel. **1b, 4a, 4b, 5a**
- ▲ An interpretation of a recurring motif in a novel or a play. **1b, 4a, 4b, 5a**
- ▲ A comparison of two critical interpretations of a poem or a work of fiction. **1b, 4a, 4b, 5a**

E2c The student produces a narrative account (fictional or autobiographical) that:

- engages the reader by establishing a context, creating a point of view, and otherwise developing reader interest;
- establishes a situation, plot, point of view, setting, and conflict (and for autobiography, the significance of events and of conclusions that can be drawn from those events);
- creates an organizing structure;
- includes sensory details and concrete language to develop plot and character;
- excludes extraneous details and inconsistencies;
- develops complex characters;
- uses a range of appropriate strategies, such as dialogue, tension or suspense, naming, pacing, and specific narrative action, e.g., movement, gestures, expressions;
- provides a sense of closure to the writing.

Examples of narrative accounts include:

- ▲ A biographical account. **4a, 4b, 5b**
- ▲ A fiction or non-fiction story. **4a, 4b, 5b**
- ▲ A personal narrative. **4a, 4b, 5b**
- ▲ A narrative poem or song based on a modern hero. **4a, 4b, 5b**
- ▲ A historical account. **1c, 4a, 4b**
- ▲ A parody of a particular narrative style, e.g., fable, soap opera. **4a, 4b, 5b**

E2d The student produces a narrative procedure that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- provides a guide to action for a complicated procedure in order to anticipate a reader's needs; creates expectations through predictable structures, e.g., headings; and provides smooth transitions between steps;
- makes use of appropriate writing strategies, such as creating a visual hierarchy and using white space and graphics as appropriate;
- includes relevant information;
- excludes extraneous information;
- anticipates problems, mistakes, and misunderstandings that might arise for the reader;
- provides a sense of closure to the writing.

Examples of narrative procedures include:

- ▲ A set of rules for organizing a class meeting. **4a, 4b, 7b**
- ▲ A set of instructions for playing computer games. **4a, 4b, 7b**
- ▲ A set of instructions for using media technology. **4a, 4b, 7b**
- ▲ A lab report. **4a, 4b, 5b**
- ▲ A report of a mathematical investigation. **4a, 4b, M8**
- ▲ A set of instructions for conducting searches on the Web. **4a, 4b, 7b**

E2e The student produces a persuasive essay that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that makes a clear and knowledgeable judgment;
- creates an organizing structure that is appropriate to the needs, values, and interests of a specified audience, and arranges details, reasons, examples, and anecdotes effectively and persuasively;
- includes appropriate information and arguments;
- excludes information and arguments that are irrelevant;
- anticipates and addresses reader concerns and counter-arguments;
- supports arguments with detailed evidence, citing sources of information as appropriate;
- uses a range of strategies to elaborate and persuade, such as definitions, descriptions, illustrations, examples from evidence, and anecdotes;
- provides a sense of closure to the writing.

Examples of persuasive essays include:

- ▲ A position paper. **4a, 4b**
- ▲ A problem-solution paper. **4a, 4b**
- ▲ An opening statement for a debate. **4a, 4b, 3c**
- ▲ An evaluation of a product or policy. **4a, 4b, A1a**
- ▲ A critique of a public policy. **4a, 4b, 6b**
- ▲ An editorial on a current issue that uses reasoned arguments to support an opinion. **4a, 4b, 6b**

E2f The student produces a reflective essay that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- analyzes a condition or situation of significance;
- develops a commonplace, concrete occasion as the basis for the reflection, e.g., personal observation or experience;
- creates an organizing structure appropriate to purpose and audience;
- uses a variety of writing strategies, such as concrete details, comparing and contrasting, naming, describing, creating a scenario;
- provides a sense of closure to the writing.

Examples of reflective essays include:

- ▲ An analysis of the significance of a proverb or quotation. **4a, 4b**
- ▲ A report about a concrete occasion and its implications over time. **2a, 4a, 4b**
- ▲ An essay comparing a school issue to broader societal concerns. **4a, 4b, 6b**
- ▲ A paper explaining how some experiences, conditions, or concerns have universal significance. **4a, 4b**
- ▲ A self-reflective essay evaluating a portfolio to be submitted. **4a, 4b**
- ▲ A comparison of a scene from a work of fiction with a lesson learned from a personal experience. **2b, 4a, 4b**
- ▲ A paper about a common childhood experience from a more adult perspective. **4a, 4b, 5b**

3 Speaking, Listening, and Viewing

Speaking, listening, and viewing are fundamental processes which people use to express, explore, and learn about ideas. The functions of speaking, listening, and viewing include gathering and sharing information; persuading others; expressing and understanding ideas; coordinating activities with others; and selecting and critically analyzing messages. The contexts of these communication functions include one-to-one conferences, small group interactions, large audiences and meetings, and interactions with broadcast media.

3a The student participates in one-to-one conferences with a teacher, paraprofessional, or adult volunteer, in which the student:

- initiates new topics in addition to responding to adult-initiated topics;
- asks relevant questions;
- responds to questions with appropriate elaboration;
- uses language cues to indicate different levels of certainty or hypothesizing, e.g., “what if...,” “very likely...,” “I’m unsure whether...”;
- confirms understanding by paraphrasing the adult’s directions or suggestions.

Examples of one-to-one interactions include:

- ▲ Analytical discussion of movies or television programs in a one-to-one situation. **3d, 4a, 4b**
- ▲ Student-teacher conferences regarding a draft of an essay, the student’s progress on a mathematics assignment, or the state of a science project. **4b**
- ▲ Assessment interview by a teacher about an author or book. **1b, 5a**

3b The student participates in group meetings, in which the student:

- displays appropriate turn-taking behaviors;
- actively solicits another person’s comment or opinion;
- offers own opinion forcefully without dominating;
- responds appropriately to comments and questions;
- volunteers contributions and responds when directly solicited by teacher or discussion leader;
- gives reasons in support of opinions expressed;
- clarifies, illustrates, or expands on a response when asked to do so; asks classmates for similar expansions;
- employs a group decision-making technique such as brainstorming or a problem-solving sequence (e.g., recognize problem, define problem, identify possible solutions, select optimal solution, implement solution, evaluate solution);
- divides labor so as to achieve the overall group goal efficiently.

Examples of activities involving group meetings include:

- ▲ Develop and negotiate a classroom rubric.
- ▲ Engage in classroom town meetings.
- ▲ Participate in book talks with other students. **1a, 1b, 1c, 5a**
- ▲ Work as part of a group to solve a complex mathematical task.
- ▲ Role-play to better understand a certain historical event. **1c**
- ▲ Participate in peer writing response groups. **4b**

3c The student prepares and delivers an individual presentation, in which the student:

- shapes information to achieve a particular purpose and to appeal to the interests and background knowledge of audience members;
- shapes content and organization according to criteria for importance and impact rather than according to availability of information in resource materials;

- uses notes or other memory aids to structure the presentation;
- develops several main points relating to a single thesis;
- engages the audience with appropriate verbal cues and eye contact;
- projects a sense of individuality and personality in selecting and organizing content, and in delivery.

Examples of presentations include:

- ▲ An individual talk which develops several main points relating to a single thesis (e.g., describing a problem and evaluating alternative solutions to that problem, or explaining several causes leading to a historical event, or constructing different types of argument all supporting a particular policy). **4a, 4b**
- ▲ A public panel discussion during which each member of the panel speaks about a particular area of expertise relating to the overall topic. **4a**
- ▲ A forum discussion during which audience members question and respond to panelists during the presentation. **4a, A2a**
- ▲ A simulated congress (e.g., Model United Nations) in which each participant “represents” the interests of a particular constituency. **4a**

3d The student makes informed judgments about television, radio, and film productions; that is, the student:

- demonstrates an awareness of the presence of the media in the daily lives of most people;
- evaluates the role of the media in focusing attention and in forming opinion;
- judges the extent to which the media are a source of entertainment as well as a source of information;
- defines the role of advertising as part of media presentation.

Examples of activities through which students might produce evidence of making informed judgments about television, radio, and film production include:

- ▲ Maintain a week’s log to document personal viewing habits, and analyze the information collected in the log.
- ▲ Summarize patterns of media exposure in writing or in an oral report. **2a, 3c, 4a, 4b**
- ▲ Analyze the appeal of popular television shows and films for particular audiences. **2a, 4a, 4b**
- ▲ Explain the use of “propaganda techniques” (e.g., bandwagon, glittering generalities, celebrity) in television commercials. **2a, 4a, 4b**
- ▲ Analyze the characteristics of different television genres (e.g., the talk show, the situation comedy, the public affairs show). **2a, 4a, 4b**

3e The student listens to and analyzes a public speaking performance; that is, the student:

- takes notes on salient information;
- identifies types of arguments (e.g., causation, authority, analogy) and identifies types of logical fallacies (e.g., ad hominem, inferring causation from correlation, over-generalization);
- accurately summarizes the essence of each speaker’s remarks;
- formulates a judgment about the issues under discussion.

Examples of activities through which students might provide evidence of analysis of public speaking include:

- ▲ Take notes of a meeting of a local government council or of an institution’s governing body.
- ▲ Make a report detailing testimony from a local trial. **2a, 4a, 4b**
- ▲ Analyze an address by a political leader. **4a, 4b, 6a**



Samples of illustrate st performances f dards can b 28-47.

For samples that illustrate performance **3b** refer accompanyi

The work sh meet the En Arts standar have to com English class be encourag from subject English to de accomplish samples incl ples of work other classes requirements dards. See p

3 Conventions, Grammar, and Usage of the English Language

Having control of the conventions and grammar of the English language means having the ability to represent oneself appropriately with regard to current standards of correctness (e.g., spelling, punctuation, paragraphing, capitalization, subject-verb agreement). Usage involves the appropriate application of conventions and grammar in both written and spoken formats.

4a The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

Examples of activities through which students might demonstrate an understanding of the rules of the English language include:

- ▲ Demonstrate in a piece of writing the ability to manage the conventions, grammar, and usage of English so that they aid rather than interfere with reading. **2a, 2b, 2c, 2d, 2e, 2f, 3d, 5a, 5b, 6b, 7b**
- ▲ Independently and accurately proofread the student's own writing or the writing of others, using dictionaries, thesauruses, and other resources as appropriate. **2a, 2b, 2c, 2d, 2e, 2f, 3d, 5a, 5b, 6b, 7b**
- ▲ Observe the conventions of language during formal oral presentations. **3c**
- ▲ Demonstrate use of a variety of sentence patterns for stylistic effect. **2a, 2b, 2c, 2d, 2e, 2f, 3c, 3d, 5a, 5b, 6b, 7b**

4b The student analyzes and subsequently revises work to clarify it or make it more effective in communicating the intended message or thought. The student's revisions should be made in light of the purposes, audiences, and contexts that apply to the work.

Strategies for revising include:

- adding or deleting details;
- adding or deleting explanations;
- clarifying difficult passages;
- rearranging words, sentences, and paragraphs to improve or clarify meaning;
- sharpening the focus;
- reconsidering the organizational structure;
- rethinking and/or rewriting the piece in light of different audiences and purposes.

Examples of activities through which students might provide evidence of analyzing and revising written work include:

- ▲ Incorporate into revised drafts, as appropriate, suggestions taken from critiques made by peers and teachers. **2a, 2b, 2c, 2d, 2e, 2f, 3c, 3d, 5a, 5b, 6b, 7b**
- ▲ Produce a series of distinctly different drafts that result in a polished piece of writing or presentation. **2a, 2b, 2c, 2d, 2e, 2f, 3c, 3d, 5a, 5b, 6b, 7b**
- ▲ Critique the writing or presentation of a peer.
- ▲ Describe the reasons for stylistic choices made as a writer or presenter. **2a, 2b, 2c, 2d, 2e, 2f, 3c, 3d, 5a, 5b, 6b, 7b**
- ▲ Produce a series of papers on the same topic, each serving a different purpose. **2a, 2b, 2c, 2d, 2e, 2f, 3d, 5a, 5b, 6b, 7b**

4 Literature

Literature consists of poetry, fiction, non-fiction, and essays as distinguished from instructional, expository, or journalistic writing.

5a The student responds to non-fiction, fiction, poetry, and drama using interpretive, critical, and evaluative processes; that is, the student:

- makes thematic connections among literary texts, public discourse, and media;
- evaluates the impact of authors' decisions regarding word choice, style, content, and literary elements;
- analyzes the characteristics of literary forms and genres;
- evaluates literary merit;
- explains the effect of point of view;
- makes inferences and draws conclusions about fictional and non-fictional contexts, events, characters, settings, themes, and styles;
- interprets the effect of literary devices, such as figurative language, allusion, diction, dialogue, description, symbolism;
- evaluates the stance of a writer in shaping the presentation of a subject;
- interprets ambiguities, subtleties, contradictions, ironies, and nuances;
- understands the role of tone in presenting literature (both fictional and non-fictional);
- demonstrates how literary works (both fictional and non-fictional) reflect the culture that shaped them.

Examples of responding to literature include:

- ▲ Analyze stereotypical characters in popular fiction. **1b, 2b, 4a, 4b**
- ▲ Evaluate the effect of literary devices in a number of poems by one author or poems on a common topic. **1b, 2b, 4a, 4b**
- ▲ Compare the literary merits of two or more short stories, biographies of one individual, novels, or plays. **1b, 2b, 4a, 4b**
- ▲ Compare two different video presentations of a literary work. **1b, 2b, 3d, 4a, 4b**
- ▲ Compare two works written in different time periods on the same topic or theme. **1b, 2b, 4a, 4b**
- ▲ Evaluate the persona of the writer. **1b, 2b, 4a, 4b**
- ▲ Compare two literary texts that share a similar theme. **1b, 2b, 4a, 4b**
- ▲ Analyze the author's point of view toward an issue raised in one of an author's works. **1b, 2b, 4a, 4b**
- ▲ Analyze the literary, cultural, and social context of a literary work. **1b, 2b, 4a, 4b**

5b The student produces work in at least one literary genre that follows the conventions of the genre.

Examples of literary genres include:

- ▲ A reflective essay. **2f, 4a, 4b**
- ▲ A memoir. **4a, 4b**
- ▲ A short story. **2c, 4a, 4b**
- ▲ A short play. **4a, 4b**
- ▲ A poem. **4a, 4b**
- ▲ A vignette. **4a, 4b**

Public Documents

A public document is a document that focuses on civic issues or matters of public policy at the community level or beyond. These documents, ranging from speeches to editorials to radio and television spots to pamphlets, do at least one of the following: take issue with a controversial public policy; suggest an alternative course of action; analyze and defend a contemporary public policy; define a public problem and suggest policy.

E6a The student critiques public documents with an eye to strategies common in public discourse, including:

- effective use of argument;
- use of the power of anecdote;
- anticipation of counter-claims;
- appeal to audiences both friendly and hostile to the position presented;
- use of emotionally laden words and imagery;
- citing of appropriate references or authorities.

Examples of activities through which students might provide evidence of critiquing public documents include:

- ▲ Analyze a political speech. **1c, 3e**
- ▲ Evaluate an editorial. **1c**
- ▲ Examine campaign literature to determine underlying assumptions. **1c, 2a**
- ▲ Examine a range of articles published in a magazine or newspaper and drawing inferences about the political stance of that magazine or newspaper. **1c, 2a**

E6b The student produces public documents, in which the student:

- exhibits an awareness of the importance of precise word choice and the power of imagery and/or anecdote;
- utilizes and recognizes the power of logical arguments, arguments based on appealing to a reader's emotions, and arguments dependent upon the writer's persona;
- uses arguments that are appropriate in terms of the knowledge, values, and degree of understanding of the intended audience;
- uses a range of strategies to appeal to readers.

Examples of public documents include:

- ▲ A proposal for changing an existing social or school policy. **2e, 4a, 4b**
- ▲ An analysis of a state policy. **4a, 4b**
- ▲ A policy statement that closely examines a significant public policy and proposes a change. **4a, 4b**
- ▲ A letter to an elected official taking a position on an issue or concern. **4a, 4b**
- ▲ A press release announcing a policy. **4a, 4b**

Functional Documents

A functional document is a document that exists in order to get things done, usually within a relatively limited setting such as a social club, a business, an office, a church, or an agency. These often take the form of memoranda, letters, instructions, and statements of organizational policies. Functional documents require that particular attention be paid to issues of layout, presentation, and particularly to audience and the way different audiences will interact with the documents.

E7a The student critiques functional documents with an eye to strategies common to effective functional documents, including:

- visual appeal, e.g., format, graphics, white space, headers;
- logic of the sequence in which the directions are given;
- awareness of possible reader misunderstandings.

Examples of activities through which students might provide evidence of critiquing functional documents include:

- ▲ Analyze a manual.
- ▲ Analyze a contract.
- ▲ Evaluate a loan application.
- ▲ Critique tax documents.

E7b The student produces functional documents appropriate to audience and purpose, in which the student:

- reports, organizes, and conveys information and ideas accurately;
- includes relevant narrative details, such as scenarios, definitions, and examples;
- anticipates readers' problems, mistakes, and misunderstandings;
- uses a variety of formatting techniques, such as headings, subordinate terms, foregrounding of main ideas, hierarchical structures, graphics, and color;
- establishes a persona that is consistent with the document's purpose;
- employs word choices that are consistent with the persona and appropriate for the intended audience.

Examples of functional documents include:

- ▲ A summary of a meeting. **4a, 4b**
- ▲ A manual. **2d, 4a, 4b, A1**
- ▲ A proposal. **4a, 4b, A1**
- ▲ A set of instructions. **2d, 4a, 4b, A1**
- ▲ A recommendation. **4a, 4b, A1**

Sample illustrate form documents 28-47.

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Function described by considering. As students are the typical New Standards to density will merits because of increasing the complex culture.

Work Sample & Commentary: *Ixnay on Ballet: Misha's Gone Modern*

The task

A group of students was asked to create a magazine. Individual students conducted research and wrote articles on subjects of their choice.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone
- ✓ in class
- with teacher feedback
- timed
- ✓ in a group
- ✓ as homework
- ✓ with peer feedback
- ✓ opportunity for revision

What the work shows

2a Writing: The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that conveys a perspective on the subject;
- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
- excludes extraneous and inappropriate information;
- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

A The student established the context by identifying the subject of the report as Mikhail Baryshnikov in the first sentence.

B The student created an appropriate persona of an experienced dancer.

C By creating separate sections, the student provided a clear, organizing structure for the report appropriate to the purpose and audience. The introduction of her personal views of Baryshnikov is followed by a short biography, a description of the White Oak Project which Baryshnikov founded, and then the conclusion that describes one of the Project's programs that she attended.

This work sample illustrates a standard-setting performance for the following part of the standards:

IXNAY ON BALLET: Misha's Gone Modern

The White Oak Dance Project reveals a new and exciting style for the ballet dance great, Mikhail Baryshnikov.

My first view of Misha:
Being a dancer, I have always been awed and amazed by the great dance legend of our time, Mikhail Baryshnikov. For years, he grew ever more admired for his talent in the art of ballet. Recently, I had the unforgettable experience of watching this dance great perform on stage at Denver's beautiful Temple Buell Theater. His current claim to fame, though, is a completely different world of dance. About five years ago, Misha created an exclusive company called the White Oak Dance Project.

When I attended this performance of the White Oak Project, I didn't know what to expect, due to the fact that the only way I had ever imagined Baryshnikov was dancing a classical ballet. I was no less impressed, though, by his new, modern style. It did make me curious, as to how a dancer with a thoroughly classical background makes the transition to modern, specifically for the White Oak Dance Project.

A Short Biography of Baryshnikov:

B
A

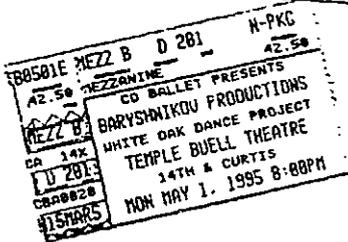
C

D

Baryshnikov was born in Latvia, Russia in 1948. He joined the Leningrad Kirov Ballet, where he established himself as one of the most exciting and technically exacting dancers in Soviet ballet in 1966 (Hertzelendy, "Highlights"). Eight years later he defected from the USSR for artistic freedom with the KGB in pursuit. He also made his first appearance as dancer noble with the American Ballet Theater (ABT). In 1977, he made what was probably his best movie, *The Turning Point*, which was a ballet-related film (Hertzelendy, "Highlights"). A year later, he became interested in modern ballet, so he moved to George Balanchine's New York City Ballet. In 1980, he was the artistic director for the ABT's productions of *The Nutcracker* and a version of *Don Quixote* called *Sissy's Wedding*. He didn't perform in 1984, because the making of the movie *White Nights* left him out of shape. In 1986, twelve years after defecting, he

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Ixnay on Ballet: Misha's Gone Modern



(Hertelendy, "Highlights"). In February of the next year, he was forced to move on toward his career as a modern dancer by multiple injuries and operations to his right knee. In 1990, he created the White Oak Dance Project (Hertelendy, "Highlights").

(Hertelendy, "Experience"). It has been nearly a sellout in more than ninety cities, including New York City (Duffy, 1). New York City has been given the reputation of dance

capital of the world, and rightfully so, considering both the quantity and quality of companies that originate and perform there. No problem for White Oak. They simply waited a few years for the group to mature and tackled the picky, snobbish audiences and critics successfully. They spent almost \$500,000 for a week at the Lincoln Center (Duffy, 1). The money was returned to them, though, by the run

The White Oak Project:

The company is made up of anything but young dancers. The average age is 36 years, which, for a dancer, is near the age of retirement (Hertelendy, "Experience"). This hasn't deterred audiences from flocking to see the dance legend and his eleven fellow dancers (program, "White Oak"). When it was first born, though, the company had fourteen members, and has at times been as small as seven dancers

being sold out before opening night.

The Program:
The program was fortunate enough to attend was one of a tour involving twelve pieces, four of which were presented at the May first performance (program, "White Oak"). One of these twelve pieces is called "Signals," choreographed in the early 1970's by Merce Cunningham, who is now 76 years old (Duffy, 1). This piece was well received by critics for its new score and costumes and its mesmerizing moves. Cunningham is an entirely unique choreographer. He does not think of music and steps, but of time. "Given ten seconds," he once said, "the dancer has to define the phrase and accent something within the time" (Duffy, 1). Karen Panasevich calls the piece "unmistakable" (interview, Panasevich). His inspiration for this piece was found in his observations of groups of chairs in Paris park. "Sometimes full, sometimes not," he said, "people come and go and converse - only this time,

they dance" (Duffy, 2).

Another piece on tour, titled "Pargolesi," was created by Twyla Tharp, who is now 52 years old (Green, 1). It was originally choreographed in 1992 as a duet for Tharp and

Baryshnikov and was titled "Bare Bones." It was reworked, though, as a solo for Misha on the tour. Occasionally, though, Baryshnikov dances with an invisible partner. This is Tharp's way of proving that it is still her piece (Duffy, 3). The

D E The student used a range of strategies, including the incorporation of appropriate facts and details not only about Baryshnikov's early years but also about his defection from the USSR to the American Ballet Theater. Facts and details are also provided about the White Oak Project.

F The report identifies specific pieces from the White Oak Project's performances in a manner similar to that used by reviewers and writers in professional publications. It provides the title of the piece, the name of the choreographer, and some specific details of the performance, such as a quotation from Baryshnikov about the piece "Bare Bones."

G The student made the assertion that "A Suite of Dances" was her favorite of the performance she attended. Her persona of a knowledgeable dancer makes the judgment reliable.

H The student waited until the end to address a fairly technical question regarding the difficulty Baryshnikov must have faced personally and professionally in making the switch from dancing as "a soloist to that of a member of a group." Dealing with this question last allowed her to address a specialized question from an informed position, and provided a sense of closure to the work.

dance is twenty minutes, and is the longest solo he has ever done (Green, 1). He says it is the "biggest amount of dancing I ever did non-stop. It requires the same amount of concentration as anything in ballet" anything in ballet" (Green, 1). Tharp first worked with Misha in 1976 when she created "Push Comes to Shove" for the ABT (Green, 1).

My personal favorite piece, titled "A Suite of Dances," was a solo dance, "White Oak" (program, "White Oak"). This piece was created by Jerome Robbins, who is now 76 years old (Duffy, 3). Robbins found it to be an inspiration and joy to work with Misha. He said of the dancer, "If I think it is too dark, he lightens it, and vice versa. A great, great artist" (Duffy, 3). The friendship between these two artists began in 1979, when Baryshnikov was invited by President Carter to perform at the White House, where the available space to work with is extremely limited (Duffy, 5). Robbins, taking pity on Baryshnikov, became a sort of

stage manager to help him put on a successful production. "Mosaic and United," a piece created for five dancers, was choreographed by Mark Morris (program, "White Oak"). Baryshnikov and Morris have worked together since 1988, when Morris created the ensemble work, "Drink Me Only With Thine Eyes" for the ABT (Green, 1). After Baryshnikov left the ABT in 1989, the two men founded White Oak together (Green, 1). Thus, the first season was devoted in its entirety to Morris' choreography. This piece was not as well appreciated and received by critics and critical observers, though (Duffy, 3). Says Karen Panasevich, "That ('Mosaic and United') was a disappointing surprise. No very exciting" (interview, Panasevich).

A New View of Misha:

The identifying point for this ensemble from other groups organized by celebrities is the seriousness and intelligence of its programs and the fact that the ensemble comes first (Duffy, 5). Though Baryshnikov is so well known and admired, and he may have solos, he also performs in smaller roles in dances such as "signals" and "Behind White Lilies" (Duffy, 5). The program booklet also is listed alphabetically, with Baryshnikov second in the list.

I greatly admire him for not losing this amount of modesty through his difficult, and yet very flattering career. It can't be easy to convert not only one's style of dancing, but also his attitude from that of a soloist to that of a member of a group. This gives us even more respect for him as a person and a dancer.

Work Sample & Commentary: Two Poems About Sports

The task

In an on-demand situation, students were asked to discuss the meaning they found in two poems and to justify or explain how they arrived at such a meaning.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-----------------------|--------------------------|
| ✓ alone | in a group |
| ✓ in class | as homework |
| with teacher feedback | with peer feedback |
| ✓ timed | opportunity for revision |

The writing was completed in forty-five minutes with no opportunities for review and revision.

What the work shows

E2b Writing: The student produces a response to literature that:

- engages the reader through establishing a context, creating a persona, and otherwise developing reader interest;
- advances a judgment that is interpretive, analytic, evaluative, or reflective;
- supports a judgment through references to the text, references to other works, authors, or non-print media, or references to personal knowledge;
- demonstrates understanding of the literary work through suggesting an interpretation;
- anticipates and answers a reader's questions;
- recognizes possible ambiguities, nuances, and complexities;
- provides a sense of closure to the writing.

A The opening engages the reader by citing the titles of the two poems under consideration and establishing a context through discussion of their shared content.

This work sample illustrates a standard-setting performance for the following parts of the standards:

E2b Writing: Produce a response to literature.

E4a Conventions: Demonstrate an understanding of the rules of the English language.

E5a Literature: Respond to non-fiction, fiction, poetry, and drama.

Two poems about sports "So An Athlete Dying Young" and "The Baseball Player" reflect on the fickleness of sport success and celebrity, and have similarities in a myriad of aspects. To name a few: mood, attitude, equating fate with present and description, and smaller things such as first-person narrator, use of stanzas, and ending on a somewhat pleasant note.

Mr. Liza Newman, author of "So An Athlete...", takes on a melancholy tone, somber and almost grave for his poem. Indeed, the rhyme scheme is such that when read aloud, it produces a sort of funeral-march rhythm, steady and slow. The author also makes it seem as though he is addressing the grave of the young athlete's spirit: "Smart kid! 's dip betimes away..." and so adopts the stance of a mourning friend, trying to reconcile what has happened to the boy athlete by saying what good thing death has achieved for him.

On the other hand "The Baseball Player" draws similar traits of melancholy, though it is mixed with a little more ambiguity. The author sounds as though he were telling a story (the story of Dick Webb) to some person, making nostalgic communication. Not true.

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B The student analyzed the authors' craft and advanced an interpretation in which he considered aspects of both poems.

C The interpretive judgments are supported through reference to the texts.

The writer analyzed the author's craft and interpreted both poems in terms of:

- D** mood; and
- F** attitude.

The writer recognized nuances that are reflected in:

- F** symbols; and
- G** common themes.

E4a Conventions, Grammar, and Usage of the English Language: The student independently and habitually demonstrates an understanding of the rules of the English language in written or oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

Two Poems About Sport

longer an aura of failure and sadness which in its way connects with the seriousness of the first poem. One very important aspect that is prominent in both poems is a focus on what was, face turned towards memories of the past. For instance the author of "In an Athlete" focuses in the sixth stanza on the past glory of the dead boy, the "still-deflected challenge cup" found in the last stanza. There is the second mention of the seized laurel wreath of victory, how it reminds his hand still. This is a symbol of "don't forget what he accomplished." The message is achieved in a slightly different manner when Mr. Herbert writes in "The Ex-Cell Player": "he dribbles on under tide, / But most of us remember anyway." Since Flick is still alive, he himself is able to reminisce about glory gone by (equal to the narrator's reminiscence in the first poem). He (Flick) does not think highly of his present job - it is evident that no one does. So instead he glances over at how things were - again, turning towards the past. He doesn't concentrate much on his present occupation, but rather imagines the gas pumps as basketball players and the sound of candy boxes as a cheering audience. It is

diffused from the first poem's way of expressing memory, yet it is much the same because of the similar situation. If Flick died, probably someone would reminisce about his high school glory at his grave in much the same way as the author does in that poem. Both poems end on a nice note then, they felt midway through. In "The Ex-Cell Player" Mr. Herbert mentions proudly that "he never learned a trade, he just sold gas, / checks oil, and changes flats." But the voice are heard at the finish of the poem in one with a smile in it, talking about applauding Nerco Wafers*. Even the first poem ends on a lighter note of order than the rest, using words like "wreath" to indicate that the boy's memory will stay among the Europeans. * also equating past with present, laying a distinct tie between the two: in the first stanza the narrator speaks of the day the boy won the race and was crowned shoulder-high among a throng of admirers. In the second stanza about the funeral, the boy was again brought home shoulder-high (in a casket) and through a crowd of admirers (the road all runners come).

In "The Ex-Cell" too, there is again equating present to past, achieved when Flick imagines the basketball game using objects from the present. So the two poems do have many similarities and parallels, the most important of which I have pointed out to you today.

In almost error free writing, the student managed spelling, punctuation, usage, grammar, and sentence structure. The few errors he made can be attributed to the nature of the task, which was given in a timed writing situation. The writing was completed in forty-five minutes with no opportunities for review and revision.

- 13** Literature: The student responds to non-fiction, fiction, poetry, and drama using interpretive, critical, and evaluative processes; that is, the student:
- makes thematic connections among literary texts, public discourse, and media;
 - evaluates the impact of authors' decisions regarding word choice, style, content, and literary elements;
 - analyzes the characteristics of literary forms and genres;
 - evaluates literary merit;
 - explains the effect of point of view;
 - makes inferences and draws conclusions about fictional and non-fictional contexts, events, characters, settings, themes, and styles;
 - interprets the effect of literary devices, such as figurative language, allusion, diction, dialogue, description, symbolism;
 - evaluates the stance of a writer in shaping the presentation of a subject;

- interprets ambiguities, subtleties, contradictions, ironies, and nuances;
 - understands the role of tone in presenting literature (both fictional and non-fictional);
 - demonstrates how literary works (both fictional and non-fictional) reflect the culture that shaped them.
- H** The student made the inference that each poem focuses on the past and yet has a distinct tie to the present.
- I** The student interpreted the effect of literary devices, such as rhyme.

Work Sample & Commentary: Ronnie

The task

Students were asked to submit a narrative account about someone who had been an influence in their lives.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-----------------------|----------------------------|
| ✓ alone | in a group |
| ✓ in class | ✓ as homework |
| with teacher feedback | ✓ with peer feedback |
| timed | ✓ opportunity for revision |

What the work shows

E2 Writing: A narrative account (fictional or autobiographical) that:

- engages the reader by establishing a context, creating a point of view, and otherwise developing reader interest;
 - establishes a situation, plot, point of view, setting, and conflict (and for autobiography, the significance of events and of conclusions that can be drawn from those events);
 - creates an organizing structure;
 - includes sensory details and concrete language to develop plot and character;
 - excludes extraneous details and inconsistencies;
 - develops complex characters;
 - uses a range of appropriate strategies, such as dialogue, tension or suspense, naming, pacing, and specific narrative action, e.g., movement, gestures, expressions;
 - provides a sense of closure to the writing.
- D1** The account engages the reader by establishing the initial context of seeing the "Camaro with a broken headlight," as well as "Ronnie the alcoholic," as familiar to the narrator. The narrator's familiarity with an awkward situation creates the tone for the narrative.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- E2** Writing: Produce a narrative account.
- E4** Conventions: Demonstrate an understanding of the rules of the English language.

10/5/95
Ronnie

Erica and Kesha (my two cousins) and I were walking back from the park in Bradshfordville, Kentucky, when we saw it. The white 1989 Camaro with a broken headlight on the right side. I'd seen that car before, earlier that day sitting in the same spot. My mom was talking to whoever was inside. Probably a childhood friend, I thought. We walked over to the car, not knowing who he was. My mom saw us and gave us a look like please go away, but we didn't. For the first time we saw who was in the car when we walked up to the car. It was Ronnie, a childhood friend of my mom, Ronnie the alcoholic.

Ronnie was having his seventeenth beer for the day when we saw him. My mom was talking to him about his life, and why he was where he was, where he messed up, and where he went wrong. Ronnie kept saying, "My life isn't worth living anymore, Patti. I should just end it. Here I am, forty years old and an alcoholic for almost twenty years." I remember looking at him and thinking "Is he serious? What will he do?" As we sat there hearing Ronnie talk about his life, I just kept feeling sorry for him. He had been an alcoholic since the Vietnam war. He told us in a drunken state, "How can you fight a war and kill people? How can you just kill innocent people? Wives? Little children with cute smiles and innocent faces? I ask you, how can anyone do that?" He continued, sobbing, "How could I look at little children knowing I just killed one of their parents?" Then he came out of the stare he had been in and said, "Will you help me? Please?"

B The scene with the broken-down car where Ronnie is first identified creates a situation for the plot by displaying the narrator's prior knowledge of the main character of the story.

C The inclusion of sensory details, such as a careful description of the character's clothing and physical characteristics, helps to develop the character of Ronnie. These descriptions further the plot by providing motivations for Ronnie's actions.

The student employed an effective writing strategy by using dialogue:

D to develop the complexity of the main character; and

E to build suspense at appropriate moments in the plot.

F The account closes appropriately by telling the reader where the events of the story have led the main character, as well as how this encounter with Ronnie affected the narrator's life.

E4c Conventions, Grammar, and Usage of the English Language: The student independently and habitually demonstrates an understanding of the rules of the English language in written and oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

The student created sentence structures appropriate to the informal nature of this narrative account, including effective fragments.

My mom spoke after clearing her throat, "Yes Ronnie I'll help you." She ran up to my grandparent's house while Kasha, Erica, and I sat there listening to Ronnie. While we were there, he kept mumbling, "I can do this" over and over. Finally, my mom came back from my grandparent's house. "We need to go to Lexington to the Rehab. Center there." Lexington was an hour away from Bradfordsville. My mom didn't want us to go, but she needed someone to keep her awake because it was an all night thing.

When Ronnie got out of the car, I finally got a good look at him. He was wearing a plain white shirt with several different stains on it. His shorts were cut off from sweat pants and were blue. His blue blood shot eyes had told me he hadn't slept in a while. His face had a five o'clock shadow, and his tan skin was slightly dirty. His sandy blond hair was messed up, and his facial expression was of total confusion. He smelled like Coors Light and Camel cigarettes.

I slept on the way up to Lexington. When arrived at the hospital, I looked at the clock and it read 12:45. We walked into the Emergency Room and asked for a nurse to do a physical on Ronnie. Two hours after Ronnie's physical, which took an hour itself, a nurse told us that they wouldn't take Ronnie because he had no insurance. They told us of a detoxification center about ten minutes from the hospital on the bad side of town. When we arrived at the place, I got really scared. It was three o'clock in the morning, and we were in a place that looked like the ghetto on a gangster movie. It was really scary.

It wasn't until 7:00 that morning, that we were back in

Bradfordsville. We left Ronnie at the place in Lexington. I really didn't want to leave him, but we had to. I wrote about Ronnie because he really influenced my life. He showed me what "rock bottom" is and showed me the courage to bring his life up out of the gutter. I respect him for stopping his alcoholism and changing his life to make it better. Ronnie is doing well now. He goes to AA meetings and is in a job training program. He has overcome his troubles and making a life for himself, and anyone who does that earns my respect.

Work Sample & Commentary: Blue-gray Eyes

The task

Students were asked to write a descriptive essay.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone
- ✓ in class
- ✓ with teacher feedback
- ✓ timed
- ✓ in a group
- ✓ as homework
- ✓ with peer feedback
- ✓ opportunity for revision

What the work shows

E2d Writing: The student produces a narrative procedure that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- provides a guide to action for a complicated procedure in order to anticipate a reader's needs; creates expectations through predictable structures, e.g., headings; and provides smooth transitions between steps;
- makes use of appropriate writing strategies, such as creating a visual hierarchy and using white space and graphics as appropriate;
- includes relevant information;
- excludes extraneous information;
- anticipates problems, mistakes, and misunderstandings that might arise for the reader;
- provides a sense of closure to the writing.

A The student created a thoroughly engaging persona by employing two different types of language—popular music lyrics and a narrative about painting a room—in such a way that a non-literary procedure becomes literary.

B The reader's interest is engaged by the use of lyrics from popular songs to organize the essay and to reflect an attitude toward the procedure.

C A clear guide for a complicated procedure is provided through the use of smooth transitions between steps.

This work sample illustrates a standard-setting performance for the following parts of the standards:

E2d Writing: Produce a narrative procedure.

E4a Conventions: Demonstrate an understanding of the rules of the English language.

11-16-99
Descriptive Essay

"...Blue-gray eyes...they change with the color... Change with the sun...they run with the sight. They change with the wind...but they're always bright, Bright eyes...Blue Denim, Bright eyes...Blue Denim..."

The chorus to "Blue Denim," a song off Stevie Nicks' CD *Street Angel*, blares for probably the twenty-fifth time from my CD player. I'm singing right along, having the whole CD memorized by now, along with 10,000 Maniacs' *Our Time In Eden*, Erya's *Watermark*, and Diana Ross & The Supremes, all of which I've been listening to almost constantly since they arrived in the mail from BMG. At the moment I'm putting on the finishing touches to the paint on the 'off walls of my room, and I look like I just walked out of a paint ball war in which the other team had a smashing victory using slightly peachish-white paint (though this is nothing compared to what I looked like during the featuring stage).

The very first step in finishing the walls in my room was to pack up all my stuff and move it out. Hah! Easier said than done. I am a pack rat. I love to sort and organize and derive great pleasure from getting rid of things, but it doesn't happen very often. Once everything was neatly packed into boxes and set in safe, semi-out-of-the-way places, my dad came in to put up the sheet rock. When it was up, the whole thing was my baby.

I spent about a day caulking the walls. The sheet rock had been hard to put up because the board behind it couldn't always be found on the first bang of the hammer, so there were lots of extra dents to be filled with putty. Dabbing a bit of putty, smoothing it

D The student provided a clear sense of closure by reflecting on the experience and by ending with lyrics that are appropriate to the reflection.

Blue-gray Eyes

over, dabbing a bit of putty, smoothing it over. Then there were the corners (my favorite), and the seams that had to be covered with tape and smoothed over with putty...

B "You win a prize for that, for telling her like that so well that I believed it. I never felt created. You were the chosen one, the pure eyes of Noah's dove. Choir boys and angles stole your lips and your halo." ("Noah's Dove" - 10,000 Maniacs)

Once all the walls were caulked, they had to be textured. I sat on the floor, which was covered in plastic drop cloths, and experimented with different textures and techniques on an extra piece of sheet rock. I decided to go with an original design of my own that consisted of interweaving rainbow-shaped strokes made with a small hand broom. I mixed

F up a bunch of plaster with just the right consistency (it was different every time) and got to work. I spent hours sitting on the floor making strokes with the broom, standing making strokes with the broom, balancing on the ladder making strokes with the broom, and stooping in my loft making strokes with the broom. Every once in a while there would be some bugs, cobwebs, or dried bits of plaster that would get stuck in a stroke, and I'd have to pick them out and redo it. Whenever I got plaster somewhere it wasn't supposed to be, I just wiped it off on myself. I could be washed. Between mixing plaster and wiping things

G off, I was soon covered. It was all over my shirt, shorts, legs, arms, hands, feet, tools, and there was even a little bit in my hair. Nobody could deny that I had been deeply involved in my task. After two or three days of texturing, I was finally done...

"For love, forget me, I didn't mean for him to get me. Get up in the morning, and I'm filled with desire. No, no I can't stop the fire, love is a real live fire. Love is a burning sensation, far beyond imagination. Love is like an itching in my heart, tearing it all apart, an itching in my heart, and baby I can't scratch it..." ("Love Is Like An Itching In My Heart" - Diana Ross & The Supremes)

Then I started the painting. First, there was the coat of white primer, which thankfully didn't take very long. Then there were the two coats of slightly peach tinted white paint (you know, one of those twenty-five new shades of white), which I managed to slip all over the drop cloths and myself. We have this great roller with a long handle that I got to use, and attempt to maneuver when that nice long handle was hitting some large space occupying objects such as a bookshelf or desk. "I will not become frustrated. I will not become frustrated..." I had to wait in between coats for the paint to dry and spent a few wonderful nights sleeping on the couch so I wouldn't become intoxicated by the fumes. I unfortunately am not a morning person. The rest of my family are.

I I'm wearing my plastering/painting clothes now for the last time in what I hope is a long time, and I'm pretty much done. I've managed not to drive myself crazy with all this time alone to think, with the aid of what is now very well-known music to me. I have gained quite a bit of experience in caulking, artistically texturing, and painting, and above all, I can now be very proud of myself for a great accomplishment all my own... "Let me sail, let me sail, let the Orinoco flow; let me reach, let me beach on the shores of Tripoli; let me sail, let me sail, let me crash upon your shore; let me reach, let me beach far beyond the Yellow Sea..." ("Orinoco Flow" - Enya)

E4 Conventions, Grammar, and Usage of the English Language: The student independently and habitually demonstrates an understanding of the rules of the English language in written or oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- H** • grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- K** • usage.

The work displays a controlled, sophisticated use of sentence structures, including:

- E** the effective use of fragments;
- F** parenthetical comments; and
- G** effective repetitive elements.

H The student made one spelling mistake which may have been merely a typographical error ("floor" instead of "floor").

I This error in usage does not detract from the excellent control exhibited overall.

The student made use of a variety of language features such as:

- J** effective word choice to create sensory appeals;
- K** parallelism; and
- L** interior monologue.

Work Sample & Commentary: School Bond Levy

The task

Students were asked to write a persuasive essay based on research.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone in a group
- in class as homework
- with teacher feedback with peer feedback
- timed ✓ opportunity for revision

What the work shows

E2 Writing: The student produces a persuasive essay that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
 - develops a controlling idea that makes a clear and knowledgeable judgment;
 - creates an organizing structure that is appropriate to the needs, values, and interests of a specified audience, and arranges details, reasons, examples, and anecdotes effectively and persuasively;
 - includes appropriate information and arguments;
 - excludes information and arguments that are irrelevant;
 - anticipates and addresses reader concerns and counter-arguments;
 - supports arguments with detailed evidence, citing sources of information as appropriate;
 - uses a range of strategies to elaborate and persuade, such as definitions, descriptions, illustrations, examples from evidence, and anecdotes;
 - provides a sense of closure to the writing.
- D** The essay engages the reader by establishing the context of identifying the facilities that the bond levy will add or improve, and by taking a clear stand on the issue. The persona is that of a serious, reasonable individual willing to address opposing viewpoints.

This work sample illustrates a standard-setting performance for the following parts of the standards:

E2e Writing: Produce a persuasive essay.

E3a Conventions: Demonstrate an understanding of the rules of the English language.

School Bond Levy

The _____ School Board has recently proposed a bond levy to add new facilities as well as conduct some major repairs to the school. The bond includes building a new gymnasium, a new science room and lab, a new Media Center/Library, new Chapter 1 and Special Education classrooms, and other facilities such as more parking space, an increase in storage area, and new locker rooms. Along with new construction, the board is proposing to remodel facilities such as the drama/music areas, the entire roof, the heating system, the school kitchen, and present gym as well. This bond allowing _____ School to add more facilities should be passed in order for young students to be provided with a better education.

Several arguments have been brought up concerning the levy since it failed in the March election. Some say that the school doesn't need to have brand new facilities and better classrooms, but it does. Just this year the school had to shut down for days at a time as a result of a malfunction of the heating system. The roof of the library also had a leaking problem all winter long. The leaking has actually caused the ceiling tiles to rot to the point where they are having to be removed. It isn't safe to sit underneath them because, in fact, they have fallen to tables where students had been working only minutes before.

Another issue that people may be concerned with is the money that taxpayers have to put up for the building. The cost of the project in its entirety will be 2.9 million dollars, meaning that for the next 25 years, taxpayers would pay 40 cents more per thousand dollars in property tax than they do this year. The project does cost a significant amount of money, but the school needs it. If something isn't done now, then the facilities such as the library, the science room and others will continue to grow

B The essay's organization takes into consideration its audience of adults concerned with accelerating tax levies. For example, paragraph three deals with costs by detailing the actual dollar amount needed, and by arguing that current low interest rates and expenses make additions and repairs more cost effective today than they would be in the future.

All of the information and arguments included are relevant to the purpose of the essay.

C The student anticipated reader concerns about the need for repairs by recounting in detail the results of a heating system failure and the unsafe conditions in the library.

School Bond Levy

steadily worse. The construction and remodeling needs to be done eventually, so why not now, when interest rates are low and expenses are also low. Superintendent _____ commented that it would cost the taxpayers much less money now than ten

years from now. Another reason that this is a good time to pass this bond is that the results of Ballot Measure 5 are going into effect at the same time as the levy. As it stands now, property tax rates will go down another \$2.50 by next year, however, if taxpayers don't mind paying what they do now and can handle a 40 cent increase, then the school can be that much better.

Many other good reasons we exist for funding this construction now. For one, better facilities will be made available to everyone: staff members, students, and community members. The new gym will allow student athletes to have earlier practices and more time for homework. With only one gym in a K-12 school system, the junior high has to practice in the morning before school, starting at 6:30 A.M., meaning that both the girls and boys teams had to practice at the same time, with half of the court for the girls half for the boys. After school, the high school girls would practice from 3:30 to 5:30 P.M. The varsity boys would then start at 5:30 or 6:00 and go until 7:30. After that, the junior varsity boys would come in for an hour and a half. It's absurd to think that student athletes can make good use of their time with a schedule like that. If the bond were to pass, both the new gym and the present gym would be used for practices and athletes wouldn't have to wait so long to practice every day.

Another reason that the gym should be built is that it is no longer adequate. The bleachers are too close to the court and so there is no room to walk by without getting in the way during a game. The gym also poses a problem for the cheerleaders. As it is now, there is no room for them to cheer. They have to stand on one of the ends which, of course, is right in the way of people walking by. If a new gym were built, enough room would be provided surrounding the court that there wouldn't be any of the problems there are now.

Another advantage to the bond proposal is that it would provide more space in the school. The school has always been small, which is in some ways nice, but it needs to expand. The lack of space is a problem because everyone is crammed into one little hallway trying to make it around from class to class. As it is, there isn't enough room for the library to just be a library or the kitchen to just be a kitchen. Students can't even go to the library when they need to because Health, Media, and other classes are held there. The Satellite Learning classroom, which shares a space with the kitchen, usually has a difficult learning atmosphere each day people prepare food for the hot lunch program. Another problem area is the current science room and lab. Lab facilities are outdated and cannot be replaced for a variety of reasons related to the plumbing and electrical systems. Both science teachers have said publicly that the chemical storage room is inadequate and unsafe. The science curriculum is a core part of students' education and they deserve good facilities.

It is clear then, that _____ School needs significant improvements in which case the bond must be passed. As a community, education is an essential part of the future. In the past, _____ has relied in the timber industry for employment, but times are changing and the younger generations need to be better prepared to meet the challenges that arise. For example, they need to be able to take part in a variety of activities and be able to achieve in many different areas. If the school is inadequate, how can the younger generations be provided with the education and training they need to be successful in the future?

D The arguments are supported with clear, detailed evidence in which the student provided an account of the total costs and the results of Ballot Measure 5.

E The student cited scheduling difficulties resulting from having only one gym. The arguments are supported with effective illustrations showing why more space is needed.

Detailed information is included in an effort to persuade the audience, particularly those who voted against the initial bond initiative.

F The student used an effective strategy in closing the argument with an emotional plea: "If the school is inadequate, how can the younger generations be provided with the education and training they need to be successful in the future?"

3a Conventions, Grammar, and Usage of the English Language: The student independently and habitually demonstrates an understanding of the rules of the English language in written or oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

In almost error free writing, the student managed grammar, usage, spelling, punctuation, sentence construction, and paragraph structure.

Work Sample & Commentary: As a Reader

The task

Students were asked to write an essay reflecting upon their English Language Arts portfolio and their progress throughout the year in reading, writing, speaking, and listening.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone
- ✓ in class
- with teacher feedback
- timed
- in a group
- ✓ as homework
- with peer feedback
- ✓ opportunity for revision

What the work shows

E2f Writing: The student produces a reflective essay that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- analyzes a condition or situation of significance;
- develops a commonplace, concrete occasion as the basis for the reflection, e.g., personal observation or experience;
- creates an organizing structure appropriate to purpose and audience;
- uses a variety of writing strategies, such as concrete details, comparing and contrasting, naming, describing, creating a scenario;
- provides a sense of closure to the writing.

The work engages the reader with a highly self-conscious voice that offers a reflection of the past year. The focus on literacy skills narrows the scope of the work and helps to keep it interesting.

A The student included an analysis of her abilities and her performances as a reader, writer, listener, and speaker, including details, such as the strategies she used to improve her concentration.

B The reflections are grounded in commonplace occasions, such as reading at the dinner table, providing an additional context for the student's comments.

This work sample illustrates a standard-setting performance for the following part of the standards:

E2f Writing: Produce a reflective essay.

Reflective Essay

F As a reader, I love all types of literature. The ones I favor the most would always be the ones written by Michael Crichton and Mary Higgins Clark. In English Class, I feel that I was able to read, enjoy and comprehend the choices of literature my teacher had me read. With the exception of Jane Eyre, I enjoyed everyone of them. In the beginning of the year I wrote how easily distracted I can be when I'm reading literature for a specific class. This is even more true with the warm weather and a new Beatles CD I received for my birthday. One of the reasons I'm so interested in meditation besides getting rid of unwanted pressure, is so I can learn to concentrate on one particular thing. I always seem to be having hundreds of thoughts all mixed up in my head besides reading books. I also love reading magazines. I will never get tired of receiving a brand new National Geographic Society magazine. Even reading the paper at the

A dinner table has become a habit for me. At first my parents told me to quit it away, but they don't say anything more about it now. I guess because I can do the balancing act of reading and having a nice conversation with my parents. As you can see I love to read just about anything and anywhere.

G As a writer, I find myself to be a real creative writer. As a child, I was always told I had a wonderful imagination. I hope I'll never lose it. Writing creative stories seem to come real easy to me. The only obstacle I always have to try to overcome is the grammar.

D I noticed I am so bad when it comes to correcting the grammar of one of my papers. Despite all the fees over grammar, I still want to become a professional at it.

E The National Geographic Society, the thing I have always been smitten by, a few people who don't believe in anything particularly, with my parents' support, my dreams are becoming possible.

The other things I hope to do in the future are to become a professional at it.

As a Reader

we're in America now and I should follow my dreams no matter what others may say. Another dream of mine is to write a book that millions will enjoy. Unlike most people, I'm not interested in making millions of dollars. However, to make money by doing something I love does sound real nice. Since I love to make people laugh as well as being creative, I think the book I will write will have people die of laughing.

As a speaker, I've been told that I have a nice, clear, persuasive voice. That is when I'm not petrified with fear of talking in front of a large crowd of people. I think I speak much better when I'm faced with just a small group. People, especially one particular teacher, have told me I do a great job of talking. That is I don't mumble, stutter, talk too fast or too slow. Despite all these great compliments that make me blush, I still feel I am too quiet. Sometimes, I even think about taking elocution classes. No matter how many people reassure me, I am still self-

C D E The student engaged the reader by identifying both her strengths: "I find myself to be a real creative writer," and her weaknesses: "The only obstacle I always have to try to overcome is the grammar involved." She considered both her strengths and her weaknesses in discussing her plan to become a photo journalist for the National Geographic Society.

The student created an organizing structure by narrating and reflecting as:

- F** a reader;
- G** a writer;
- H** a speaker; and
- I** a listener.

J The student employed concrete details as a writing strategy to communicate the nature of the work represented in her portfolio.

K The work incorporates a scenario about being a good listener and does so in a way that effectively illustrates the point.

This work contains a small number of errors, such as "conscience" instead of "conscious," that do not detract from the overall quality of the work.

conscience about my thinner accent. I think I still have one. I hope it isn't wrong. I want to get rid of this, but I do the thing I try to do to practice my speaking in public is to read back out loud. Of course, I do this in the privacy of my bedroom. I occasionally practice on easy books, because their simple phrases can turn out to be killer tongue twisters.

As a listener, I think I'm great. I don't yawn, roll my eyes or look completely exhausted when someone is giving a public speech. That is, not excessively. I don't want to do something to someone else and then have them do it right back to me. I was raised to live by the Golden Rule, and I will never forget it. When I listen to people during a close conversation, I try to look in their eyes as often as possible. Sometimes I have to look away, because I get an eerie feeling. I also don't like standing too close to another person during a conversation. I try to stay quiet, but not too quiet. If I don't say anything, the other person may get the

impression I'm not listening. However, I don't want the other's story to turn into one of my own, by interrupting too many times at the wrong moments. I think great listening is a craft that must be learned and practiced.

Work Sample & Commentary: *Dreams: Can Money Make Them Come True?*

The task

Students were asked to read *A Raisin in the Sun* and to write an analysis of one or more elements of the play.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone
- ✓ in class
- with teacher feedback
- timed
- in a group
- ✓ as homework
- with peer feedback
- ✓ opportunity for revision

What the work shows

W.2.b Writing: The student produces a response to literature that:

- engages the reader through establishing a context, creating a persona, and otherwise developing reader interest;
- advances a judgment that is interpretive, analytic, evaluative, or reflective;
- supports a judgment through references to the text, references to other works, authors, or non-print media, or references to personal knowledge;
- demonstrates understanding of the literary work through suggesting an interpretation;
- anticipates and answers a reader's questions;
- recognizes possible ambiguities, nuances, and complexities;
- provides a sense of closure to the writing.

R.1 The title and first paragraph provide a clear context to engage the reader: the conflicts and connections between money and dreams. This context is maintained throughout the essay.

W.2 The essay advances an interpretive judgment regarding the theme of *A Raisin in the Sun*.

W.3 The judgment about the play is supported through references to the text.

This work sample illustrates a standard-setting performance for the following parts of the standards:

W.2.b Writing: Produce a response to literature.

L.4.a Conventions: Demonstrate an understanding of the rules of the English language.

L.5.a Literature: Respond to non-fiction, fiction, poetry, and drama.

February 27, 1996

Dreams: Can Money Make Them Come True?

A if you were to listen in on a typical conversation between two people today, one topic is bound to come up sooner or later: money. People talk about their jobs and money. People talk about their plans and money. People talk about their families and money. People talk about their dreams and, you guessed it, money.

B Money is definitely important. It puts a roof over our heads, food on our tables, and clothing on our backs. But money also provides people with a means to achieve their goals. People often rely on money to make life better and help their dreams come true, but is it really the stuff dreams are made of?

C This reliance on money to make goals realities is a theme in the play by Lorraine Hansberry entitled *A Raisin in the Sun*. In this drama, the Younger family struggles to survive life in their crummy Southside apartment in Chicago around the 1950s. When the family receives the ten thousand dollar insurance check from the death of Walter Lee Younger Sr., they are forced to decide which dreams they should use the money to make come true and which ones should just stay dreams.

D Beneatha Younger, Walter Sr. and Lena's daughter, has a passion for medicine and longs to be a doctor. When she was young, Beneatha witnessed a slapping accident involving another of the neighborhood children that mangled the child's face and she was amazed when he came back from the hospital with only a small scar. She tells her friend, Joseph Asagai, how she felt by saying "... that was what one person could do for another, fix him up—sew up

D The student demonstrated an understanding of the play by suggesting an interpretation and then defending it with an appropriate argument.

E The student recognized the complexities inherent in this literary work by closing with a discussion of the importance of "people and their actions" as opposed to money alone.

Dreams: Can Money Make Them Come True?

the problem, make him all right again. That was the most marvelous thing in the world . . . I wanted to do that!" (83). Now Bemie wants to be a healer and to help other people because she believes that is the best thing she can do for her fellow human beings. However, medical school costs a lot of money—money the Youngers don't have—until the insurance check . . . arrives. Now, that money can be used to make Bemie's doctor dreams come true, and she is counting on it happening.

Walter Lee Younger Junior, Lena's older child, has plans of his own. He dreams of going into business for himself instead of being a rich man's chauffeur. He tells his mother . . . I open and close car doors all day long. I drive a man around in his limousine and I say "Yes, sir; no, sir; very good, sir; shall I take the Drive, sir?" Mama, that ain't no kind of job . . . that ain't nothing at all!" (42). Walter wants to be a business man, not someone else's servant, so he plans to use the insurance money to invest in a liquor store with some of his friends. But without the money, his grand schemes aren't possible.

Walter is also motivated to go into business because he wants to give his family a better life. One morning, his son Travis needs fifty cents for school. Ruth Younger, Walter's wife, told Travis that they didn't have fifty cents for him to take, and when Walter finds out he says, "What you tell the boy brings like that for?" (12) and proceeds to give his son the money. He continued, "In fact, here's another fifty cents . . . Buy yourself some fruit today—or take a taxicab to school or something!" (12). Walter wants to be able to give his son all the money he will ever need, like most parents do. Later on, he states that, "This morning I was lookin' in the mirror and thinkin' about it . . . I'm thirty-five years old, I been married eleven years and I got a boy who sleeps in the living room . . . —and all I got to give him is stones about how rich white people live . . ." (14). Walter doesn't want his child to have to sleep on the couch in the living room, and he sees the insurance money as his means to achieve the life he believes his family should have and dreams of them living

E4 a Conventions, Grammar, and Usage of the English Language: The student independently and habitually demonstrates an understanding of the rules of the English language in written or oral work, and selects the structures and features of language appropriate to the purpose, audience, and context of the work. The student demonstrates control of:

- grammar;
- paragraph structure;
- punctuation;
- sentence construction;
- spelling;
- usage.

Through virtually error free writing, the student demonstrated the ability to manage the conventions of grammar and usage.

In another scene, Walter and Travis are talking and the boy tells his father that he wants to be a bus driver when he grows up. Walter is surprised and tells Travis that that isn't big enough (85). Walter says:

You wouldn't understand yet, son, but your daddy's gonna make a transaction . . . a business transaction that's going to change our lives . . . And—and I'll say, all right, son—it's your seventeenth birthday, what is it you've decided? . . . Just tell me where you want to go to school and you'll go. Just tell me, what it is you want to be—and you'll be it . . . You just name it son . . . and I hand you the world! (84)

Walter longs to be able to give his son the best and make Travis' dreams come true, and money is what he believes will make that possible. He is relying on the insurance money to give Travis the things Walter envisions for him.

Walter also wants to give Ruth the things he feels she deserves. He said: . . . I want to hang some real pearls round my wife's neck. Ain't she supposed to wear no pearls? Somebody tell me—tell me, who decides which women is supposed to wear pearls in this world. I tell you I am a man—and I think my wife should wear some pearls in this world! (91)

Walter doesn't think it's fair that other men can afford to buy pearls for their wives and he can't. He longs to be able to buy Ruth everything he feels she should have, but he needs money to do that. Again, he is putting his trust in the insurance money and its ability to make the situation improve.

Ruth herself feels like Walter in that she wants a better life for her family. When Ruth Younger discovers she is pregnant, she hopes some of the money could be used to support the new baby. But, she knows they can't afford to add another person to the family, even with the inheritance, so she decides to get an abortion. Lena tells Walter that "When the world gets ugly enough—a woman will do anything for her family. The part that's already living" (43).

Dreams: Can Money Make Them Come True?

ES a Literature: The student responds to non-fiction, fiction, poetry, and drama using interpretive, critical, and evaluative processes; that is, the student:

- makes thematic connections among literary texts, public discourse, and media;
- evaluates the impact of authors' decisions regarding word choice, style, content, and literary elements;
- analyzes the characteristics of literary forms and genres;
- evaluates literary merit;
- explains the effect of point of view;
- makes inferences and draws conclusions about fictional and non-fictional contexts, events, characters, settings, themes, and styles;
- interprets the effect of literary devices, such as figurative language, allusion, diction, dialogue, description, symbolism;
- evaluates the stance of a writer in shaping the presentation of a subject;
- interprets ambiguities, subtleties, contradictions, ironies, and nuances;
- understands the role of tone in presenting literature (both fictional and non-fictional);
- demonstrates how literary works (both fictional and non-fictional) reflect the culture that shaped them.

F The student made and supported a series of inferences about the characters in *A Raisin in the Sun*.

G The student found a connection between dreams and money in the play.

H The student concluded with a declaration about society that stems directly from her reading of the play.

Ruth desperately wants to keep her baby, but she knows the rest of her family will suffer if she does. They just don't have the financial means to take care of another Younger and Ruth is aware of the added problems a new baby would cause everyone, but she still wishes the insurance money will provide her with a way to keep the child. She feels that her future, dreams, and even the life of her child depend on money.

People do expect money to make things in life better and even rely on it to do so. But, can money live up to people's expectations? Or can something else—like people, and especially loved ones—be the real key to dreams coming true?

G This idea shows up toward the end of the play. The stress of living in conditions like the Youngers do eventually gets to people, and deciding what to do with the money only made things worse. Lena doesn't like what is happening to her family, so she goes out and buys a newer, bigger house. She states that:

I—I just seen my family falling apart today . . . just falling to pieces in front of my eyes . . . We couldn't have gone on like we was today. We was going backwards 'stead of forwards—talking 'bout killing babies and wishing each other was dead . . . When it gets like that in life—you just got to do something different, push on out and do something bigger. (58)

Lena wants the best for her children too, just like Walter and Ruth, and she realizes that they can't go on in that apartment any longer, so she uses her money to try and make the dreams she has for her family come true, once again demonstrating how people rely on money to achieve goals.

The only drawback to Lena's solution is that the new house is located in an all-white neighborhood, and a man named Mr. Lindner comes to try and persuade the Youngers not to move. He offers to buy the house back from them for more than it is worth. At the end of the play, after Walter loses the insurance money, he decides to accept Mr. Lindner's offer to give

the Youngers the money for the house. When he announces his decision to the rest of the family, Lena talks to him about pride. She tells him, "I come from five generations of people who was slaves and sharecroppers—but ain't nobody in my family never let nobody pay 'em no money that was a way of telling us we wasn't fit to walk on this earth" (91). Even though the money they would get from the deal could be used to make the family's future more like the one they want, money isn't as important to the family as pride. The money—which can help make dreams come true—can't take the place of the people in the family and their attitudes.

When Lindner arrives, Walter changes his mind and tells the man that ". . . we have decided to move into our house because my father—my father—he earned it" (95). Walter realizes that his mother is right, and when he changes his mind, the rest of the family is happy and proud. As they leave the small, cramped apartment for the last time, Lena states that, "He finally come into his manhood today. Ain't he? Kind of like a rainbow after the rain. . . ." (97)

E The money did help the family get out of their unhappy situation, but Walter's behavior made the family's real dreams come true.

People in society today rely on money to make things better and to help them achieve their goals. In some cases, money can do just that, and many dreams wouldn't come true if

D not for money. But in the end, it's people who make life worth living and cause fantasies to become reality. People and their actions are more special than anything money can buy.

The task

Students were asked to read and listen to a series of tall tales and then to write a tall tale using their knowledge of content and the style associated with that genre.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone
- ✓ in class
- with teacher feedback
- timed
- in a group
- ✓ as homework
- ✓ with peer feedback
- opportunity for revision

What the work shows

ES b Literature: The student produces work in at least one literary genre that follows the conventions of the genre.

The work demonstrates the student's understanding of the style associated with tall tales.

The work incorporates a dialect appropriate to the time and place depicted in the narrative.

A The student's use of colloquialisms and repeated phrases emphasized the oral nature of the genre.

The tall tale includes features the student identified as being common to the genre; for example, it includes a heroine who has unusual adventures and is accompanied by an animal companion.

B The work describes how a real geographical feature was created by the actions of a tall tale character rather than natural forces.

C The story accounts for all the natural elements for which the character is purported to be responsible, providing a clear sense of closure.

This work sample illustrates a standard-setting performance for the following part of the standards:

ES b Literature: Produce work in at least one literary genre that follows the conventions of the genre.

Nov. 30, 1995

Tall Tale

A This here paper's the story of Miss Angela Carmody. What's that you say? Who's Angela Carmody? Why, only the prettiest, most kind-hearted woman that ever lived, and the best darn singer you ever did hear. Well, put up a chair and listen a spell while I tell her tale.

No one quite knows where little Angela grew up, only that it was in a cabin somewheres in the great Sierra Nevadas. She had hair as blonde as the California beaches and eyes green like the greenest leaves on the greenest trees. She had the most beautiful voice, she sang so sweet! Her parents took to callin' her Angela 'cause even when she were a youngun' her cry was pretty to hear, like a baby angel from Heaven.

When she was just a small thing, she wandered out in the forest. She felt happy, like a young gal should, and she let out with a most wonderful melody. She perched herself on a rock and soon, all the creatures on that big mountain were gathered around just a'listenin' to her song. The cougars and the bears sat right alongside the deer most peaceful-like. The birds in the trees chirped along, too.

When the song was over, one voice kept on a' singin'. Who's throat it was coming out of and where the one ownin' the throat was was a mystery. All of the sudden, a huge shadow covered Angela and the animals. When they looked up, they saw a gigantic bird float gracefully by. Angela added her sweet voice making it a doozy of a duet. The bird landed next to the child and the tune stopped while them two studied each other. The creature was indeed huge, with feathers exactly the same shade o' green as Angela's eyes. They were a perfect pair.

Angela named her new pal Emmy 'cause her feathers remindd the girl of emeralds. Angela climbed on Emmy's back and off they flew. Them two visited far off places all over the world, and people in each city stopped to hear 'em sing. The girl and her bird got to be quite famous over them years.

When Angela got to be older, she got to wonderin' about her old home and family. So, Emmy, she a'headed back to the Sierra Nevadas and Angela's cabin. But on the way, a man huntin' bears let a shot go wild up into the air and the bullet hit the great green bird. She fell out of the sky and landed in a hanging valley high in the mountains. Poor Emmy and Angela had sung their last duet.

B The girl buried her friend on the spot where they landed, then sat herself down and cried. She cried and cried and cried. Her tears ran together and tumbled over the edge of the cliff becomin' a waterfall—Yosemite Falls, to be exact. And to this very day, that waterfall still comes down from the Sierra Nevadas, and the grass on top of that big hill grows green as emeralds. They say if a body listens hard enough, they can still hear Angela's sad solo sung for her fallen friend...

C

Work Sample & Commentary: Living Rooms as Classrooms

The task

Students were asked to read and respond to a newspaper article. They were asked to pay particular attention to the way the articles were written and the implications underlying the arguments.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-----------------------|----------------------------|
| ✓ alone | in a group |
| ✓ in class | ✓ as homework |
| with teacher feedback | with peer feedback |
| timed | ✓ opportunity for revision |

What the work shows

EA Public Documents: The student critiques public documents with an eye to strategies common in public discourse, including:

- effective use of argument;
- use of the power of anecdote;
- anticipation of counter-claims;
- appeal to audiences both friendly and hostile to the position presented;
- use of emotionally laden words and imagery;
- citing of appropriate references or authorities.

A The student identified certain aspects of the argument being considered and responded responsibly, stating agreement with two of the aspects, but not the third.

B The student made use of emotionally charged words and imagery to present a counter-argument.

C The work appeals to both friendly and hostile audiences by clearly identifying the point of disagreement and then discussing it in a reasonable manner.

"Living rooms As Classrooms" discussed a type of education that was unknown to me. In some instances, I feel that home schooling is a good alternative to public education. Yet many questions arise as I read this article.

First of all, my questions begin with one word: Why? As I read on, this question was answered with answers such as to keep children away from school violence, health reasons, or religious reasons. The only answer I disagreed with was school violence. I disagree because wherever a person may go, they may encounter violence. Sheltering the child now is not going to benefit them in the long run.

The article, written by Bill Schackner, was based on a home-schooled student, Jesse Richman. A statement that Richman made was that he did not feel he missed anything by not attending school, and also he did not feel isolated. I don't understand how he can feel this way. By not going to school, Richman probably never got to see the diverse number of people a public school has to offer. He never got to meet the school snob, the class clown, the jock, the nerd, etc. He never had the chance to attend a real discussion group, where teens stated their mind without censoring their opinions because their parents were around. Many of his socializing skills may not have been developed simply because he didn't go to school. For all Richman knows, he may have missed meeting that special someone just because he didn't go to school.

In conclusion, I feel that home schooling can be a good method for educating children. Many children in society today do need one-on-one teaching. Yet many things happen-

particularly in high school- that a teen must, or should experience. Besides, going to a dance at a church function just doesn't hold a candle to the Senior Prom.

This work sample illustrates a standard-setting performance for the following part of the standards:

EA Public Documents: Critique public documents.

Work Sample & Commentary: Please Post: Caring For Your Campus Lawn

The task

In a chemistry class, students were asked to determine the most effective, economical, and environmentally safe grass fertilizer for their school district. The students were to produce an analytical report with detailed procedures and conclusions and to make a recommendation to the school district's Grounds and Maintenance Department. The document included here is the instructional piece that was produced in response to the research. The knowledge necessary to produce the document came out of a substantial research effort.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-------------------------|----------------------------|
| alone | ✓ in a group |
| ✓ in class | ✓ as homework |
| ✓ with teacher feedback | ✓ with peer feedback |
| timed | ✓ opportunity for revision |

What the work shows

71b Functional Documents: The student produces functional documents appropriate to audience and purpose, in which the student:

- reports, organizes, and conveys information and ideas accurately;
- includes relevant narrative details, such as scenarios, definitions, and examples;
- anticipates readers' problems, mistakes, and misunderstandings;
- uses a variety of formatting techniques, such as headings, subordinate terms, foregrounding of main ideas, hierarchical structures, graphics, and color;
- establishes a persona that is consistent with the document's purpose;
- employs word choices that are consistent with the persona and appropriate for the intended audience.

The organization of the work into three brief sections serves to communicate a great deal of information in a limited space.

This work sample illustrates a standard-setting performance for the following part of the standards:

71b Functional Documents: Produce a functional document.

PLEASE POST

CARING FOR YOUR CAMPUS LAWN

For a well-maintained lawn follow these quick and easy steps!

FERTILIZATION

1. Measure the square footage of the lawn.
To measure the square footage, multiply A and B together.

To get A & B, simply walk off the number of feet.

Then, divide the answer of A and B by 1,000.
Next, take the answer from above and multiply by 7. This gives you the amount of fertilizer in pounds for each time that you fertilize.
- 2. Fertilize on these dates for best results: April 15, June 1, July 15, September 1
- 3. Use 15-5-10 percentage fertilizer.
- 4. Request fertilizer from the F.W.I.S.D. warehouse.

MOWING

1. Mow the lawn at 2 inches weekly or when grass blade reaches one-third mowing height.
2. Leave grass clippings on the lawn—Don't Bag It!

WATERING

1. Water in early morning so less water is lost to evaporation.
2. Water thoroughly and infrequently making sure that in the summer the lawn gets 1 inch of water every week.

If you have any questions, please call _____ at _____.

This information is based on extensive research done in Mr. _____ first period chemistry class at _____ High School, 1991-1992.

1 The "Fertilization" section includes clear instructions for determining the amount of fertilizer for a lawn.

The students used several layers of headings, indicated by changes in the font size, type, and placement.

The persona of the piece is clear and direct, thus diminishing the opportunity for misunderstanding.

2 The trade language used, such as "15-5-10 percentage fertilizer," is appropriate for the audience of the Grounds and Maintenance Department.

3 The information that the Grounds and Maintenance Department would already have is not included, e.g., the rationale for fertilization dates is left out, which is appropriate for the expert audience but would not be appropriate for a novice audience.



This piece of work was completed as part of an Applied Learning project. See page 118 for commentary on the project as a whole.

Work Sample & Commentary: Books, Tomes, Novels, Treasures

The task

Students were asked to submit a log of reading done both in and out of school.

Circumstances of performance

This sample of student work was produced under the following conditions:

- √ alone
- √ in class
- with teacher feedback
- timed
- in a group
- √ as homework
- with peer feedback
- opportunity for revision

What the work shows

31a Reading: The student reads at least twenty-five books or book equivalents each year. The quality and complexity of the materials to be read are illustrated in the sample reading list. The materials should include traditional and contemporary literature (both fiction and non-fiction) as well as magazines, newspapers, textbooks, and on-line materials. Such reading should represent a diverse collection of material from at least three different literary forms and from at least five different writers.

The reading log provides evidence that the student met the goal of reading twenty-five books of the appropriate quality of literature for the high school standard. In fact, some of the literature on his list is included in many college level courses. The reading log also shows the variety of texts the student engaged in from fiction, classic literature, and informational materials.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 31a** Reading: Read at least twenty-five books or book equivalents each year.
- 31b** Reading: Read and comprehend at least four books about one issue or subject, or four books by a single writer, or four books in one genre.

Books Tomes Novels TREASURES

The following list includes a selection of my favorite books that I've read during American Studies (An advanced placement class composed of history and English.) as well as on my own during the past year.

The Debate Place of Epitaphs, Epitaphs

Demetrius the King

Demetrius at Colonus

"Anapests" - wife so a nation's very concerned with family values today, and often want to return to the "old ways" Wouldn't Demetrius and his family give us an extremely unpleasant surprise!

The Jews, Lisa Luvry - For Jones and his family, life is perfect, but where is it taking them?

The Charles Letter, Nathaniel Hawthorne - "A" is for adultery, so well as apathy, apostasy and sacrifice.

Demetrius's Daughter, Nathaniel Hawthorne - Pappacian was torn between the love he felt for his daughter and his beloved plants.

Case Spring, Ben Ames Williams - Life was not easy in the backwoods of Maine in the late 1700's. They were much to family, faith, and in the hope of the coming spring.

Brooklyn World, Aldous Huxley - Life is wonderful, as long as it feels that way!

Heart of Darkness, Joseph Conrad - We never know what will change with the weather, in the jungles of inner Africa.

The Secret Sharer, Joseph Conrad - Relationships form, like two stones colliding in the night.

Walden, Henry David Thoreau - Life must go on with visions of burning cities and rooms of death. Always remember - never forget!

Demetrius, Hermann Hesse - The sky is the limit for those who find spirituality in themselves.

Epitaphs, Hermann Hesse - If the Buddha is truly divine, then friendship must be his master.

Stargazer, Hermann Hesse - Terror is nothing to be afraid of until it takes you in the face.

The Tempest, William Shakespeare - The fantasy based on the colonization of America. What Prospero means?

Love over vengeance?

The Tempest of the Shrew, William Shakespeare - If you think Katherine is a shrew, then Stargazer

Twelfth Night, William Shakespeare, Peter Malivelle, learn a lesson from Viola and Sebastian.

Macbeth, William Shakespeare - By the witching of my thumbs, something wicked this way comes.

Something WICKED this way comes!

Unnatural Wife, Irving Stone, John C. Fremont conquered the west, his wife placed him on a pedestal.

Three Men on a Horse, Irving Stone, John and Abigail Adams were married in law and performance.

The President's Lady, Irving Stone, Oh, in 1814 we took a little trip, along with Andrew Jackson and the mighty Mississippi...

Long Ocean Trip, Olive Ann Burns, Everyone still going for Grandpa after Grandpa died... until he brought

31b Reading: The student reads and comprehends at least four books (or book equivalents) about one issue or subject, or four books by a single writer, or four books in one genre, and produces evidence of reading that:

- makes and supports warranted and responsible assertions about the texts;
- supports assertions with elaborated and convincing evidence;
- draws the texts together to compare and contrast themes, characters, and ideas;
- makes perceptive and well developed connections;
- evaluates writing strategies and elements of the author's craft.

The reading log shows evidence that the student read four or more books in one genre. He fulfilled the requirement by reading a number of plays, including several groups of plays within more specific categories, such as Greek tragedy.

High School English Language
 Books, Tomes, Novels, Treasures

name his new wife! News travels fast in A. Britain!
Doctors of the Dead - Margaret Mayo - The story of a man who wanted more, and achieved it
Coastline - Patricia Glass - Life was hard to get to Pleasant, but life is a good hard when you're fourteen
Crunch - Kathleen Roberts - Life was dull for Steven - until Benedict Arnold came along!
Crackpot - Mary Shelly - Victor had created a monster, how'd he make it?
Yakov - Henry David Thoreau - So back to a rowboat and let yourself drift...
Yuletide Tracts - Martha Beckman - A study of Thoreau's Walden, and what inspired him
Seven Years of Adolescence - Edgar Lee Masters - All, all are sleeping, sleeping, sleeping on the Hill!
Silas Marner - Silas Marner - Silas is a miser even without his gold, until a child appeared
The Christ - John Gribben - The web is always breaking?
Mirrors in the Garden of Good and Evil - John Deenath - Sevayah is a beautiful town, until skeletons start
 walking out of closets - Mirrors!
Song of Sarah - Judith Isaacson - The courageous story of a young Jewish girl trying to survive in Nazi
 prisons and death camps.
Soyuz Is Dish - Estelle de Herve - Fell attention le virus de danger!
La Revoluc - Herminia Debra - Fomologues et d'a propos pour les filles de l'avenue
La Eschaba de l'Utopia - Gertrude Lerman - L'histoire vraie d'un homme, a deux monstres et a deux enfants
24. Forever the Day - Act II
 "27 Wagon Full of Cotton" - Tennessee Williams
 "Spread by the News" - Lady Gregory
 "A Marriage Proposal" - Anton Chekhov
 "In the Shadow on the Glen" - J.M. Synge
 "Cathleen ni Houlihan" - W.E. Yeats
 "The Jew of Malabar" - Lord Dunsany
 "Treliss" - Susan Glaspell
 "The Happy Journey" - Therman Wilder
 "The Ugly Duckling" - A.A. Milne
 "The Flattering Word" - George Kelly
 "The Trilby of Greys" - Ring Lardner
 "The Prison of the Caribbees" - Eugene O'Neill
 "The Still Alarm" - George S. Kaufman
 "The Devil and Daniel Webster" - Stephen Vincent Benet
 "The Apollo of Bellac" - Jean Giraudoux
 "A Memory of Two Monkeys" - Arthur Miller
 "Gorge in the Flower" - William Inge
 "Hedges Across the Sea" - Noel Coward
 "Here We Are" - Dorothy Parker
 "Sorrow Wraps Number" - Lucille Fletcher
 "The Brooming Yarn" - Terence Rattigan

"A Florentine Tragedy" - Oscar Wilde
 "The Maker of Dreams" - Orphant Down
 "The Traveler" - Marc Connelly
The Same Sky, Compiled by Norval Shirub Nye - A collection of poems from around the world.

Mathematics

Building directly on the National Council of Teachers of Mathematics (NCTM) Curriculum Standards, the Mathematics performance standards present a balance of conceptual understanding, skills, and problem solving.

The first four standards are the important conceptual areas of mathematics:

- 1** Number and Operation Concepts;
- 2** Geometry and Measurement Concepts;
- 3** Function and Algebra Concepts;
- 4** Statistics and Probability Concepts.

These conceptual understanding standards delineate the important mathematical content for students to learn. To demonstrate understanding in these areas, students need to provide evidence that they have used the concepts in a variety of ways that go beyond recall. Specifically, students show progressively deeper understanding as they use a concept in a range of concrete situations and simple problems, then in conjunction with other concepts in complex problems; as they represent the concept in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate) and explain the concept to another person.

This is not a hard and fast progression, but the concepts included in the first four standards have been carefully selected as those for which the student should demonstrate a robust understanding. These standards make explicit that students should be able to demonstrate understanding of a mathematical concept by using it to solve problems, representing it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and explaining it to someone else. All three ways of demonstrating understanding—use, represent, and explain—are required to meet the conceptual understanding standards.

Establishing separate standards for these areas is a mechanism for highlighting the importance of these areas, but does not imply that they are independent of conceptual understanding. As the work samples that follow illustrate, good work usually provides evidence of both.

Like conceptual understanding, the definition of problem solving is demanding and explicit. Students use mathematical concepts and skills to solve non-routine problems that do not lay out specific and detailed steps to follow; and solve problems that

Complementing the conceptual understanding standards, **5**–**8** focus on areas of the mathematics curriculum that need particular attention and a new or renewed emphasis:

- 5** Problem Solving and Mathematical Reasoning;
- 6** Mathematical Skills and Tools;
- 7** Mathematical Communication;
- 8** Putting Mathematics to Work.

make demands on all three aspects of the solution process—formulation, implementation, and conclusion. These are defined in **5**, Problem Solving and Mathematical Reasoning.

The importance of skills has not diminished with the availability of calculators and computers. Rather, the need for mental computation, estimation, and interpretation has increased. The skills in **6**, Mathematical Skills and Tools, need to be considered in light of the means of assessment. Some skills are so basic and important that students should be able to demonstrate fluency, accurately and automatically; it is reasonable to assess them in an on-demand setting, such as the New Standards reference examination. There are other skills for which students need only demonstrate familiarity rather than fluency. In using and applying such skills they might refer to notes, books, or other students, or they might need to take time out to reconstruct a method they have seen before. It is reasonable to find evidence of these skills in situations where students have ample time, such as in a New Standards portfolio. As the margin note by the examples that follow the performance descriptions indicates, many of the examples are performances that would be expected when students have ample time and access to tools, feedback from peers and the teacher, and an opportunity for revision. This is true for all of the standards, but especially important to recognize with respect to **6**.

7 includes two aspects of mathematical communication—using the language of mathematics and communicating about mathematics. Both are important. Communicating about mathematics is about ideas and logical explanation. The travelogue approach adopted by many students in the course of describing their problem solving is not what is intended.

8 is the requirement that students put many concepts and skills to work in a large-scale project or investigation, at least once each year, beginning in the fourth grade. The types of projects are specified; for each, the student identifies, with the teacher, a clear purpose for the project, what will be accom-

plished, and how the project involves putting mathematics to work; develops a question and a plan; writes a detailed description of how the project was carried out, including mathematical analysis of the results; and produces a report that includes acknowledgment of assistance received from parents, peers, and teachers.

The examples

The purpose of the examples listed under the performance descriptions is to show what students might do or might have done in achieving the standards, but these examples are not intended as the only ways to demonstrate achievement of the standard. They are meant to illustrate good tasks and they begin to answer the question, "How good is good enough?" "Good enough" means being able to solve problems like these.

Each standard contains several parts. The examples below are cross-referenced to show a rough correspondence between the parts of the standard and the examples. These are not precise matches, and students may successfully accomplish the task using concepts and skills different from those the task designer intended, but the cross-references highlight examples for which a single activity or project may allow students to demonstrate accomplishment of several parts of one or more standards.

The purpose of the samples of student work is to help to explain what the standards mean and to elaborate the meaning of a "standard-setting performance." Few pieces of work are so all-encompassing as to qualify for the statement, "meets the standard." Rather, each piece of work shows evidence of meeting the requirements of a selected part or parts of a standard. Further, most of these pieces of work provide evidence related to parts of more than one standard. It is essential to look at the commentary to understand just how the work sample helps to illuminate features of the standards.

Resources

We recognize that some of the standards presuppose resources that are not currently available to all students. The New Standards partners have adopted a Social Compact, which says, in part, "Specifically, we pledge to do everything in our power to ensure all students a fair shot at reaching the new performance standards...This means that they will be taught a curriculum that will prepare them for the assessments, that their teachers will have the preparation to enable them to teach it well, and there will be an equitable distribution of the resources the students and their teachers need to succeed."

The NCTM standards make explicit the need for calculators of increasing sophistication from elementary to high school and ready access to computers. Although a recent National Center for Education Statistics survey confirmed that most schools do not have the facilities to make full use of computers and video, the New Standards partners have made a

commitment to create the learning environments where students can develop the knowledge and skills that are delineated here. Thus, **MG**, Mathematical Skills and Tools, assumes that students have access to computational tools at the level spelled out by NCTM. This is not because we think that all schools *are* currently equipped to provide the experiences that would enable students to meet these performance standards, but rather that we think that all schools *should be* equipped to provide these experiences. Indeed, we hope that making these requirements explicit will help those who allocate resources to understand the consequences of their actions in terms of student performance.

The high school standards reflect what students are expected to know and be able to do after a three-year core program in high school mathematics as defined by the NCTM standards, independent of the specific curriculum they study or its sequencing: traditional Algebra I, Geometry, Algebra II; or (Integrated) Mathematics I, II, III.

1 Number and Operation Concepts

The student demonstrates understanding of a mathematical concept by using it to solve problems, by representing it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and by explaining it to someone else. All three ways of demonstrating understanding—use, represent, and explain—are required to meet this standard.

The student produces evidence that demonstrates understanding of number and operation concepts; that is, the student:

- 1a** Uses addition, subtraction, multiplication, division, exponentiation, and root-extraction in forming and working with numerical and algebraic expressions.
- 1b** Understands and uses operations such as opposite, reciprocal, raising to a power, taking a root, and taking a logarithm.
- 1c** Has facility with the mechanics of operations as well as understanding of their typical meaning and uses in applications.
- 1d** Understands and uses number systems: natural, integer, rational, and real.
- 1e** Represents numbers in decimal or fraction form and in scientific notation, and graphs numbers on the number line and number pairs in the coordinate plane.
- 1f** Compares numbers using order relations, differences, ratios, proportions, percents, and proportional change.
- 1g** Carries out proportional reasoning in cases involving part-whole relationships and in cases involving expansions and contractions.
- 1h** Understands dimensionless numbers, such as proportions, percents, and multiplicative factors, as well as numbers with specific units of measure, such as numbers with length, time, and rate units.
- 1i** Carries out counting procedures such as those involving sets (unions and intersections) and arrangements (permutations and combinations).
- 1j** Uses concepts such as prime, relatively prime, factor, divisor, multiple, and divisibility in solving problems involving integers.
- 1k** Uses a scientific calculator effectively and efficiently in carrying out complex calculations.
- 1l** Recognizes and represents basic number patterns, such as patterns involving multiples, squares, or cubes.

Examples of activities through which students might demonstrate understanding of number and operation concepts include:

- Show how to enlarge a picture by a factor of 2 using repeated enlargements at a fixed setting on a photocopy machine that can only enlarge up to 155%. Do the same for enlargements by a factor of 3, 4, and 5. **1a, 1c, 1g, 1h**
- Discuss the relationship between the “Order of Operations” conventions of arithmetic and the order in which numbers and operation symbols are entered in a calculator. Do all calculators use the same order? **1a, 1c, 1k**
- Give a reasoned estimate of the volume of gasoline your car uses in a year. How does this compare to the volume of liquid you drink in a year? (Balanced Assessment) **1a, 1c, 2k**
- Show that there must have been at least one misprint in a newspaper report on an election that says: Yes votes - 13,657 (42%); No votes - 186,491 (58%). Suggest two different specific places a misprint might have occurred. (Balanced Assessment) **1a, 1f, 1g, 1h**
- Make and prove a conjecture about the sum of any sequence of consecutive odd numbers beginning with the number 1. **1a, 1i**
- It is sometimes convenient to represent physical phenomena using logarithmic scales. Discuss why this is so, and illustrate with a description of pH scales (acidity), decibel scales (sound intensity), and Richter scales (earthquake intensity). **1b, 1c, 1d, 1e**
- What proportion of two digit numbers contain the digit 7? What about three digit numbers? **1d, 1e, 1i**
- Figure out how many pages it would take to write out all the numbers from 1 to 1,000,000. (Balanced Assessment) **1d, 1e, 1i**
- If 10% of U.S. citizens have a certain trait, and four out of five people with the trait are men, what proportion of men have the trait and what proportion of women have the trait? Explain whether the answer depends on the proportion of U.S. citizens who are women and, if so, how. (Balanced Assessment) **1f, 1g, 1h**
- Simpson’s Paradox is this: X may have a better record than Y in each of two possible categories but Y’s overall record for the combined categories may be better than X’s. Explain how this can happen. **1g**
- Find a simple relationship between the least common multiple of two numbers, the greatest common divisor of the two numbers, and the product of the two numbers. Prove that the relationship is true for all pairs of positive integers. **1j**



see how these performance descriptions compare to the expectations for elementary school and middle school, turn to pages 148-150.

examples that follow the performance descriptions for this standard are examples of work students might do to demonstrate their understanding. The examples indicate the nature and complexity of activities that are appropriate to expect of students at the high school level. Depending on the nature of the task, the work might be done in class, for homework, or over an extended period.

cross-references that follow these examples highlight areas for which the same skill, and possibly even the same piece of work, may be used by students to demonstrate their achievement in one or more than one standard. In some cases, the references highlight clusters of activities through which students might demonstrate their achievement in one or more standards for more than one subject matter.

2 Geometry and Measurement Concepts

The student demonstrates understanding of a mathematical concept by using it to solve problems, by representing it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and by explaining it to someone else. All three ways of demonstrating understanding—use, represent, and explain—are required to meet this standard.

The student produces evidence that demonstrates understanding of geometry and measurement concepts; that is, the student:

- 2a** Models situations geometrically to formulate and solve problems.
- 2b** Works with two- and three- dimensional figures and their properties, including polygons and circles, cubes and pyramids, and cylinders, cones, and spheres.
- 2c** Uses congruence and similarity in describing relationships between figures.
- 2d** Visualizes objects, paths, and regions in space, including intersections and cross sections of three dimensional figures, and describes these using geometric language.
- 2e** Knows, uses, and derives formulas for perimeter, circumference, area, surface area, and volume of many types of figures.
- 2f** Uses the Pythagorean Theorem in many types of situations, and works through more than one proof of this theorem.
- 2g** Works with similar triangles, and extends the ideas to include simple uses of the three basic trigonometric functions.
- 2h** Analyzes figures in terms of their symmetries using, for example, concepts of reflection, rotation, and translation.
- 2i** Compares slope (rise over run) and angle of elevation as measures of steepness.
- 2j** Investigates geometric patterns, including sequences of growing shapes.
- 2k** Works with geometric measures of length, area, volume, and angle; and non-geometric measures such as weight and time.
- 2l** Uses quotient measures, such as speed and density, that give “per unit” amounts; and uses product measures, such as person-hours.
- 2m** Understands the structure of standard measurement systems, both SI and customary, including unit conversions and dimensional analysis.
- 2n** Solves problems involving scale, such as in maps and diagrams.
- 2o** Represents geometric curves and graphs of functions in standard coordinate systems.
- 2p** Analyzes geometric figures and proves simple things about them using deductive methods.
- 2q** Explores geometry using computer programs such as CAD software, Sketchpad programs, or LOGO.

Examples of activities through which students might demonstrate understanding of geometry and measurement concepts include:

- A model tower is made of small cubes of the same size. There are four types of cubes used in the tower: vertex, edge, face, and interior, having respectively 3, 2, 1, and 0 faces exposed. If a new tower, of the same shape but three times as tall, is to be built using the same sort of cubes, show how the numbers of each of the four types of cubes need to be increased. Generalize to a tower n times as tall as the original. **2a, 2b, 2c, 2d, 2i, 2n**
- Figure out which of two ways of rolling an 8.5” by 11” piece of paper into a cylinder gives the greater volume. Is there a way to get even greater volume using a sheet of paper with the same area but different shape? (Balanced Assessment) **2a, 2b, 2d, 2e**
- Explain which is a better fit, a round peg in a square hole or a square peg in a round hole. Go on to the case of a cube in a sphere vs. a sphere in a cube. (Balanced Assessment) **2a, 2b, 2e, 2f**
- Suppose that you are on a cliff looking out to sea on a clear day. Show that the distance to the horizon in miles is about equal to $1.2\sqrt{h}$, where h is the height in feet of the cliff above sea level. Derive a similar expression in terms of meters and kilometers. (Balanced Assessment) **2a, 2d, 2f**
- Can a cube be dissected into four or fewer congruent square-base pyramids? What about triangle-base pyramids? In each case, show how it can be done or why it cannot be done. **2a, 2b, 2d, 2p**
- Given three cities on a map, find a place that is the same distance from all of them. Determine if there is always such a place. Are there ever many such places? (Balanced Assessment) **2a, 2b, 2d, 2p**
- A circular glass table top has broken, and all you have is one piece. The piece contains a section of the circular edge, but not the center. Describe and apply two different methods for finding the radius of the original top (so that you can order a new top). (Balanced Assessment) **2a, 2b, 2p**
- An isosceles trapezoid has height h and bases of lengths b and c . What must be the relationship among the lengths h , b , and c if we are to be able to inscribe a circle in the trapezoid? **2a, 2b, 2p**
- Explore the relation between the length of a person’s shadow (made by a streetlight) and the person’s height and distance from the light. Extend the analysis to include the rate of change of shadow length when the person is moving. (Balanced Assessment) **2a, 2g, 2i**



Samples of student work illustrating standard-set performances for these standards can be found on pages 58-79.

3 Function and Algebra Concepts

The student demonstrates understanding of a mathematical concept by using it to solve problems, by representing it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and by explaining it to someone else. All three ways of demonstrating understanding—use, represent, and explain—are required to meet this standard.

The student produces evidence that demonstrates understanding of function and algebra concepts; that is, the student:

3a Models given situations with formulas and functions, and interprets given formulas and functions in terms of situations.

3b Describes, generalizes, and uses basic types of functions: linear, exponential, power, rational, square and square root, and cube and cube root.

3c Utilizes the concepts of slope, evaluation, and inverse in working with functions.

3d Works with rates of many kinds, expressed numerically, symbolically, and graphically.

3e Represents constant rates as the slope of a straight line graph, and interprets slope as the amount of one quantity (y) per unit amount of another (x).

3f Understands and uses linear functions as a mathematical representation of proportional relationships.

3g Uses arithmetic sequences and geometric sequences and their sums, and sees these as the discrete forms of linear and exponential functions, respectively.

3h Defines, uses, and manipulates expressions involving variables, parameters, constants, and unknowns in work with formulas, functions, equations, and inequalities.

3i Represents functional relationships in formulas, tables, and graphs, and translates between pairs of these.

3j Solves equations symbolically, graphically, and numerically, especially linear, quadratic, and exponential equations; and knows how to use the quadratic formula for solving quadratic equations.

3k Makes predictions by interpolating or extrapolating from given data or a given graph.

3l Understands the basic algebraic structure of number systems.

3m Uses equations to represent curves such as lines, circles, and parabolas.

3n Uses technology such as graphics calculators to represent and analyze functions and their graphs.

3o Uses functions to analyze patterns and represent their structure.

Examples of activities through which students might demonstrate understanding of function and algebra concepts include:

- A used car is bought for \$9,500. If the car depreciates at 5% per year, how much will the car be worth after one year? Five years? Twelve years? n years? (College Preparatory Mathematics) **3a, 3b, 3c**
- Express the diameter of a circle as a function of its area and sketch a graph of this function. **3a, 3b, 3c, 3h**
- If a half gallon carton of milk is left out on the counter, its temperature T in degrees Fahrenheit can be approximated by the formula $T = 70 - (t^{300})$, where t is the time in minutes it has been out of the refrigerator. (This formula works as long as t is greater than about 20 minutes.) Find a formula that will let you figure out how long the milk has been there from its temperature T. Graph this formula. (College Preparatory Mathematics) **3a, 3b, 3c, 3h**
- Use measurements from shopping carts that are nested together to find a formula for the number of carts that will fit in a space of any given length, and a formula for the amount of space needed for any given number of carts. (Balanced Assessment) **3a, 3b, 3c, 3f, 3h**
- Express the concentration of bleach as a function of the amount of water added to three liters of a 12% solution of bleach. **3a, 3b, 3c, 1h**
- The quantity $1 + x$ is sometimes used as an approximation for the quantity $\sqrt[4]{1+x}$ if x is positive and small (much less than 1). Use graphs to show why this makes sense. Over what range of values of x does this approximation yield less than a 5% error? Find the sum of the infinite geometric series $1 + x + x^2 + x^3 + \dots$ (assuming $0 < x < 1$) and show how it sheds light on why the approximation works. **3b, 3c, 3g, 3h, 3i**
- Design a staircase that rises a total of 11 feet, given that the slope must be between .55 and .85, and that the rise plus the run on each step must be between 17 and 18 inches. (Balanced Assessment) **3c, 3h, A1a**
- You have a green candle 12.4 cm tall that cost \$0.45; after burning for four minutes it is 11.2 cm tall. You also have a red candle 8.9 cm tall that cost \$0.40; after burning for ten minutes it is 7.5 cm tall. Analyze the burning rates with functions and graphs. If they are both lit at the same time, predict when (if ever) they will be the same height, and when each will burn down completely. Which costs less per minute to use? (College Preparatory Mathematics) **3d, 3e, 3f**

see how these performance descriptions compare to the expectations for elementary school and middle school, turn to pages 148-157.

examples that follow the performance descriptions for this standard are examples of work students might do to demonstrate their understanding. The examples indicate the nature and complexity of activities that are appropriate to expect of students at the high school level. Depending on the nature of the task, the work might be done in class, for homework, or over an extended period.

cross-references that follow the examples highlight places for which the same piece of work, may require students to demonstrate their achievement in more than one standard. In some cases, the references highlight places of activities through which students might demonstrate their achievement in more than one standard for more than one subject matter.

4 Statistics and Probability Concepts

The student demonstrates understanding of a mathematical concept by using it to solve problems, by representing it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and by explaining it to someone else. All three ways of demonstrating understanding—use, represent, and explain—are required to meet this standard.

The student demonstrates understanding of statistics and probability concepts; that is, the student:

- 4a Organizes, analyzes, and displays single-variable data, choosing appropriate frequency distribution, circle graphs, line plots, histograms, and summary statistics.
- 4b Organizes, analyzes, and displays two-variable data using scatter plots, estimated regression lines, and computer generated regression lines and correlation coefficients.
- 4c Uses sampling techniques to draw inferences about large populations.
- 4d Understands that making an inference about a population from a sample always involves uncertainty and that the role of statistics is to estimate the size of that uncertainty.
- 4e Formulates hypotheses to answer a question and uses data to test hypotheses.
- 4f Interprets representations of data, compares distributions of data, and critiques conclusions and the use of statistics, both in school materials and in public documents.
- 4g Explores questions of experimental design, use of control groups, and reliability.
- 4h Creates and uses models of probabilistic situations and understands the role of assumptions in this process.
- 4i Uses concepts such as equally likely, sample space, outcome, and event in analyzing situations involving chance.
- 4j Constructs appropriate sample spaces, and applies the addition and multiplication principles for probabilities.
- 4k Uses the concept of a probability distribution to discuss whether an event is rare or reasonably likely.
- 4l Chooses an appropriate probability model and uses it to arrive at a theoretical probability for a chance event.
- 4m Uses relative frequencies based on empirical data to arrive at an experimental probability for a chance event.
- 4n Designs simulations including Monte Carlo simulations to estimate probabilities.
- 4o Works with the normal distribution in some of its basic applications.

Examples of activities through which students might demonstrate understanding of statistics and probability concepts include:

- Compare a frequency distribution of salaries of women in a company with a frequency distribution of salaries of men. Describe and quantify similarities and differences in the distributions, and interpret these. **4a, 4f**
- Analyze and interpret prominent features of a scatter plot of several hundred data points, each giving the age of death of a person and the average number of cigarettes smoked per day by that person. **4b, 4f**
- Make an estimate of the number of beads in a large container using the following method. Select a sample of beads, mark these beads, return them to the container, and mix them in thoroughly. Then re-sample and count the proportion of marked beads. Compare your result with another method of estimating the number, for example, one based on weighing the beads. **4c**
- Two integers, each between 1 and 9 are selected at random, and then added. Determine the possible sums and the probability of each. Generalize to two integers between 1 and n . Generalize to three integers between 1 and 9. (Balanced Assessment) **4h, 4i, 4j**
- Suppose it is known that 1% of \$100 bills in circulation are counterfeit. Suppose also that there is a quick test for counterfeit bills, but that the test is imperfect: 5% of the time the test gives a false negative (pronouncing a counterfeit bill as genuine) and 15% of the time the test gives a false positive (pronouncing a genuine bill as counterfeit). Find the probability that a bill that tests negative is actually counterfeit. Find the probability that a bill that tests positive is actually genuine. **4b, 4j, 4l**
- Player A has a one out of six chance of hitting the target on any throw, while player B has a two out of ten chance. They alternate turns, with A going first. The first one to hit the target wins. Who is favored? **4i, 4j**
- In a game, you toss a quarter (diameter 24 mm) onto a large grid of squares formed by vertical and horizontal lines 24 mm apart. You win if the quarter covers an intersection of two lines. What are the odds of winning? Express your answer in terms of π . **4l, 4m**



Samples of student work illustrate standard-setting performances for these standards can be found on p. 58-79.

5 Problem Solving and Mathematical Reasoning

The student demonstrates problem solving by using mathematical concepts and skills to solve non-routine problems that do not lay out specific and detailed steps to follow, and solves problems that make demands on all three aspects of the solution process—formulation, implementation, and conclusion.

Formulation

5a The student participates in the formulation of problems; that is, given the statement of a problem situation, the student:

- fills out the formulation of a definite problem that is to be solved;
- extracts pertinent information from the situation as a basis for working on the problem;
- asks and answers a series of appropriate questions in pursuit of a solution and does so with minimal “scaffolding” in the form of detailed guiding questions.

Implementation

5b The student makes the basic choices involved in planning and carrying out a solution; that is, the student:

- chooses and employs effective problem solving strategies in dealing with non-routine and multi-step problems;
- selects appropriate mathematical concepts and techniques from different areas of mathematics and applies them to the solution of the problem;
- applies mathematical concepts to new situations within mathematics and uses mathematics to model real world situations involving basic applications of mathematics in the physical and biological sciences, the social sciences, and business.

Conclusion

5c The student provides closure to the solution process through summary statements and general conclusions; that is, the student:

- concludes a solution process with a useful summary of results;
- evaluates the degree to which the results obtained represent a good response to the initial problem;
- formulates generalizations of the results obtained;
- carries out extensions of the given problem to related problems.

Mathematical Reasoning

5d The student demonstrates mathematical reasoning by using logic to prove specific conjectures, by explaining the logic inherent in a solution process, by making generalizations and showing that they are valid, and by revealing mathematical patterns inherent in a situation. The student not only makes observations and states results but also justifies or proves why the results hold in general; that is, the student:

- employs forms of mathematical reasoning and proof appropriate to the solution of the problem at hand, including deductive and inductive reasoning, making and testing conjectures, and using counterexamples and indirect proof;
- differentiates clearly between giving examples that support a conjecture and giving a proof of the conjecture.

Examples of activities through which students might demonstrate facility with problem solving and mathematical reasoning include:

- ▲ A regular hexagon “rolls” around a stationary regular octagon of the same side length until it returns to its starting position. Figure out how many times the hexagon (i) rotates about the octagon and (ii) revolves on its axis. Generalize to an m -gon rolling around an n -gon. (Balanced Assessment) **5a, 5b, 5c, 5d, 1j**
- ▲ Create a mathematical model that will give an estimate for the volume of a bottle, given a front view and top view of the bottle drawn to scale. Repeat for bottles of different shapes. (New Standards Released Task) **5a, 5b, 2a, 2b, 2d, 2e**
- ▲ Classify quadrilaterals according to two criteria: the number of right angles, and the number of pairs of parallel sides. For every possible combination of number of right angles and number of pairs of parallel sides, either give an example of such a quadrilateral, or show why such an example is impossible. (New Standards Released Task) **5b, 5d, 2b, 2p**
- ▲ An earthquake generates two types of “waves” that travel through the Earth: “P-waves,” which travel at 5.6 km/sec, and “S-waves,” which travel at 3.4 km/sec. After an earthquake, the P-waves arrive at one recording station 15 seconds before the S-waves. Use functions, graphs, and equations to explain how far the recording station was from the epicenter of the earthquake. Show the flaw in this attempted solution: “The epicenter is 33 km away because the difference in velocities is 2.2 km/sec, and in 15 seconds that’s 33 km.” **5a, 5b, 5c, 3a**
- ▲ Analyze the relationship between the number of pairs of eyelet holes in a shoe and the length of the shoelace. (New Standards Released Task) **5a, 5b, 5c, 3a, 3f**
- ▲ In a game for many players in which each player rolls three dice and adds the three numbers, show how to assign scores to each possible sum so that sums with the same probability get the same score, sums with twice the probability get half the score, and so on. **5a, 5b, 5c, 5d, 4h, 4i**
- ▲ Investigate different ways of running a wire from the floor at one corner of a room to the ceiling at the opposite corner. Find the shortest wire under each of the following restrictions: (i) you can only run the wire along the edges of walls; (ii) you can also run the wire across the face of a wall; (iii) you can even run the wire through the air. (Balanced Assessment) **5b, 5c, 2d, 2f, 3b, 3h**
- ▲ Explore rectangular spaces enclosed by line segments laid out on a square lattice of dots. Check that the numbers of line segments, dots, and spaces enclosed seem to be related by the formula $L + 1 = D + S$. Justify this formula by reasoning as follows: the formula holds for the simplest arrangement of line segments and dots, and it is not changed through any of the possible ways of adding to an arrangement. (Balanced Assessment) **5d**



To see how these performance descriptions compare with the expectations for elementary school and middle school, turn to pages 148–159.

The examples that follow the performance descriptions for each standard are examples of the work students might do to demonstrate their achievement. The examples also indicate the nature and complexity of activities that are appropriate to expect of students at the high school level. Depending on the nature of the task, the work might be done in class, for homework, or over an extended period.

Some cross-references that follow the examples highlight examples for which the same activity, and possibly even the same piece of work, may enable students to demonstrate their achievement in relation to more than one standard. In some cases, the cross-references highlight examples of activities through which students might demonstrate their achievement in relation to standards for more than one subject matter.

6 Mathematical Skills and Tools

The student demonstrates fluency with basic and important skills by using these skills accurately and automatically, and demonstrates practical competence and persistence with other skills by using them effectively to accomplish a task, perhaps referring to notes, or books, perhaps working to reconstruct a method; that is, the student:

- **6a** Carries out numerical calculations and symbol manipulations effectively, using mental computations, pencil and paper, or other technological aids, as appropriate.
- **6b** Uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications, and rounds numbers used in applications to an appropriate degree of accuracy.
- **6c** Evaluates and analyzes formulas and functions of many kinds, using both pencil and paper and more advanced technology.
- **6d** Uses basic geometric terminology accurately, and deduces information about basic geometric figures in solving problems.
- **6e** Makes and uses rough sketches, schematic diagrams, or precise scale diagrams to enhance a solution.
- **6f** Uses the number line and Cartesian coordinates in the plane and in space.
- **6g** Creates and interprets graphs of many kinds, such as function graphs, circle graphs, scatter plots, regression lines, and histograms.
- **6h** Sets up and solves equations symbolically (when possible) and graphically.
- **6i** Knows how to use algorithms in mathematics, such as the Euclidean Algorithm.
- **6j** Uses technology to create graphs or spreadsheets that contribute to the understanding of a problem.
- **6k** Writes a simple computer program to carry out a computation or simulation to be repeated many times.
- **6l** Uses tools such as rulers, tapes, compasses, and protractors in solving problems.
- **6m** Knows standard methods to solve basic problems and uses these methods in approaching more complex problems.

Examples of activities through which students might demonstrate facility with mathematical skills and tools include:

- ▲ Given that Celsius temperature C can be computed from the Fahrenheit temperature F by the formula $C = \frac{5}{9}(F-32)$, find a formula for computing F from C . **6a**
- ▲ If the temperature of an aluminum bar is increased from 0 to T degrees Celsius, its length is increased by a factor of aT , where $a = 23.8 \times 10^{-6}$ is the coefficient of thermal expansion for aluminum. By how many millimeters would a 1 meter bar increase if raised from 0 to 40 degrees Celsius? **6a**
- ▲ Use the local phone book to find the approximate relative frequency of last names beginning with each of the 26 letters of the alphabet. Make a histogram and a circle graph of this information. Decide how you would divide the names into four roughly equal groups. **6a, 6b, 6g**
- ▲ The braking distance in feet for a car is given by the formula $0.026s^2 + st$, where s is the speed of the car in feet per second, and t is the reaction time in seconds of the driver. What is the braking distance at a speed of 60 miles per hour if the reaction time is $\frac{3}{4}$ second? **6a, 6c**
- ▲ Write the general equation for a straight line that uses as parameters the x -intercept A and the y -intercept B . **6a, 6g**
- ▲ Make a one-tenth size scale diagram of an archery target with these specifications: There are five target regions, bounded by concentric circles with radii equal to 10 cm, 15 cm..., 35 cm. Compute the area of each region. **6d, 6e**
- ▲ Given the riser height and tread width of the steps on stairs of many kinds, make a scatter plot of the data. Find a line that seems to fit the data in two ways, by eye and using a calculator that can compute a regression line. Compare the result with the rule of thumb that riser height plus tread width should range from about 40 to 45 cm. **6g**
- ▲ The function $V = x(40 - 2x)(30 - 2x)$ gives the volume in cubic centimeters of a tray of depth x formed from a rectangle of dimensions 30 cm by 40 cm. Graph this function. What is the volume if the depth is 10 cm? What is the largest volume such a tray can have? What depth gives this largest volume? **6g, 6h, 6j**
- ▲ Describe an algorithm for converting any distance given in miles and feet to decimal miles, and another algorithm for converting the other way. Do the same for converting decimal hours to hours, minutes, and seconds. **6i**



Samples of student work illustrate standard-setting performances for these standards can be found on 58-79.

7 Mathematical Communication

The student uses the language of mathematics, its symbols, notation, graphs, and expressions, to communicate through reading, writing, speaking, and listening, and communicates about mathematics by describing mathematical ideas and concepts and explaining reasoning and results; that is, the student:

- 7a** Is familiar with basic mathematical terminology, standard notation and use of symbols, common conventions for graphing, and general features of effective mathematical communication styles.
- 7b** Uses mathematical representations with appropriate accuracy, including numerical tables, formulas, functions, equations, charts, graphs, and diagrams.
- 7c** Organizes work and presents mathematical procedures and results clearly, systematically, succinctly, and correctly.
- 7d** Communicates logical arguments clearly, showing why a result makes sense and why the reasoning is valid.
- 7e** Presents mathematical ideas effectively both orally and in writing.
- 7f** Explains mathematical concepts clearly enough to be of assistance to those who may be having difficulty with them.
- 7g** Writes narrative accounts of the history and process of work on a mathematical problem or extended project.
- 7h** Writes succinct accounts of the mathematical results obtained in a mathematical problem or extended project, with diagrams, graphs, tables, and formulas integrated into the text.
- 7i** Keeps narrative accounts of process separate from succinct accounts of results, and realizes that doing so can enhance the effectiveness of each.
- 7j** Reads mathematics texts and other writing about mathematics with understanding.

Examples of activities through which students might demonstrate facility with mathematical communication include:

- ▲ Discuss the mathematics underlying a sign along a highway that says "7% Grade Next 3 Miles." Use representations such as tables, formulas, graphs, and diagrams. Explain carefully concepts such as slope, steepness, grade, and gradient. (Balanced Assessment) **7b, 7e**
- ▲ Suppose in a certain country every adult gets married, and every married couple keeps having children until they have a daughter, then stops. Describe the effect on the population and the ratio of males to females over time. Assume a probability of one-half that a birth is a girl. **7c, 7d, 7e**
- ▲ Design a unit of instruction for middle school about proportional relationships. Show the relevance and interconnection of concepts such as percent, ratio, similarity, and linear functions. **7f**
- ▲ Prepare review materials that summarize the basic skills and tools used in an instructional unit from a mathematics text (assuming the unit does not already have such a summary). **7f**
- ▲ Read a book written for the general public that discusses different advanced fields of mathematics and report on one of these fields. **7j**

8 Putting Mathematics to Work

The student conducts at least one large scale investigation or project each year drawn from the following kinds and, over the course of high school, conducts investigations or projects drawn from at least three of the kinds.

A single investigation or project may draw on more than one kind.

8a Data study, in which the student:

- carries out a study of data relevant to current civic, economic, scientific, health, or social issues;
- uses methods of statistical inference to generalize from the data;
- prepares a report that explains the purpose of the project, the organizational plan, and conclusions, and uses an appropriate balance of different ways of presenting information.

Examples of data study projects include:

- ▲ Carry out a study of the circulation of books in a library based on type of book and number of users, and showing the progression over a period of years. **3k, 4a, 4f, 4g, 5**
- ▲ Carry out a study of the students in a district in terms of their proficiency in using writing in mathematics, and how that proficiency changed over a period of years. **3k, 4a, 4g, 5**
- ▲ Carry out a study of several kinds of data about auto races and trends in these data over a number of years. **3k, 4a, 4g, 5**
- ▲ Carry out a study of the circulation of books in a library over a period of time. Represent the relative number of borrowers for each type of book and analyze any change over time. Represent the number of borrowers for the most popular book titles and look for a correlation with the number of copies of each title the library has. **4a, 4b, 4g, 5**
- ▲ Analyze selected newspapers and magazines for accuracy and clarity of graphical presentations of data, discussing the most common and effective types of presentation used, and identifying misleading graphical practices. **4f, 5, 7a, 7b**

8b Mathematical model of a physical system or phenomenon, in which the student:

- carries out a study of a physical system or phenomenon by constructing a mathematical model based on functions to make generalizations about the structure of the system;
- uses structural analysis (a direct analysis of the structure of the system) rather than numerical or statistical analysis (an analysis of data about the system);
- prepares a report that explains the purpose of the project, the organizational plan, and conclusions, and uses an appropriate balance of different ways of presenting information.

Examples of mathematical modeling projects include:

- ▲ Analyze the change in shape undergone under thermal expansion of a long bridge. **2a, 2b, 3a, 3b, 3e, 3f, 3i, 51b, 51e**
- ▲ Analyze the characteristics of an irrigation system for large fields that has a central water feed and rotating spray arms that sweep out a circle. **2a, 2b, 2e, 2i, 3a, 3d, 5**
- ▲ Construct pendulums with various lengths of rods and masses of bobs. Measure their periods when released from various heights. Determine which of these parameters the period depends on. Create a formula for the period in terms of these parameters, and compare these results with the analysis of a pendulum in a physics book. **3a, 3b, 3h, 3i, 3n, 5, 51d, 51e**



To see how these performance descriptions compare with the expectations for elementary school and middle school, turn to pages 148-59.

Examples that follow the performance descriptions for each standard are examples of the work students might do to demonstrate their achievement. The examples so indicate the nature and complexity of activities that are appropriate to expect of students at the high school level. Depending on the nature of the task, the work might be done in class, for homework, or over an extended period.

Cross-references that follow the examples highlight examples for which the same activity, and possibly even some piece of work, may enable students to demonstrate their achievement in relation to more than one standard. In some cases, the cross-references highlight examples of activities through which students might demonstrate their achievement in relation to standards for more than one subject matter.

1Bc Design of a physical structure, in which the student:

- creates a design for a physical structure;
- uses general mathematical ideas and techniques to discuss specifications for building the structure;
- prepares a report that explains the purpose of the project, the organizational plan, and conclusions, and uses an appropriate balance of different ways of presenting information.

Examples of projects to design a physical structure include:

- ▲ Make a plan for the layout of a housing development to be created on a large tract of land, according to given specifications such as lot size, house setbacks, and street widths. Take into consideration given information on the relation between development cost and possible sale prices. **2a, 2b, 2e, 2k, 2n, 3a, 3i, 5**
- ▲ Design and make a model for a wheelchair access ramp to an 11' high platform, given that the ramp must fit in a 30' by 30' space and must conform to the provisions of the Americans with Disabilities Act. **2a, 2g, 2i, 3a, 3b, 3c, 5, A1a**
- ▲ Design seating plans for a large theater given specifications on the size and shape of the space, the allowable width of aisles, the required spacing between rows, and the allowable sizes and spacing of seats. Find the plan that allows for the maximum number of seats. Suggest how that plan might have to be modified to take other features into consideration, such as staggering seats in successive rows for better viewing. **2a, 2b, 3a, 3e, 5**

1Bd Management and planning analysis, in which the student:

- carries out a study of a business or public policy situation involving issues such as optimization, cost-benefit projections, and risks;
- uses decision rules and strategies both to analyze options and balance trade-offs; and brings in mathematical ideas that serve to generalize the analysis across different conditions;
- prepares a report that explains the purpose of the project, the organizational plan, and conclusions, and uses an appropriate balance of different ways of presenting information.

Examples of management and planning projects include:

- ▲ Create a schedule for practices and events at the school gymnasium and swimming pool, taking into account home and away games, junior varsity and varsity, and boys' and girls' teams. **1i, 3a, 3i, 5, A1c**
- ▲ Make a business plan for publication of a magazine, taking into account different requirements in the production of the magazine, such as quality of paper, use of color, cover stock, and the relationship between selling price and circulation. **3a, 3i, 5, A1a**

1Be Pure mathematics investigation, in which the student:

- carries out a mathematical investigation of a phenomenon or concept in pure mathematics;
- uses methods of mathematical reasoning and justification to make generalizations about the phenomenon;
- prepares a report that explains the purpose of the project, the organizational plan, and conclusions, and uses an appropriate balance of different ways of presenting information.

Examples of pure mathematics projects include:

- ▲ Carry out an investigation of the many properties of Pascal's triangle. **1b, 1i, 1l, 3a, 3b, 3i, 3o, 5**
- ▲ Create a schedule for a ping-pong tournament among ten players in which each player plays each other player exactly once. Arrange the schedule so that no players have to sit out while others are playing. Try to do the same for a tournament with sixteen players. Then (this is much harder) say what you can about the general case of a tournament with $2n$ players. Create effective and revealing representations for the schedules. (Balanced Assessment) **1i, 5, A1c**
- ▲ Make a study of different mathematical types of spirals, the properties they share, and the ways in which they are different. **2o, 3m, 5**
- ▲ Make an inquiry into what distributions of objects of two colors result in a probability of roughly $\frac{1}{2}$ that the objects are the same color when two of the objects are selected at random. (For example, three of one color and six of another color is such a distribution.) **4h, 4i, 4j, 4k, 4l, 5**

1Bf History of a mathematical idea, in which the student:

- carries out a historical study tracing the development of a mathematical concept and the people who contributed to it;
- includes a discussion of the actual mathematical content and its place in the curriculum of the present day;
- prepares a report that explains the purpose of the project, the organizational plan, and conclusions, and uses an appropriate balance of different ways of presenting information.

Examples of historical projects include:

- ▲ Read and report on the history of the Pythagorean Theorem, including a discussion of some of the basic ways of proving the theorem and of its uses within and outside mathematics. **2f, 2p, 5, 7e, 7j**
- ▲ Carry out a historical study of the concept of "function" in mathematics, including a report on the most important function concepts and types currently in use. Base part of the work on interviews with people from other fields who use mathematics in their work. **3, 5, 7e, 7j**



Samples of student work illustrate standard-setting formances for these standards can be found on 58-79.

Work Sample & Commentary: How Much Gold Can You Carry Out?

The task

How Much Gold Can You Carry Out?

A vault contains a large amount of gold and you are told that you may keep as much as you can carry out, under the following conditions:

On the first trip you may only take one pound.

On each successive trip you may take out half the amount you carried out on the previous trip.

You take one minute to complete each trip.

Explain how much gold you can carry out, and how long it will take to do it.

Also, determine your hourly rate of earnings if you work only fifteen minutes. Use the current value of gold, \$350 per ounce. What would be your hourly rate if you work for twenty minutes? What if you worked for an entire hour?

This task, in different variants, is commonly seen in classrooms. It is designed to show how very rapidly a quantity shrinks if it is halved over and over. Similar tasks show how very rapidly a quantity grows if it is doubled over and over. These tasks illustrate exponential decay and growth. The fanciful context makes the task memorable. Still, the context is easily stripped away to get at the underlying mathematics required to answer the questions.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 8.EE.1.a** Number and Operation Concepts: Use addition, multiplication, and division in forming and working with numerical and algebraic expressions.
- 8.EE.1.c** Number and Operation Concepts: Have facility with the mechanics of operations as well as understanding of their typical meaning and uses in applications.
- 8.EE.1.e** Number and Operation Concepts: Represent numbers in decimal form.
- 8.EE.1.h** Number and Operation Concepts: Understand numbers with specific units of measure, such as numbers with rate units.
- 8.EE.2.a** Mathematical Skills and Tools: Carry out numerical calculations effectively.
- 8.EE.2.b** Mathematical Communication: Use mathematical representations with appropriate accuracy.
- 8.EE.2.e** Mathematical Communication: Present mathematical ideas effectively.

How Much Gold Can You Carry Out?

C On my first trip I will take out 16 oz. of gold. On the second trip I will take out only 8 oz. On the third only 4, then 2, then 1, then 1/2 and so on. I made a table of the amount of gold that I took out on each trip which is on the attached sheet. You can see how many ounces of gold I took out on each trip.

I added up the amount of gold made in each of the first 15 trips, which represents the first 15 minutes I worked because each trip is one minute, and got a total of 31.999023 ounces. Gold is worth \$350 an ounce, so I made \$11,199.66. Since I only worked for 1/4 of an hour my hourly wage is \$44,798.63. I also added the amount of gold in each of the first 20 trips, which represents 20 minutes of work, and got a total of 31.99969 ounce. That means I took out \$11,199.98 worth of gold. But since I worked for 1/3 of an hour this time my hourly wage is now \$33,599.97.

B I continued the table a little further to see the total amount that I was going to take out. On the 26th trip I found that all of the amounts of gold gathered added up to 32 ounces which yielded \$11,200. After this point the amount of gold that I am taking out is immeasurable and has no effect on the total any more, adding .000002 of an ounce makes no sense because it is so small. After an hour of working I would still have only \$11,200 worth of gold, so I would make \$11,200 an hour if I work for a full hour.

D I also found that after working for more than 20 minutes I take out less than a cent worth of gold on each trip. So I would probably stop at this point because I would be taking out fractions of pennies which are worthless.

I found that if I worked for 15 minutes I would be making \$44,798.63 an hour and for 20 minutes \$33,599.97 an hour. If I work for a full hour I would be getting \$11,200 an hour. I will never be able to get any more than 2 lbs. of gold or \$11,200 worth. I also found that after 20 minutes of working I will be taking out gold worth only fractions of pennies and it's not worth it.

Circumstances of performance

This sample of student work was produced under the following conditions:

- √ alone
- in class
- with teacher feedback
- timed
- in a group
- √ as homework
- with peer feedback
- opportunity for revision

Mathematics required by the task

The key requirement in the problem statement is "Explain how much gold you can carry out, and how long it will take to do it." Since the amount of gold starts at 1 pound on the first trip, and is cut in half for each successive trip, finding the quantity of gold that can be carried out amounts to finding this sum:

$$1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \frac{1}{16} + \dots$$

If this is approached as a practical problem, all that is required is to compute these terms until they get too small to be practical, then add them up. "Too small to be practical" might be interpreted as "too small to be represented on a calculator." On a calcu-



The quotations from the Mathematics performance descriptions in this commentary are excerpted. The complete performance descriptions are shown on pages 50-57.

How Much Gold Can You Carry Out?

lator with an 8-digit display, this happens after about 25 terms of this series. That is, $\frac{1}{2}^n$ comes out as 0.0000001 on the calculator, while $\frac{1}{2}^n$ comes out as 0.0000000. When all the terms up to $\frac{1}{2}^n$ are added up, the sum comes to 1.9999999, but when all the terms up to $\frac{1}{2}^n$ are added, the sum comes to 2.0000000. All these quantities are in pounds. (To treat these issues fully, we would need to address questions such as how many digits are stored but not shown on a calculator.)

As a practical problem, then, the answer is that a little less than 2 pounds can be carried out, and that after about 25 minutes the 2 pound figure has almost been reached, and the amounts to be carried out per trip are probably too small to measure. In fact, after just 8 minutes more than 1.99 pounds can be taken out, as can be determined by summing the terms up to $\frac{1}{2}^8$. In summary, the mathematics required to work the task as this sort of practical problem is an organized application of arithmetic: taking powers, reciprocals, and summing.

A mathematically more powerful solution would be the summation of the full infinite series. This is a geometric series with factor $\frac{1}{2}$, and the sum of such an infinite series with first term 1 is $\frac{1}{1-\frac{1}{2}} = 2$ by a formula often developed in high school texts. Such an approach would give evidence of **13g** (Function and Algebra Concepts: Uses...geometric sequences and their sums...). The student work shown here did not take this approach.

What the work shows

12a Number and Operation Concepts: The student uses addition...multiplication, and division...in forming and working with numerical and algebraic expressions.

12c Number and Operation Concepts: The student has facility with the mechanics of operations as well as understanding of their typical meaning and uses in applications.

12e Number and Operation Concepts: The student represents numbers in decimal...form....

12h Number and Operation Concepts: The student understands...numbers with specific units of measure, such as numbers with...rate units.

12b Mathematical Skills and Tools: The student carries out numerical calculations...effectively, using...pencil and paper, or other technological aids, as appropriate.

A The table is organized by its first column, the trip number. The second column is the weight of gold taken out on the trip with that number, the third column is a running sum of the weights in the second column, and the last column gives the value in \$ of the gold taken out up to that point. It is formed by multiplying the weight in ounces given in the third column by the cost of gold per ounce (\$350).

trip number	oz. of gold taken on trip	total oz. gathered	total earned
1	16		
2	8		
3	4		
4	2		
5	1		
6	.5		
7	.25		
8	.125		
9	.0625		
10	.03125		
11	.015625		
12	.0078125		
13	.00390625		
14	.001953125		
15	.0009765625		
16	.00048828125	31.994023	11,194.657
17	.000244140625		
18	.0001220703125		
19	.00006103515625		
20	.000030517578125	31.99469	11,194.667
21	.0000152587890625	31.99485	11,194.975
22	.00000762939453125	31.99492	11,194.977
23	.000003814697265625	31.99496	11,194.979
24	.0000019073486328125	31.99498	11,194.979
25	.00000095367431640625	31.99499	11,194.979
26	.000000476837158203125	32	11,200

B A further step appears in the text of the response, though not in the table; the hourly rate earned at various stages is figured by dividing the value in \$ of the gold taken out by the time in hours up to that point.

C The student has expressed the 1 pound weight as 16 ounces. This is sensible, since it means that the numbers obtained in the repeated halving are larger and hence easier to work with: 16, 8, 4, 2, 1, $\frac{1}{2}$,..., as opposed to 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$,.... Note the misprint here: $\frac{1}{2}$ should be .5, as it is in the table.

How Much Gold Can You Carry Out?

1b Number and Operation Concepts: The student understands...numbers with specific units of measure, such as numbers with...rate units.

B Here the weight has been converted to its monetary value using the given price of \$350 per ounce. The hourly *rate* of earnings has been figured by dividing the monetary value by the time in hours (first converting 15 minutes to 0.25 hours, etc.).

D Notice that the largest total the student found was 32 ounces, but that there is no justification given that the total could not go higher. A justification would require showing that 32 is the sum of the geometric series with first term 16 and common factor $\frac{1}{2}$. The student interpreted the problem in practical terms, and the references to amounts that are eventually “immeasurable” or “so small” refer to practicalities, not to the mathematics of the situation. The student did not deal with the issue of whether the amounts 32 oz. and \$11,200 actually would be *reached* on the 26th trip, or whether these are figures that have been rounded up. See the discussion above in “Mathematics required by the task.”

E There is a misprint here. Line 20 should be \$11,199.989.

7b Mathematical Communication: The student uses mathematical representations with appropriate accuracy, including numerical tables....

7c Mathematical Communication: The student presents mathematical ideas effectively...in writing. The student wrote a coherent explanation of the steps taken to solve the problem and produced a clearly labeled table.

Work Sample & Commentary: Miles of Words

The task

Miles of Words

In this task you are asked to read a passage from a magazine article and then use mathematics to assess the reasonableness of its claim that forty thousand words were uttered in a 200 mile train journey.

The following appeared in *The New Yorker*, October 17, 1994:

I met Dodge on an Amtrak train in Union Station, Washington, in January of 1993...He came into an empty car and sat down beside me, explaining that the car would before long fill up. It did. He didn't know me from Chichikov, nor I him...Two hundred miles of track lie between Union Station and Trenton, where I got off, and over that distance he uttered about forty thousand words. After I left him, I went home and called a friend who teaches Russian literature at Princeton University, and asked her who could help me assess what I had heard,....

Discuss in detail the statement:

“over that distance he uttered about forty thousand words.”

Is this statement reasonable? Why or why not? Show all of your calculations and explain your reasoning.

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This work sample illustrates a standard-setting performance for the following parts of the standards:

- MS.1** Geometry and Measurement Concepts: Use quotient measures that give “per unit” amounts.
- MS.2m** Geometry and Measurement Concepts: Understand unit conversions.
- MS.3a** Function and Algebra Concepts: Model given situations with formulas and functions, and interpret given formulas and functions in terms of situations.
- MS.3d** Function and Algebra Concepts: Work with rates of many kinds.
- MS.5a** Problem Solving and Mathematical Reasoning: Formulation.
- MS.6b** Mathematical Skills and Tools: Use a variety of methods to estimate the values of quantities met in applications.
- MS.7e** Mathematical Communication: Present mathematical ideas effectively.

This task helps answer these things about students’ understanding:

1. Given a specific question based on a selection from a written text, can students figure out what information from the text is relevant and what mathematics is needed to answer the question? (Here the mathematics is about rate relationships.)
2. Can students work with the mechanics of these rate relationships and arrive at correct results that answer the given question?

In short, the task requires students to (1) formulate and set up a problem from a given context, and then (2) solve the problem.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-----------------------|--------------------------|
| ✓ alone | in a group |
| in class | ✓ as homework |
| with teacher feedback | with peer feedback |
| timed | opportunity for revision |

Mathematics required by the task

To get to the mathematical heart of the task, students need to make reasonable estimates of the rate of speed s of a train (in miles per hour) and the rate r of normal speech (in words per minute). Using these estimates, students need to:

- (i) Find the time T required to travel a given distance D at the estimated rate of speed s , using the relationship $T = \frac{D}{s}$.
- (ii) Find the number of words N that can be spoken in that time T at the estimated rate r , using the relationship $N = rT$.

Combining (i) and (ii) gives the formula $N = \frac{r}{s}(D)$, expressing the number of words N in terms of the estimated rate of speed s , the estimated rate of speech r , and the given distance D . Since s , r , and D are known, the formula can be used to see if the 40,000 words mentioned in the article is reasonable.

(Interestingly, the quotient $\frac{r}{s}$ of the rates r and s is itself a rate, “words per mile.” Other students working on this task made use of this rate in their analysis.)

Students also need to make appropriate unit conversions: the time T they find will be in hours, and they



The quotations from Mathematics performance descriptions in this commentary are excerpted. The complete performance descriptions are shown on pages 50!

Miles of Words

will have to convert this to minutes before they use it to find the rate in "words per minute."

As individual exercises, (i) and (ii) above would be too simple for high school. But the "Miles of Words" task requires students to do more than work these as routine exercises. Students must formulate the problem from the context, make estimates, set up their own version of (i) and (ii), and then combine them. What is being assessed in the task is this whole process.

What the work shows

2f Geometry and Measurement Concepts: The student uses quotient measures, such as speed,...that give "per unit" amounts....

3m Geometry and Measurement Concepts: The student understands...unit conversions....

A The student immediately followed the computation $\frac{200\text{mi}}{35\text{mph}} = 5.71\text{...hours}$ with a multiplication by the conversion factor "60 minutes per hour," and immediately followed this with " $= 342.857\text{... minutes}$." The calculations are correct, but this use of a conversion factor in a train of equalities is not ideal. It is clearer to keep the unit conversions separate from the other calculations. In fact, the student did keep the unit conversion separate below when using the conversion factor "60 sec/min."

3a Function and Algebra Concepts: The student models given situations with formulas and functions, and interprets given formulas and functions in terms of situations.

3d Function and Algebra Concepts: The student works with rates of many kinds, expressed numerically [and] symbolically....

A The student found the time of travel from the formula $(\text{time}) = \frac{\text{distance}}{\text{speed}}$.

B The student found the speaking rate required to support the claim from the formula $\frac{\text{number of words}}{\text{time}}$.

The first thing I thought about when I received this problem was how long would it take the train to travel these 200 miles? I know from personal experience that the particular train has a cruising speed of around 55 miles per hour (I have traveled on the Amtrak train from Philadelphia to Washington several times). However, the train must also start and stop many times so its actual speed will be considerably less. I have no way to accurately estimate what its average speed, including stops, would be, but I do know from having taken both the train and a car between these two points that the train is not twice as slow as the car. So, I will say that the train average speed is 35 mph, which I believe to be less than its actual speed.

Using this number I made the following calculation:

$$\frac{200\text{mi}}{35\text{mph}} = 5.71\text{...hours} \times 60\text{min per hour} = 342.857\text{...minutes}$$

$$342.857\text{...min} \times 60\text{sec/min} = 20,571\text{ seconds}$$

So, it would be fairly generous to say that the man the author met had 20,571 seconds to speak.

$$\frac{40,000\text{ words}}{20,571\text{ seconds}} \rightarrow 1.94\text{ words/second}$$

Next, I attempted to speak at this rate for one minute. I discovered that it is possible to talk

at this speed but it is not comfortable or normal speech, and is very hard to comprehend. From the author's comments, he was impressed by something the man said, which implies that he understood what was being said. Therefore, I conclude that the person he met could not have spoken 40,000 words over the 200 miles unless he was intentionally speaking very fast, or the train broke down or stopped for an unusual amount of time at one of its stops.

Miles of Words

15b Problem Solving and Mathematical Reasoning: Formulation. Given the basic statement of a problem situation, the student:

- fills out the formulation of a definite problem that is to be solved;
- extracts pertinent information from the situation as a basis for working on the problem;
- asks and answers a series of appropriate questions in pursuit of a solution and does so with minimal “scaffolding” in the form of detailed guiding questions.

The response shows that the student read the written passage from the article, focused on what is relevant to the given question, and formulated and solved a particular problem involving rates in order to answer this question. The work involved is very different from solving a fully formulated mathematics problem.

16b Mathematical Skills and Tools: The student uses a variety of methods to estimate the values, in appropriate units, of quantities met in applications....

C The student suggested and supported an estimate for the rate of speed of the train.

D The student concluded that a speaking rate of 2 words per second is too fast to be reasonable. This is puzzling, since rates of 3 words per second are commonly judged to be representative of actual speech. Yet, the student gathered data on which to base this opinion.

17e Mathematical Communication: The student represents mathematical ideas effectively...in writing.

The response gives a clear indication of what the student did to solve the problem, and of the result.

A B C The response does not have a consistent approach to the number of significant digits used. The estimate given of a train’s average speed (about 35 mph) is very rough (perhaps \pm as much as 20 mph), but the time is reported later as 342.857 minutes. After carrying out exact calculations with this number, the result is appropriately rounded up to 2 words/second. It would have been more reasonable to use only one significant digit in all calculations.

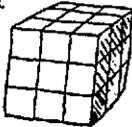
There are two misspellings (“recieved” in the first line, “acctual” at the end of the first paragraph) and a punctuation error (“trains” should have an apostrophe), but these do not detract from communicating the meaning.

Work Sample & Commentary: Cubes

August 1995

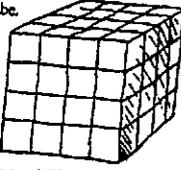
Cubes

This 3 x 3 x 3 cube is made of 27 cubes.



In the drawing, 19 small cubes can be seen. The other eight small cubes are hidden.

1. Now look at this 4 x 4 x 4 cube.



a) How many small cubes are visible?
b) How many are hidden?

2. In a drawing of a 5 x 5 x 5 cubes:
a) How many cubes are visible?
b) How many are hidden?

3. Explain how you could find the number of small cubes that are visible and hidden in any size cube.

EA912
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Funded by the National Science Foundation

tations from the
atics performance
ons in this com-
are excerpted.
plete perfor-
descriptions are
n pages 50-57.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2b Geometry and Measurement Concepts: Work with three dimensional figures and their properties.
- 2d Geometry and Measurement Concepts: Visualize objects in space.
- 2j Geometry and Measurement Concepts: Investigate geometric patterns.
- 3a Function and Algebra Concepts: Model given situations with formulas.
- 3b Function and Algebra Concepts: Use basic types of functions.
- 3h Function and Algebra Concepts: Use and manipulate expressions involving variables.
- 3i Function and Algebra Concepts: Represent functional relationships.
- 3o Function and Algebra Concepts: Use functions to analyze patterns and represent their structure.
- 3e Mathematical Skills and Tools: Make and use rough sketches or schematic diagrams to enhance a solution.
- 7c Mathematical Communication: Organize work and present mathematical procedures and results clearly, systematically, succinctly, and correctly.

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The task

Students were given the task displayed here.

This task requires an interesting combination of geometry (spatial visualization) and algebra (expressing the general relationship symbolically).

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|--|---|
| <input checked="" type="checkbox"/> alone | <input type="checkbox"/> in a group |
| <input type="checkbox"/> in class | <input checked="" type="checkbox"/> as homework |
| <input type="checkbox"/> with teacher feedback | <input type="checkbox"/> with peer feedback |
| <input type="checkbox"/> timed | <input type="checkbox"/> opportunity for revision |

Mathematics required by the task

The idea at the heart of the task is the following fact about three-dimensional geometry: A large cube which is made up as an "n by n by n" assembly of small, identical cubes contains exactly n^3 small cubes. The task statement illustrates an isometric diagram of such large cubes for the case $n = 3$ and $n = 4$.

It is necessary to visualize this situation spatially to appreciate another important fact. The small cubes that are hidden from view in an isomeric diagram of a large n by n by n cube actually form a large $(n-1)$ by $(n-1)$ by $(n-1)$ cube. This means that there is a total of $(n-1)^3$ small cubes that are hidden from view.

Finally, an algebraic representation seems essential to express the generalization asked for in Question 3. For example, the number of visible cubes in a large n by n by n cube can be expressed as the total number of cubes minus the number of invisible cubes:

$$\text{total \# of cubes} - \text{\# of hidden cubes} = \text{\# of visible cubes}$$

$$n^3 - (n-1)^3 = 3n^2 - 3n + 1$$

(These expressions make sense if and only if n is a whole number.)

The student work illustrates another way in which the visible cubes are counted directly.

What the work shows

2b Geometry and Measurement Concepts: The student works with...three dimensional figures and their properties, including...cubes....

2d Geometry and Measurement Concepts: The student visualizes objects...in space....

2j Geometry and Measurement Concepts: The student investigates geometric patterns, including sequences of growing shapes.

Throughout the response, the student worked with the structure of large cubes built up from smaller cubes, visualizing them in terms of the small cubes that are visible and those that are hidden, and representing the visible and hidden cubes in large cubes of various sizes.

1Aa Function and Algebra Concepts: The student models given situations with formulas..., and interprets given formulas...in terms of situations.

1Ab Function and Algebra Concepts: The student...uses basic types of functions...[including] cube....

1Ah Function and Algebra Concepts: The student...uses and manipulates expressions involving variables...in work with formulas....

1Ai Function and Algebra Concepts: The student represents functional relationships in formulas [and] tables....

1Ao Function and Algebra Concepts: The student uses functions to analyze patterns and represent their structure.

A Here the student began to formulate the generalization asked for in Question 3 of the task. The variable "x" was chosen to represent the number of small cubes making up each dimension of the large

-Cubes-

The problem asks you to find a way to determine how many small cubes are visible and how many are hidden within a larger cube.

First, I made diagrams of cubes with dimensions of $1 \times 1 \times 1$, $2 \times 2 \times 2$, $3 \times 3 \times 3$, $4 \times 4 \times 4$, and $5 \times 5 \times 5$. Diagrams:

Second, I made a table of what I'd found through my diagrams. Table:

cube size	cubes hidden	cubes visible	total cubes
$1 \times 1 \times 1$	0	1	1
$2 \times 2 \times 2$	1	7	8
$3 \times 3 \times 3$	8	19	27
$4 \times 4 \times 4$	27	37	64
$5 \times 5 \times 5$	64	61	125

The first thing I noticed was the relationship between the hidden cubes and total number of cubes. I noticed that the number of hidden cubes was the same number of total cubes in the next size cube. For example, there are 27 hidden cubes in a

pg 7

cube. (The variable "n" would be more in keeping with standard practice.) The total number of small cubes in a large "x by x by x" cube is given as x^3 , while the number of hidden cubes is given as $(x-1)^3$. The latter fact was based on the empirical observation "I noticed that the number of hidden cubes was the same number of cubes in the next size cube."

B Expressing the number of visible cubes is harder than expressing the number of hidden cubes. The student expressed the number of visible cubes directly by summing the number of cubes on the three visible faces (and making sure not to count the same cube more than once):

- top face: x^2

- front face: $x(x-1) = x^2 - x$

- side face: $(x-1)(x-1) = x^2 - 2x + 1$

Summing these gives the total number of visible cubes: $3x^2 - 3x + 1$.

Cubes

The same result could have been obtained a little more easily by subtracting the number of hidden cubes (which is $(x-1)^3$) from the total number of cubes (which is x^3).

A It is not clear how the student arrived at the cubic function given in the response. Is it an observation that the numerical entries in the "total cubes" column of the table are all perfect cubes: $1 = 1^3$, $8 = 2^3$, $27 = 3^3$, etc.? Or is it the geometrical insight that an n by n by n large cube has n^3 small cubes in it? The difference between these two possible ways of seeing the cubic pattern is the difference between:

- (i) data analysis (get numerical data from the geometrical situation case by case, then forget the situation and analyze the data numerically); and
- (ii) "structural analysis" (directly analyze the geometric structure of the situation).

3.3 Mathematical Skills and Tools: The student makes and uses rough sketches, schematic diagrams...to enhance a solution.

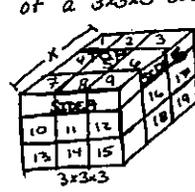
The student made effective use of diagrams as a way of illustrating and hence visualizing the structure of the large cubes. The small cubes in the diagrams are numbered systematically, indicating an organized process of using the diagrams to reveal the pattern.

3.7 Mathematical Communication: The student organizes work and presents mathematical procedures and results clearly, systematically, succinctly, and correctly.

The diagrams are connected and interpreted with explanatory text.

A $4 \times 4 \times 4$ cube and 27 total cubes in a $3 \times 3 \times 3$ cube. So I found that the formula; $(x-1)^3$ will tell you how many hidden cubes there are in a certain size cube. "x" equals the dimension of one side of a cube.

You can also find a formula for the number of visible cubes. Take a look at the diagram of a $3 \times 3 \times 3$ cube. Diagram:



Again, "x" equals the dimension of one side of a cube. The top of this cube is equal to x^2 , side A is equal to $x^2 - x$, and side B is equal to $x^2 - 2x + 1$.

equation: $x^2 + x^2 - x + x^2 - 2x + 1 \Rightarrow 3x^2 - 3x + 1$

The equation or formula for finding the number of visible cubes is $3x^2 - 3x + 1$. If I say $x=3$, and put that in the formula; $3(3^2) - 3(3) + 1 \Rightarrow 27 - 9 + 1 \Rightarrow 19$. So there are 19 visible cubes. To find the number of hidden cubes I put $x=3$ into $(x-1)^3 \Rightarrow (3-1)^3 \Rightarrow 2^3 \Rightarrow 8$. I find there are 8 hidden cubes. If I add those 8 to the 19 visible cubes, I get a total of 27 cubes in a $3 \times 3 \times 3$ cube. We can see this is correct because the total number of cubes can be found by $x^3 \Rightarrow 3^3 \Rightarrow 27$.

B The formulas I found in this problem could also be expressed as functions. I could have written the formula for hidden cubes as $\Rightarrow h(x) = (x-1)^3$ and the formula for visible cubes as $\Rightarrow v(x) = 3x^2 - 3x + 1$.

P.2

Work Sample & Commentary: *Shopping Carts*

The task

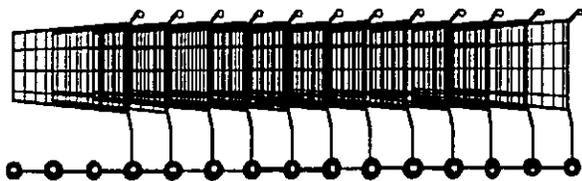
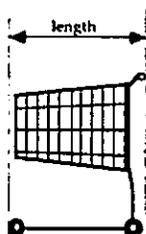
Shopping Carts

In this task you are asked to think mathematically about shopping carts. You are asked to create a rule that can be used to predict the length of storage space needed given the number of carts.

The diagram below shows a drawing of a single shopping cart.

It also shows a drawing of 12 shopping carts that have been “nested” together.

The drawings are accurately scaled to $\frac{1}{4}$ the real size.



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This work sample illustrates a standard-setting performance for the following parts of the standards:

- MA2.k** Geometry and Measurement Concepts: Work with geometric measures of length.
- MA2.n** Geometry and Measurement Concepts: Solve problems involving scale.
- MA3.a** Function and Algebra Concepts: Model given situations with formulas and functions.
- MA3.f** Function and Algebra Concepts: Use linear functions as a mathematical representation of proportional relationships.
- MA3.h** Function and Algebra Concepts: Manipulate expressions involving variables.
- MA5.b** Problem Solving and Mathematical Reasoning: Implementation.
- MA6.I** Mathematical Skills and Tools: Use tools in solving problems.
- MA7.c** Mathematical Communication: Organize work and present mathematical procedures and results clearly, systematically, succinctly, and correctly.

1. Create a rule that will tell you the length S of storage space needed for carts when you know the number N of shopping carts to be stored. You will need to show *how* you built your rule; that is, we will need to know what information you drew upon and how you used it.

2. Now create a rule that will tell you the number N of shopping carts that will fit in a space S meters long.

The diagram, as reproduced here, is 45% as large as the original task prompt the students worked from.

About the task

This task is designed to see if students can recognize the proportional relationship inherent in this situation (the increase in the length of a nested row of carts is proportional to the number of carts added) and express it in terms of a linear formula or function.

Once students have completed the task as given, it is natural to ask them to look for other examples (in the real world), of structures which, similar to a row of nested shopping carts, can be represented by linear functions of the form $y = A + b n$.

In their examples, y , A , and b should have a clear geometric meaning that they identify, and n should represent the number of identical components in the structure. Their examples can be represented in a diagram similar to the shopping carts diagram.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-------------------------|----------------------------|
| ✓ alone | in a group |
| in class | ✓ as homework |
| ✓ with teacher feedback | with peer feedback |
| timed | ✓ opportunity for revision |

Mathematics required by the task

There are two relevant lengths in this task, the full length (call it L) of a single cart, and the amount (call it d) that each new cart in a row sticks out beyond the others. Since the drawing is accurately scaled to $\frac{1}{4}$ th full size, L and d can be found by measuring the drawing and multiplying by 24.

Each new cart added to a row adds the fixed amount d to the length of the row. This means that the length S of a row of carts is a linear function of the number n of carts in the row, and that the slope of this function is d . Since the full length of a single cart is L , this function can be written as:

$$S = L + d(n-1).$$



The quotations from the Mathematics performance descriptions in this commentary are excerpted. The complete performance descriptions are shown on pages 50-57.

Work Sample & Commentary: Grazing Area

The task

A cow is secured by a 50 foot long rope that is tied to a stake. The stake is placed 10 feet from the corner of a 20 foot by 40 foot barn. A line from the stake to the corner makes a 135 degree angle with the sides of the barn.

Under these conditions, how much area does the cow have to graze in?



Notations from the mathematics performance rubric in this commentary are excerpted. Complete performance descriptions are on pages 50-57.

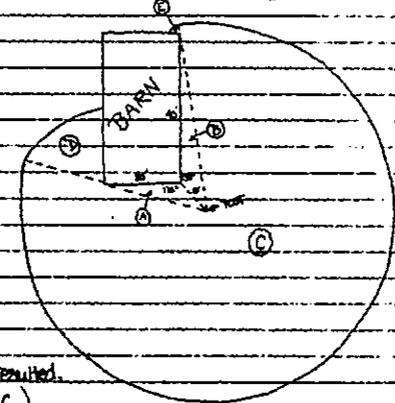
Although the context of the task is somewhat fanciful, it is a situation that can be visualized concretely in a definite way, and the requirements for a solution are quite clear: the area of a particular plot of grass needs to be found. Moreover, finding this area requires a thorough understanding of important ideas from geometry. In short, in spite of the fanciful context, the task provides the opportunity for demonstrating good use of sound mathematics.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2a Geometry and Measurement Concepts: Model situations geometrically to formulate and solve problems.
- 2b Geometry and Measurement Concepts: Work with two dimensional figures and their properties.
- 2c Geometry and Measurement Concepts: Know and use formulas for area.
- 2f Geometry and Measurement Concepts: Use the Pythagorean Theorem in many types of situations.
- 2g Geometry and Measurement Concepts: Work with similar triangles, and extend the ideas to include simple uses of the three basic trigonometric functions.
- 5a Function and Algebra Concepts: Model given situations with formulas and functions.
- 5a Problem Solving and Mathematical Reasoning: Formulation.
- 5b Problem Solving and Mathematical Reasoning: Implementation.
- 6c Mathematical Skills and Tools: Evaluate and analyze formulas and functions of many kinds.
- 6e Mathematical Skills and Tools: Make and use rough sketches or schematic diagrams to enhance a solution.
- 7h Mathematical Communication: Write succinct accounts of the mathematical results obtained in a mathematical problem or extended project.

I have a cow. Her name is Daisy, and she enjoys eating the wildflowers that grow in abundance around my 20' x 40' barn. In order to maximize this pleasurable experience for her, I decided to tie her to a 50' rope and attach the other end to a corner of my barn. Unfortunately, the most delectable flowers are located 60' from the corner of the barn, and seeing as I did not have a longer piece of rope, I securely planted a post 30' from the corner of the barn and attached Daisy to this post. To properly provide for Daisy's needs, I must calculate how many square feet she has to graze on, and thereby decide how much supplementary nutrition she will require.

For starters, I draw a diagram of the situation. From this diagram, I saw that at a certain angle, Daisy's rope would hit the 20' side of the barn and she could wrap around the corner of the barn and graze there (area D). The same was true for the 40' side of the barn (area E). When the rope was taut against the corner of the 20' side of the barn, a triangle (AA) resulted. Likewise, when the rope was taut against the 40' side of the barn, another triangle (AB) resulted. (The remaining area is area C.)



What makes the task specifically a problem solving task is that the details of just how this area is to be found are not at all clear at the start. It is not just a matter of plugging numbers into area formulas. Students must figure out on their own exactly what to do to arrive at a result. In this task, this is a process with many steps.

The task is quite useful for seeing whether students who have learned how to do some things in geometry (such as finding lengths, angles, and areas) can apply what they have learned in a new and non-routine situation.

Circumstances of performance

This sample of student work was produced under the following conditions:

- alone
- in class
- with teacher feedback
- timed
- in a group
- as homework
- with peer feedback
- opportunity for revision

The student work is an excerpt from a long-term project that was completed over a four-week period. During this time, one class per week was allocated to completion of the project. The students worked in groups of three or four, and each student did a separate write-up. No teacher or adult help was provided until near the end, when there was an opportunity to revise the work. The project was included by the student in a portfolio of work in mathematics.

Mathematics required by the task

The task requires strong understanding of specific key ideas from geometry, listed below. Still, the conceptual understanding of geometry required is far greater than a list like this might suggest. Finding any of these lengths, angles, or areas in a one-step problem is far easier than creating and carrying out the complex hierarchy of steps needed to arrive at a solution here.

Finding lengths:

- knowing the lengths of two sides of a right triangle, use the Pythagorean Theorem to find the length of the third side;
- knowing the hypotenuse of an isosceles right triangle, find the side lengths;

Finding angles:

- knowing two angles of a triangle, find the third;
- knowing an angle, find the supplementary angle;
- knowing the angle of a sector of a circle, find the angle of the complementary sector;
- knowing the length of two sides of a right triangle, use the inverse of the tangent function to find the acute angles;

Finding areas:

- knowing the base and height of a triangle, find its area;
- knowing the angle and radius of a sector of a circle, find its area.

What the work shows

2a Geometry and Measurement Concepts: The student models situations geometrically to formulate and solve problems.

A The response is built on a complex and effective geometric model of the problem situation. The model consists of a division of the region into five separate regions each of which consists of a triangle or a circle sector, and the introduction of techniques to find the area of each.

In order to proceed in my calculations, I deemed it necessary to find the measures of the angles (in both $\triangle A$ & $\triangle B$) opposite the 10' side. I also needed to know the length of rope that it took to make up the third sides of the triangles. In order to do this, I made the unknown "rope sides" of the triangles into hypotenuses of right triangles. The 45-45-90 triangle that appeared allowed me to calculate the altitude of my original triangle (shaded), along with the hypotenuse of my new triangle (or the rope-side of my original triangle). In 45-45-90 triangles, the sides opposite the $45^\circ = x$ and the side opposite the $90^\circ = x\sqrt{2}$. Thus the altitudes of each of the triangles ($\triangle A$ & $\triangle B$) were $5\sqrt{2}$, and their lengths were $20 \pm 5\sqrt{2}$ ($\triangle A$) & $40 \pm 5\sqrt{2}$ ($\triangle B$). The hypotenuse length for each triangle was calculated using the trig properties. I then calculated the areas of triangles A & B using the formula for area: area of $\triangle = \frac{1}{2}(\text{base})(\text{height})$. I also calculated the measurement of the angles of the triangles that are opposite the 20' & 40' barn walls. These were calculated with the equation stating that the sum of the 3 angles of a triangle add up to 180° . I added these

G $\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{5\sqrt{2}}{20 \pm 5\sqrt{2}}$
 $\theta = \tan^{-1} 2.612$
 $\theta = 14.64^\circ$
 $\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{5\sqrt{2}}{\text{hyp}}$
 $\sin 14.64^\circ = \frac{5\sqrt{2}}{\text{hyp}}$
 $\text{hyp} = 28 \text{ ft}$

H $\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{5\sqrt{2}}{40 \pm 5\sqrt{2}}$
 $\theta = \tan^{-1} 1.5022$
 $\theta = 8.54^\circ$
 $\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{5\sqrt{2}}{\text{hyp}}$
 $\sin 8.54^\circ = \frac{5\sqrt{2}}{\text{hyp}}$
 $\text{hyp} = 47.6 \text{ ft}$

E area of $\triangle A = \frac{1}{2}bh = \frac{1}{2}(20)(5\sqrt{2}) = 70.71 \text{ ft}^2$
 area of $\triangle B = \frac{1}{2}bh = \frac{1}{2}(40)(5\sqrt{2}) = 141.42 \text{ ft}^2$

B $\triangle A: 4x = 180 - (185 + 14.64) = 30.36^\circ$
 $\triangle B: 4x = 180 - (185 + 8.54) = 36.46^\circ$

2b Geometry and Measurement Concepts: The student works with two...dimensional figures and their properties, including polygons and circles....

Throughout the work, the student used knowledge of two dimensional figures and their properties. For example:

B knowing two angles of a triangle, the student found the third; and

C knowing the angle of a sector of a circle, the student found the angle of the complementary sector.

D The angle θ in triangle A is actually supplementary to the sum of 90° and the angle of arc D. (Similarly for triangle B and the angle of arc E.)

Grazing Area

2. Geometry and Measurement Concepts: The student knows [and] uses... formulas for... area... of many types of figures.

Throughout the work, the student used knowledge of area formulas. For example:

E knowing the base and height of a triangle, the student found its area; and

F knowing the angle and radius of a sector of a circle, the student found its area. This is a key part of the response, and the student managed it nicely. The result being used is that the area of a sector of a circle with angle θ (in degrees) and radius r is $\frac{\theta}{360} \pi r^2$.

2f Geometry and Measurement Concepts: The student uses the Pythagorean Theorem in many types of situations....

G Knowing the lengths of two sides of a right triangle (or knowing the length of the hypotenuse of an isosceles right triangle), the student used the Pythagorean Theorem to find the length of the third side. The response cites and uses a specific rule about 45° , 45° , 90° triangles: the hypotenuse of an isosceles right triangle is $\sqrt{2}$ times the leg. This rule can be derived using the Pythagorean Theorem.

2g Geometry and Measurement Concepts: The student works with similar triangles, and extends the ideas to include simple uses of the three basic trigonometric functions.

H Knowing the length of two sides of a right triangle, the student used the inverse of the tangent function to find the acute angle. This is the one place in the solution where use of trigonometry is necessary. The student found an acute angle of a right triangle by using a calculator and the inverse tangent function to solve for θ in the defining formula for the tangent: $\tan \theta = \frac{\text{opp.}}{\text{adj.}}$. This is possible since the opposite (opp.) and adjacent (adj.) sides are both known. (The calculation is shown in the response for both triangles A and B, though the step is not mentioned in the prose explanation.)

I Here the student used trigonometry again, this time to find the hypotenuse knowing the angle and the opposite side. This is fine. But the hypotenuse could have also been found without trigonometry by the Pythagorean Theorem, since both the opposite and the adjacent sides are known. (The hypotenuse lengths of triangles A and B are not used until later when triangles D and E are treated.)

C two angles together and subtracted their sum from 360° to get the measurement of the angle made by circle C. This angle was divided by 360° to find the fraction of a circle that C made up. I then multiplied this fraction by the area of the circle with radius 50 (area = πr^2). Area C ended right before the rope wrapped around the barn on either side and created smaller arcs with shorter radii (areas D & E).

F For sections D & E, the rope left over (creating a new radius) was the 50' rope minus the hypotenuses of the two triangles A & B. I also found the angles that I had found earlier. helpful in calculating the measures of the angles which were parts of the arcs of areas D & E. The angle A (in both D & E) was supplementary to the 90° angle the barn made and the angle of arc D & E. Thus I calculated the percentages of a circle that each area (D & E) was and multiplied this fraction by the area of a complete circle of that radius. To find the total grazing area, I simply added up all of my individual segments, triangles A & B, and circle-pieces C, D & E.

E $C's \angle = 360 - (x + x) = 360 - (30.36 + 30.46) = 299.18^\circ$

$\frac{299.18}{360} = \% \text{ of circle grazed} = 83.44 = 83.44\%$

area of C = $\pi r^2 = 8144 = \pi \cdot 50^2 = 8144 = 6396.2 \text{ ft}^2$

D $4x = 180 - (90 + 9.54) = 79.36$
 $\% \text{ circle} = \frac{79.36}{360} = 22.03\%$
 $r = 50 - \text{hyp} = 50 - 22 = 28$
 area of D = $\pi r^2 = 243 = \pi \cdot 28^2 = 243 = 318.3 \text{ ft}^2$

E $4y = 180 - (90 + 9.54) = 79.36$
 $\% \text{ circle} = \frac{79.36}{360} = 22.03\%$
 $r = 50 - \text{hyp} = 50 - 22 = 28$
 area of E = $\pi r^2 = 243 = \pi \cdot 28^2 = 243 = 409 \text{ ft}^2$

A =	70.71
B =	141.42
C =	6396.20
D =	318.30
E =	409

TOTAL AREA = 6930.72 ft²

The response uses the symbol \doteq (an equals sign with a dot over it) to mean "is approximately equal to" in cases where decimals are rounded off. Actually, this symbol should have been used in more of the cases here, since all the decimals have been rounded off.

Grazing Area

3a Function and Algebra Concepts: The student models given situations with formulas and functions....

5a Problem Solving and Mathematical Reasoning: Formulation. The student...asks and answers a series of appropriate questions in pursuit of a solution and does so with minimal "scaffolding" in the form of detailed guiding questions.

3b Problem Solving and Mathematical Reasoning: Implementation. The student...

- chooses and employs effective problem solving strategies in dealing with non-routine and multi-step problems;
- selects appropriate mathematical concepts and techniques from different areas of mathematics and applies them to the solution of the problems;
- ...uses mathematics to model real-world situations....

A The student organized the task by clearly identifying five regions (labeled A to E) whose area needed to be found. From this point on, the response represents a continual process of setting up a relationship and using it to find an unknown, then setting up a new relationship using what was just found to find another unknown, and so on for many steps.

J The student indicated that the experience of working on this extended task was a rich and rewarding one and echoed the language of the standard.

6c Mathematical Skills and Tools: The student evaluates and analyzes formulas and functions of many kinds....

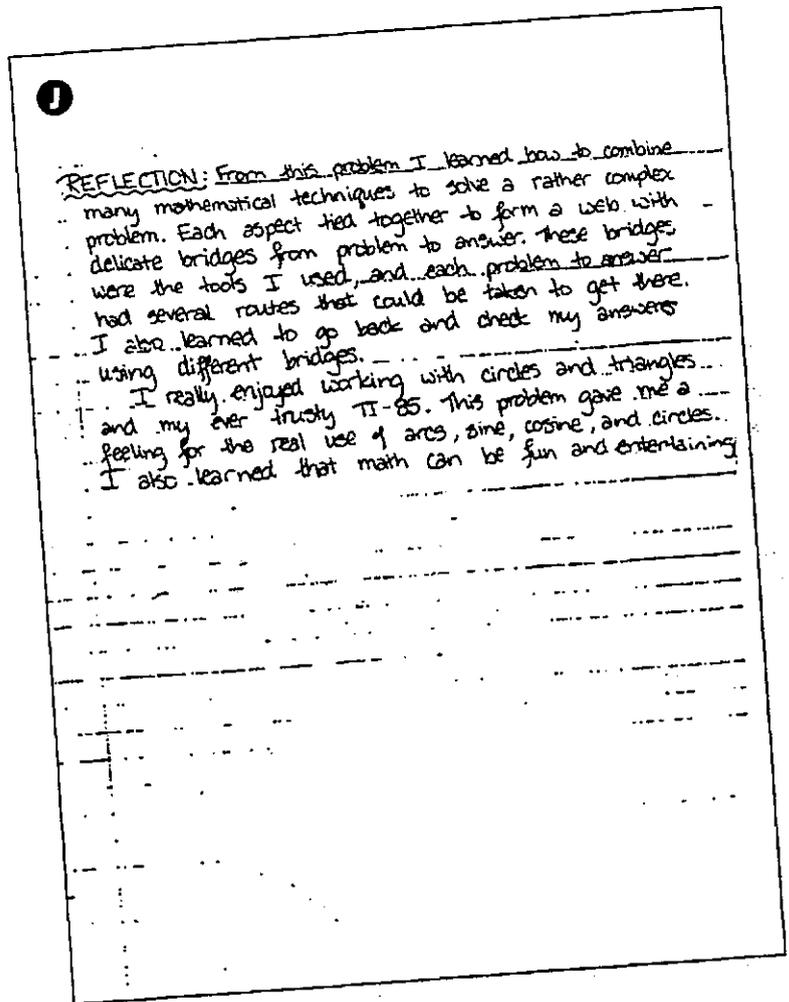
6e Mathematical Skills and Tools: The student makes and uses rough sketches, schematic diagrams...to enhance a solution.

In working toward a final answer, the response makes continual use of formulas in conjunction with accompanying explanatory diagrams.

3h Mathematical Communication: The student writes succinct accounts of the mathematical results obtained in a mathematical problem or extended project, with diagrams,...tables, and formulas integrated into the text.

The response integrates a prose description of the solution process and of the mathematical results used with the presentation of formulas, equations, and diagrams. The result is a clear and easy-to-follow exposition of a complex problem.

The word "taunt" should be "taut"; but this does not detract from successful communication.



Work Sample & Commentary: Dicing Cheese

The task

Dicing Cheese

You have a large rectangular block of cheese. You know its volume, V in cubic centimeters. Using a special cheese dicing machine, you cut the whole block up into small cubes, all exactly the same size.

When you spread these small cubes out one layer thick, with no spaces in between, they completely fill a flat, rectangular tray. You know the area, A of the tray in square centimeters.

1. In terms of V and A , find the length of the side of one of these small cubes.
2. In terms of V and A , find how many cubes were made.

This task about area and volume may appear to be rather simple. It involves only basic, rectangular shapes, and the only formulas needed are the most elementary ones (formulas for the volume of a cube

This work sample illustrates a standard-setting performance for the following parts of the standards:

- **2a** Geometry and Measurement Concepts: Model situations geometrically to formulate and solve problems.
- **2b** Geometry and Measurement Concepts: Work with three dimensional figures and their properties.
- **2c** Geometry and Measurement Concepts: Know and use formulas for area, surface area, and volume.
- **2k** Geometry and Measurement Concepts: Work with geometric measures of length, area, and volume.
- **3a** Function and Algebra Concepts: Model given situations with formulas.
- **3h** Function and Algebra Concepts: Define, use, and manipulate expressions involving variables.
- **5a** Problem Solving and Mathematical Reasoning: Formulation.
- **5b** Problem Solving and Mathematical Reasoning: Implementation.
- **5c** Problem Solving and Mathematical Reasoning: Conclusion.
- **7a** Mathematical Skills and Tools: Carry out symbol manipulations effectively.
- **7c** Mathematical Communication: Organize work and present mathematical procedures and results clearly, systematically, succinctly, and correctly.

Handwritten student work for 'Dicing Cheese' showing definitions, equations, and solutions for parts A, B, D, E, F, and G.

Definitions:

- V : volume of whole large piece of cheese
- A : area of large piece of cheese on pan
- l : the length of 1 side of a cheese cube

Solutions:

- A** $\frac{V}{\text{volume of 1 cube}} = \# \text{ of cubes}$
 $\frac{V}{l^3} = \# \text{ of cubes} \Rightarrow \frac{V}{\text{area of a cube}} = \frac{A}{\text{area of a cube}}$
- B** $\frac{V}{l^3} = \# \text{ of cubes}$
- D** $\frac{A}{l^2} = \# \text{ of cubes}$
- E** $\left(\frac{V}{A}\right)^2 = \# \text{ of cubes}$
- F** $\frac{V}{A^2} = \# \text{ of cubes}$
- G** $l = \frac{V}{A}$

and the area of a face of a cube). Yet the task deeply probes students' conceptual understanding of area and volume. Anyone who has merely memorized formulas will make little headway here.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone
- ✓ in class
- with teacher feedback
- ✓ timed
- in a group
- as homework
- with peer feedback
- opportunity for revision

Mathematics required by the task

The task asks the student to express the number n of cubes and their side length l in terms of the total volume V and the total area A they cover. One way to proceed is to write down these observations about the volume V and the area A :

1. Since the volume of one small cube is l^3 , the total volume is $V = nl^3$.

2. Since the area of a face of one cube is F , the total area they cover is $A = nF$.

Eliminating n from these two equations allows us to express l in terms of V and A , while eliminating l allows us to express n in terms of V and A .

It is interesting that there are many approaches quite different from this one that students use to solve this problem. For example, looking at the cubes spread out on the tray as a rectangular solid, its volume can be written as $V = lA$. This gives the length l immediately in terms of V and A as $l = \frac{V}{A}$. Another method uses "dimensional analysis" to argue that $l = \frac{V}{A}$ (perhaps with a dimensionless constant) is the only possible formula for l in terms of V and A that has the right units (the right "dimensions"). "Dimensional analysis" is a technique that keeps track of the "dimensions" of quantities. For example, volume has the dimensions L^3 (where L stands for length), area has the dimensions L^2 , and speed has the dimensions $\frac{L}{T}$ (where T stands for time). These dimensions can be operated on algebraically. Hence, a volume divided by an area has the dimensions $\frac{L^3}{L^2} = L = \text{length}$.

One feature of the task that needs comment is the fact that specific numbers are not given for V and A . The task is designed to assess students' abilities to deal with the abstractness of this "numberless" formulation. Assigning specific numbers would make the task somewhat easier. For example, in another version of the task that was used with other students, the specific values $A = 9,000$ square centimeters and $V = 5,400$ cubic centimeters were given. This made it easier for the students to create a concrete picture of the situation, and hence easier to get started.

What the work shows

M2a Geometry and Measurement Concepts: The student models situations geometrically to formulate and solve problems.

A B To start off both questions, the student used these facts about the whole mass of cheese:

- The number of small cubes is equal to the total volume V divided by the volume of one cube.
- The number of small cubes is equal to the total area A covered divided by the face area of one cube.

M2b Geometry and Measurement Concepts: The student works with...three dimensional figures and their properties, including...cubes....

M2k Geometry and Measurement Concepts: The student works with geometric measures of length, area, volume....

This is evident throughout the student work.

M2e Geometry and Measurement Concepts: The student knows [and] uses...formulas for...area, surface area, and volume of many types of figures.

C D To continue, the student used the area and volume formulas for a cube of side length l :

$$\text{volume} = l^3 \qquad \text{area of a face} = l^2$$

M3a Function and Algebra Concepts: The student models given situations with formulas....

M3h Function and Algebra Concepts: The student defines [and] uses...variables...in work with formulas....

Throughout, the response uses relevant formulas for area and volume and their interrelation in the derivation of formulas for the side length l and the number of cubes n .

M3h Function and Algebra Concepts: The student defines, uses, and manipulates expressions involving variables...in work with formulas...[and] equations....

F The student substituted the result obtained for Question 1, namely $l = \frac{V}{A}$ into the equations of Question 2.

F G The second result is obtained by manipulation and substitution:

$$\# \text{ of cubes} = \frac{A}{l^2}$$

M5a Problem Solving and Mathematical Reasoning: Formulation. The student...asks and answers a series of appropriate questions in pursuit of a solution and does so with minimal "scaffolding" in the form of detailed guiding questions.

M5b Problem Solving and Mathematical Reasoning: Implementation. The student...selects appropriate mathematical concepts and techniques from different areas of mathematics and applies them to the solution of the problem....

M5c Problem Solving and Mathematical Reasoning: Conclusion. The student...concludes a solution process with a useful summary of results....

The response shows the formulation and implementation of an approach to a difficult and non-routine problem, and clearly indicates the results of this approach.

F G There are two independent derivations of the second result, one starting with the area A and the other starting with the volume V .

M6a Mathematical Skills and Tools: The student carries out...symbol manipulations effectively....

E

M7c Mathematical Communication: The student organizes work and presents mathematical procedures and results clearly, systematically, succinctly, and correctly.

Although the response is brief, it is easy to follow and to the point.

Work Sample & Commentary: Galileo's Theater

The task

This is a design task. Students are asked to create a design for a theater that conforms to several specified constraints. Interpreting and implementing these specifications requires significant knowledge of concepts and terminology from geometry and algebra.

The task asks for a theater design "with the greatest seating capacity" given the specified constraints. This will be interpreted as requiring a demonstration, in the work, that the choices being made in making the design do in fact contribute to increased seating capacity. It is felt to be too difficult, in this complex situation, to require an actual proof that the design produced has the greatest possible capacity.

ations from the
rics performance
ns in this com-
are excerpted.
plete perfor-
escriptions are
n pages 50-57.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2a** Geometry and Measurement Concepts: Model situations geometrically to formulate and solve problems.
- 2b** Geometry and Measurement Concepts: Work with two dimensional figures and their properties.
- 2c** Geometry and Measurement Concepts: Know, use, and derive formulas for circumference.
- 3a** Function and Algebra Concepts: Model given situations with formulas.
- 3i** Function and Algebra Concepts: Represent functional relationships in formulas and tables.
- 5b** Problem Solving and Mathematical Reasoning: Implementation.
- 5c** Problem Solving and Mathematical Reasoning: Conclusion.
- 6b** Mathematical Skills and Tools: Round numbers used in applications to an appropriate degree of accuracy.
- 6c** Mathematical Skills and Tools: Make and use rough sketches or precise scale diagrams to enhance a solution.
- 7a** Mathematical Communication: Be familiar with basic mathematical terminology.
- 7h** Mathematical Communication: Write succinct accounts of the mathematical results obtained in a mathematical problem or extended project.

Designing a Theater for Galileo



You and your architectural engineering team are competing for the contract to design a new circular theater with a revolving center stage. The theater is to be built beneath a great dome R-3 at the lunar space port Galileo. The Arts Director of Galileo has asked each potential engineering team to submit its design and its calculations for the new theater. Although overall design is important, the job will go to the team that produces the design with the greatest seating capacity. The director has given you the following restrictions and guidelines.

1. The theater must contain only one level and seat at least 1000 people.
2. The stage should be at least 10 meters in diameter.
3. The outer diameter of the theater interior should be at most 42 meters.
4. The seating should be divided into sections by equally spaced aisles radiating from center stage. There should be no fewer than four radial aisles and no more than eight radial aisles. Each radial aisle should be at least 1 meter in width.
5. There should be two concentric aisles. The innermost concentric aisle around the stage should be at least 1 meter wide and at most 2 meters wide. The outer concentric aisle should be at least 2 meters wide and at most 4 meters wide and should ring the perimeter of the theater.

6. Safety codes at the lunar colony require that each seat be at least 60 centimeters wide and that each seating position be at least 90 centimeters in depth.
 7. Safety codes require that there be no more than 30 seats in any row.
- Your job is to draw a scaled plan of the theater, including seating, aisles, and the stage. Your plan should maximize seating capacity. You should be able to support your design with calculations that verify your seating capacity. You will need to calculate the following.
1. The number of rows and the number of seats in each row
 2. The width at the stage end of each radial aisle and the width at the back end of each radial aisle; the width of the concentric aisles
 3. Total seating capacity for your plan
- There is a hint leading to a possible solution for this problem in the Hints section.

The assignment text in the work sample titled "Designing a Theater for Galileo," from *Discovering Geometry*. Used by permission of Key Curriculum Press, P.O. Box 2304 Berkeley, CA 94702, 1-800-995-MATH.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-------------------------|----------------------------|
| alone | ✓ in a group |
| ✓ in class | ✓ as homework |
| ✓ with teacher feedback | with peer feedback |
| timed | ✓ opportunity for revision |

The students had a week to complete the task, and then a week to revise based on teacher feedback. They worked in groups, but then each student submitted a separate response.

Galileo's Theater

Mathematics required by the task

The task requires students to do careful work, all based on the complex specifications given for the theater, that involves the geometry of circles and the division of line segments into parts:

- Lay out concentric circular rings that will serve as rows of seats and find the maximum number of rows possible, subject to a given minimum depth of a row of 90 centimeters.
- Divide the concentric rings into sections separated by radial aisles and calculate the resulting length of the seating section in each row, subject to a given minimum aisle width of 1 meter.
- Calculate the number of seating positions possible in each section, subject to a given minimum seat width of 60 centimeters and a given maximum number of seats per section of 30.
- Among possible ways of laying out such a theater, make choices that increase seating capacity.

The core mathematical concepts needed to do this work are few and simple. They are principally:

- Find the circumference C of a circle from its radius r or its diameter d :

$$(C = 2\pi r = \pi d).$$
- Find the number N of seats of width 60 centimeters in a section of length L meters: ($N =$ the greatest whole number less than or equal to $\frac{L}{0.6}$).

Taken in isolation these concepts are straightforward. However, in this task students need to use them repeatedly and appropriately in a complex setting. This need provides much more of a challenge than the mathematical concepts themselves. As a result, the task requires quite a bit of "problem solving" ability such as understanding the situation, constructing and testing mathematical models of the situation, and finding the optimal model (since "the job will go to the team that demonstrates the design with the greatest seating capacity").

What the work shows

- 2a** Geometry and Measurement Concepts: The student models situations geometrically to formulate and solve problems.
- 2b** Geometry and Measurement Concepts: The student works with two...dimensional figures and their properties, including...circles....
- 2e** Geometry and Measurement Concepts: The student knows, uses, and derives formulas for...circumference....

The whole project is a complex geometric model based on circles that was created in response to a request for a design meeting detailed, specified constraints.

The student's work is written on lined paper and includes several diagrams and paragraphs of text. At the top, there is a heading "Discussion" and a note "The first thing we figured out was down a diagram of the problem as we saw it." Below this is a diagram of concentric circles representing rows of seats, with radial lines representing aisles. The student has labeled parts of the diagram with letters A, B, and E. The text describes the process of calculating the number of seats per row based on the radius of the row and the width of the seats. The student uses the formula $C = 2\pi r$ and divides the circumference by the seat width (0.6m) to find the number of seats per row. The work is annotated with letters A, B, and E.

A Note that the radius of 17.7m used here results from work shown earlier on the page: 5 (stage) + 1 (aisle) + 12.6 (set of 14 rows) - 0.9 (last row) = 17.7 meters.

B The formula produced by the student is the heart of the response. This formula provides an effective mechanism for counting the number of seats in each row in terms of the radius of the row. The student used the formula to construct the table on the next page showing the seating capacity for a section in each of the 14 rows of the theater. The formula produced by the student had to be applied many times for the aisles of different radii. The student apparently carried out these computations by hand. This is fine, but it would also have been an ideal place to let technology do some of the work by using a spreadsheet. The advantage would be that the effect of changes in the input (here the radii) could have been quickly determined.

A Note that the radius of 17.7m used here results from work shown earlier on the page: 5 (stage) + 1 (aisle) + 12.6 (set of 14 rows) - 0.9 (last row) = 17.7 meters.

The use made here of the 17.7m dimension in calculating the circumference is a step repeated several times throughout the work.

3a Function and Algebra Concepts: The student models given situations with formulas....

2i Function and Algebra Concepts: The student represents functional relationships in formulas [and] tables...and translates between these.

B The formula produced by the student is the heart of the response. This formula provides an effective mechanism for counting the number of seats in each row in terms of the radius of the row. The student used the formula to construct the table on the next page showing the seating capacity for a section in each of the 14 rows of the theater. The formula produced by the student had to be applied many times for the aisles of different radii. The student apparently carried out these computations by hand. This is fine, but it would also have been an ideal place to let technology do some of the work by using a spreadsheet. The advantage would be that the effect of changes in the input (here the radii) could have been quickly determined.

Galileo's Theater

5b Problem Solving and Mathematical Reasoning: Implementation. The student...

- chooses and employs effective problem solving strategies in dealing with non-routine and multi-step problems;
- selects appropriate mathematical concepts and techniques from different areas of mathematics and applies them to the solution of the problem;
- ...uses mathematics to model real world situations....

Throughout the work, the student responded to a non-routine task in a way that shows careful planning, use of many kinds of given information from a real situation, selection of appropriate mathematics from **12** and **5**, and employment of results from one step as input to the next step.

The student also made many choices dictated by the goal that the theater should have "the greatest seating capacity" consistent with the given space. For example, the response uses the smallest allowed dimension (90 cm) for the depth of a row, thus yielding the maximum number of rows.

C Still, the response does not take the next step in attempting to create the greatest seating capacity, namely pursuing alternate ways of meeting the constraints of the design and comparing them for the resulting seating capacity. This portion of the work shows the steps taken to meet the constraint on the maximum number of seats (30) allowed per row. The student found that a 4-aisle design would give 44 seats in the last row of each section, that a 5-aisle design would give 35, and that a 6-aisle design would give 29. The choice of a 6-aisle design thus seems natural. Still, it seems necessary to note that other possibilities were not explored in the response. For example, if 5 radial aisles are used, and are made wider toward the rear of the theater to limit the number of seats per row in a section to 30, then a total capacity of 1,585 can be reached. And with a 6-aisle design, if the seats are pushed rearward as far as possible (by making the outside concentric aisle width its minimum of 2 m) there are 1,614 seats possible, which is 60 more than the response's 1,554 seats in a design using a rear aisle width of 2.4 m. In this sense the student did not do full justice to the goal of obtaining the greatest seating capacity. Nevertheless, the maximum seating requirement here is a very difficult one to meet and justify, and the fact that this student did not fully accomplish this does not detract from the fact that the response illustrates the indicated portions of **5**.

C → 44 was too many seats (the total count can exceed 30) we decided to change the number of radial aisles. So we went through the same procedure as we had done with 4 radial aisle, only with 5 instead. Still, there were too many (35) with 6 radial aisles, though there were only 29 seats.

Galileo's Theater

The next thing we accomplished was writing down and seeing at the exact number of seats per row. We did this by taking the radius of the particular circle we were looking at, finding the circumference, subtracting 6 (number of radial aisles), dividing by 6 (m), then dividing by 6.

B →
$$\frac{2\pi r - 6}{6} = P(\# \text{ seats in 1 row})$$

By multiplying each P by 6 (there are 6 of these segments with P number of seats) and taking the sum of everything, we found the total seating capacity of our theater (1554 seats).

Galileo's Theater

D → Conclusion:

Our solution to this problem is the following:

The theater is 48 m in diameter. There is a rotating stage at the center of the theater that is 10 meters in diameter around the stage is a 1 meter wide concentric aisle. From the stage and the concentric aisle radiates 6 aisles, each 1 meter in width. These radial aisles divide the theater (except for the stage + the concentric aisle) into 6 equal pieces. Along the perimeter of the theater is another concentric aisle, which is 2.4 meters wide. In the segmental areas where there are no aisles or stage, seats are set up. Set A are all the seats nearest the stage. Set B is the second, nearest to the stage are.

sets	# of seats in a segment
A	6
B	10
C	11
D	13
E	15
F	16
G	18
H	19
I	21
J	22
K	24
L	26
M	29
N	34

Galileo's Theater

15c Problem Solving and Mathematical Reasoning: Conclusion. The student...concludes a solution process with a useful summary of results....

D The conclusion summarizes the results obtained.

16b Mathematical Skills and Tools: The student rounds numbers used in applications to an appropriate degree of accuracy.

E This remark "you can't have .8 of a seat" should actually say "you can't have .7 of a seat" since it refers to the fractional part of the number ≈ 178.7 seats obtained in the calculation mentioned previously. Still, the rounding down to an integer value is correct.

6a Mathematical Skills and Tools: The student makes and uses rough sketches...or precise scale diagrams to enhance a solution.

F G H

7a Mathematical Communication: The student is familiar with basic mathematical terminology....

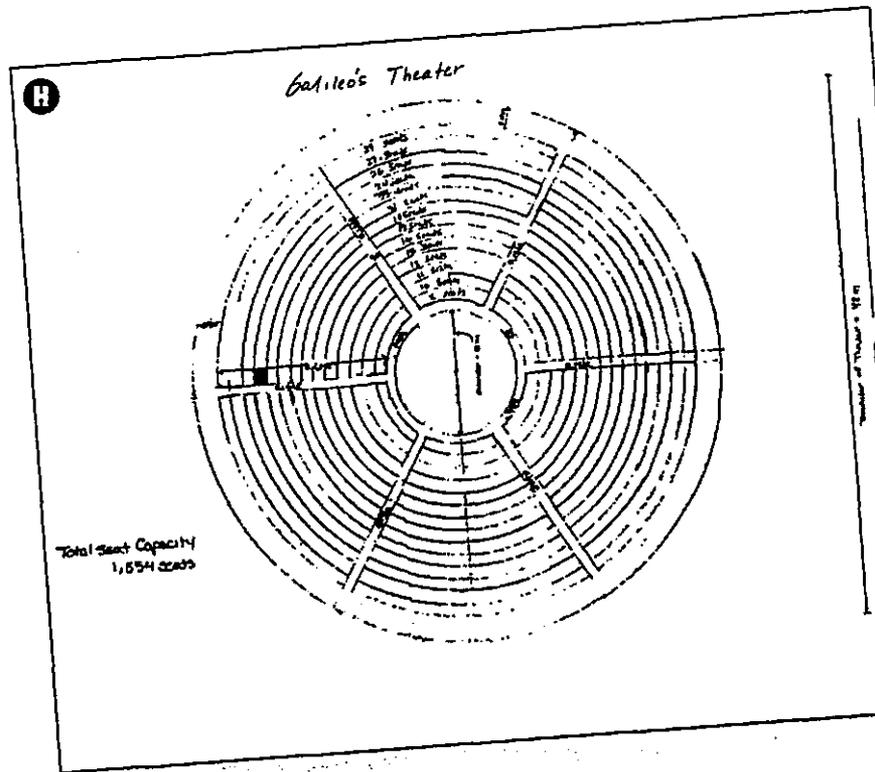
A Here and throughout the work, the student used terminology such as "radial aisles" in an appropriate and consistent way.

7b Mathematical Communication: The student writes succinct accounts of the mathematical results obtained in a mathematical problem or extended project, with diagrams,...tables, and formulas integrated into the text.

The student produced a clear explanation of the thinking that went into the design, together with diagrams showing features of the design and a formula for the crucial calculation of the number of seats in a row. Particularly good examples of communication include:

D E The student explained in words where the result of "44 seats per row" came from. The explanation amounts first to the calculation $\frac{2\pi(17.7)^2}{(0.6)} \approx 178.7$, rounded down to 178 seats in the last row, then the calculation $178 \frac{1}{4} \approx 44.5$, rounded down to 44 seats per section. A little thought shows that this is equivalent to the one step calculation $\frac{2\pi(17.7)^2}{(0.6)(4)} \approx 44.7$, rounded down to 44 seats. This calculation is crucial to the whole problem. The response gives an explicit formula for this calculation for the 6-aisle case.

D The conclusion summarizes the results obtained. The word "sollution" in the final paragraph should be "solution."



There are two widely used and respected national documents in science which we have taken into account: the National Research Council (NRC) *National Science Education Standards* (1996) and the American Association for the Advancement of Science (AAAS) Project 2061 *Benchmarks for Science Literacy* (1993). We found the AAAS analysis of the Benchmarks and the NRC Draft to be helpful in seeing the substantial degree of agreement between the two documents. We also consulted New Standards partner statements about standards and international documents, including the work of the Third International Mathematics and Science Study and the Organisation for Economic Co-operation and Development. Many of these sources, like the *Benchmarks*, give greater emphasis to technology and the applications of science than does the NRC.

The framework for the Science performance standards reflects New Standards partner representatives' distillation of these several sources of guidance:

- 1 Physical Sciences Concepts;
- 2 Life Sciences Concepts;
- 3 Earth and Space Sciences Concepts;
- 4 Scientific Connections and Applications;
- 5 Scientific Thinking;
- 6 Scientific Tools and Technologies;
- 7 Scientific Communication;
- 8 Scientific Investigation.

As the amount of scientific knowledge explodes, the need for students to have deep understanding of fundamental concepts and ideas upon which to build increases; as technology makes information readily available, the need to memorize vocabulary and formulas decreases. There is general agreement among the science education community, in principle, that studying fewer things more deeply is the direction we would like to go. The choices about what to leave out and what to keep are hotly debated. There are 855 benchmarks and the content standards section of the NRC standards runs nearly 200 pages, so there are still choices to be made in crafting a reasonable set of performance standards.

When the goal is deep understanding, it is necessary to revisit concepts over time. Students show progressively deeper understanding as they use the concept in a range of familiar situations to explain observa-

tions and make predictions, then in unfamiliar situations; as they represent the concept in multiple ways (through words, diagrams, graphs, or charts), and explain the concept to another person. The conceptual understanding standards make explicit that students should be able to demonstrate understanding of a scientific concept "by using a concept accurately to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs, or charts, as appropriate)." Both aspects of understanding—explaining and representing—are required to meet these standards.

For most people and most concepts, there is a progression from phenomenological to empirical to theoretical, or from a qualitative to a quantitative understanding. We have chosen one important concept, density, to illustrate the progression. To do this we use "Flinkers" at the elementary school level (see Volume 1, page 136), "Discovering Density" at the middle school level (see Volume 2, page 101), and "The Density of Sand" at the high school level (see page 86). The expectation for any particular concept at any particular level can only be described with a satisfactory degree of precision and accuracy in the degree of detail adopted by AAAS and NRC; we strongly urge users of these performance standards to consult either or both of those documents for guidance on other concepts.

Complementing the conceptual understanding standards, 5-8 focus on areas of the science curriculum that need particular attention and a new or renewed emphasis:

- 5 Scientific Thinking;
- 6 Scientific Tools and Technologies;
- 7 Scientific Communication;
- 8 Scientific Investigation.

Establishing separate standards for these areas is a mechanism for highlighting the importance of these areas, but does not imply that they are independent of conceptual understanding. The NRC standards, by declaring that inquiry is not only a teaching method but also an object of study, should put the time-worn "content versus process" debate to rest, and focus effort on combining traditionally defined content with process. As the work samples that follow illustrate, good work usually provides evidence of both.

Resources

Reviewers of drafts of these performance standards have pointed out that our expectations are more demanding, both in terms of student time and access to resources, than they consider reasonable for all students. We acknowledge the distance between our goals and the status quo, and the fact that there is a tremendous disparity in opportunities between the most and least advantaged students. We think that there are at least two strategies that must be pursued to achieve our goals—making better use of existing, out-of-school resources and making explicit the connection between particular resources and particular standards.

Best practice in science has always included extensive inquiry and investigation, but it is frequently given less emphasis in the face of competing demands for student time and teacher resources. An elementary teacher faced with the unfamiliar territory of project work in science or a secondary teacher faced with the prospect of guiding 180 projects and investigations can legitimately throw up his or her hands and cry, "Help!" Youth and community-based organizations, such as the Boy Scouts of America, Girl Scouts of the U.S.A., and 4-H, have science education on their agenda. Thus, we have incorporated examples of projects and investigations that are done outside of school to make clear that help is available.

We acknowledge that some of the performance descriptions and examples presuppose resources that are not currently available to all students, even those who take advantage of the out-of-school opportunities available to them. Yet, New Standards partners have adopted a Social Compact, which says, in part, "Specifically, we pledge to do everything in our power to ensure all students a fair shot at reaching the new performance standards...This means that they will be taught a curriculum that will prepare them for the assessments, that their teachers will have the preparation to enable them to teach it well, and there will be an equitable distribution of the resources the students and their teachers need to succeed."

All of the district, state, and national documents in science make explicit the need for students to have hands-on experience and to use information tools. Thus, for example, **ES**, Scientific Tools and Technologies, makes explicit reference to using telecommunications to acquire and share information. A recent National Center for Education Statistics survey recently reported that only 50% of schools and fewer than 9% of instructional rooms currently have access to the Internet. We know that this is an equity issue—that far more than 9% of the homes in the United States have access to the Internet and that schools must make sure that students' access to information and ideas does not depend on what they get at home—so we have crafted performance standards that would use the Internet so that people will make sure that all students have access to it. Since the New Standards

partners have made a commitment to create the learning environments where students can develop the knowledge and skills that are delineated here, we hope that making these requirements explicit will help those who allocate resources to understand the consequences of their actions in terms of student performance.

31 Physical Sciences Concepts

The student demonstrates conceptual understanding by using a concept accurately to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs or charts, as appropriate). Both aspects of understanding—explaining and representing—are required to meet this standard.

The student produces evidence that demonstrates understanding of:

- 31a** Structure of atoms, such as atomic composition, nuclear forces, and radioactivity.
- 31b** Structure and properties of matter, such as elements and compounds; bonding and molecular interaction; and characteristics of phase changes.
- 31c** Chemical reactions, such as everyday examples of chemical reactions; electrons, protons, and energy transfer; and factors that affect reaction rates such as catalysts.
- 31d** Motions and forces, such as gravitational and electrical; net forces and magnetism.
- 31e** Conservation of energy and increase in disorder, such as kinetic and potential energy; energy conduction, convection, and radiation; random motion; and effects of heat and pressure.
- 31f** Interactions of energy and matter, such as waves, absorption and emission of light, and conductivity.

Examples of activities through which students might demonstrate conceptual understanding of physical sciences include:

- ▲ Debate the relative merits of harnessing nuclear fission and fusion as energy sources. **1a, 1b, 1c, E3b**
- ▲ Predict the age of a hypothetical fossil based on the rate of radioactive decay of several radioactive isotopes. **1a, 2c, 3a, 3b, 3c, 3d**
- ▲ Research the history of the periodic table; take and defend a position on the configuration that best illustrates properties of elements. **1a, 1b, 1c, 4e**
- ▲ Determine the characteristics for a dinner table candle that will keep the candle burning longer. **1c, 1e**
- ▲ Explain why a local urban area has smog and what can be done about it. **1a, 1b, 1c, 1e, 4d**
- ▲ Make an informational videotape describing how an understanding of acceleration and velocity can make one a better driver. **1d, 1e, 7d**
- ▲ Explain how electric motors and generators illustrate the relationship between electricity and magnetism. **1c, 1d, 1e, 4a, 4b**
- ▲ Explain to a younger student the difference between temperature and heat. **1e, 7d**
- ▲ Compare the efficiency and energy consumption of several different methods of generating electricity that could be used locally. **1e, 1f, 4b, 4d**
- ▲ Earn the Energy Merit Badge (Boy Scouts of America) and explain how it helped you to understand the interactions of matter and energy. **1f, 4b, 4d**
- ▲ Trace the transformations of energy from the electric current that enters a CD player or boombox to a sound that can be heard as music. **1f, 4b**

32 Life Sciences Concepts

The student demonstrates conceptual understanding by using a concept accurately to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs or charts, as appropriate). Both aspects of understanding—explaining and representing—are required to meet this standard.

The student produces evidence that demonstrates understanding of:

- 32a** The cell, such as cell structure and function relationships; regulation and biochemistry; and energy and photosynthesis.
- 32b** Molecular basis of heredity, such as DNA, genes, chromosomes, and mutations.
- 32c** Biological evolution, such as speciation, biodiversity, natural selection, and biological classification.
- 32d** Interdependence of organisms, such as conservation of matter; cooperation and competition among organisms in ecosystems; and human effects on the environment.
- 32e** Matter, energy, and organization in living systems, such as matter and energy flow through different levels of organization; and environmental constraints.
- 32f** Behavior of organisms, such as nervous system regulation; behavioral responses; and connections with anthropology, sociology, and psychology.

Examples of activities through which students might demonstrate conceptual understanding of life sciences include:

- ▲ Create a picture book to explain how a producer converts solar energy to chemical energy through an ecosystem. **2a, 1c, 3a**
- ▲ Explain how cell functions are regulated to allow organisms to respond to the environment and to control and coordinate growth and differentiation. **2a, 2b, 2c, 2f, 1c**
- ▲ Predict how long a plant will live planted in a closed glass jar located by a window; and explain what additional information regarding the plant and the surrounding environment would be needed to improve the prediction. **2a, 1a, 3a, 3b**
- ▲ Create a working model to show how the instructions for specifying an organism's characteristics are carried in DNA and its subunits. **2b, 2c, 5c**
- ▲ Make a videotape debating the possible explanations for the extinction of dinosaurs. **2c, 2d, 7d**
- ▲ Make a storyboard and give a presentation to younger students explaining the increasing prevalence of dark forms of moths 150 years ago and the more recent return to light forms. **2b, 2c, 2d, 7d, E3c**
- ▲ Make a humorous travel brochure describing the pathway of a carbon dioxide molecule and an oxygen molecule through the living and non-living components of the biosphere. **2e, 1b**
- ▲ Earn the Ecology Merit Badge (Girl Scouts of the U.S.A.) or the Environmental Science Merit Badge (Boy Scouts of America) and explain how it helped you to understand the interdependence of organisms. **2d, 2e**
- ▲ Trace a candy bar from the time it is purchased to the time it is completely expended. **2e**
- ▲ Develop a recycling outreach program as part of a community service project to illustrate the limited availability of matter and energy in the ecosystem. **2c, 2d, 1c, 4b**
- ▲ Conduct an investigation to determine how different kinds of plants respond to various environmental stimuli. **2f**
- ▲ Research the development of, and recent advances in the theory of, evolutionary psychology. **2c, 2f, 4e**

These performance expectations for school and home, turn to page 67. Standards are in both the North Council's Science Education and the American Council on Education's Benchmarks for Science Literacy. These are the terms used in the descriptions.

3 Earth and Space Sciences Concepts

The student demonstrates conceptual understanding by using a concept accurately to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs or charts, as appropriate). Both aspects of understanding—explaining and representing—are required to meet this standard.

The student produces evidence that demonstrates understanding of:

- 3a** Energy in the Earth system, such as radioactive decay, gravity, the Sun's energy, convection, and changes in global climate.
- 3b** Geochemical cycles, such as conservation of matter; chemical resources and movement of matter between chemical reservoirs.
- 3c** Origin and evolution of the Earth system, such as geologic time and the age of life forms; origin of life; and evolution of the Solar System.
- 3d** Origin and evolution of the universe, such as the "big bang" theory; formation of stars and elements; and nuclear reactions.
- 3e** Natural resource management.

Examples of activities through which students might demonstrate conceptual understanding of Earth and space sciences include:

- ▲ Make a brochure providing an orientation to the climate of the local region to a newcomer; and explain the likely weather in that context. **3a**
- ▲ Explain the relationship between gravity and energy. **3a, 1d**
- ▲ Analyze the risk of natural disasters in the local region and make recommendations for actions that can be taken to mitigate the damage. **3a, 3b, 4b**
- ▲ Germinate seeds on a rotating platform and explain the observed growth pattern. **3a, 1d, 2e**
- ▲ Conduct a study of the geology of an area near the school; and describe the likely history of the region, using observations and reference materials. **3b, 3c**
- ▲ Diagram the birth, development, and death of a human; contrast with the geologic time frame of the origin and evolution of the Earth system or the universe. **3c, 3d, 2c**
- ▲ Work with other students to become an "expert panel" to describe the historical events leading to the development of the "big bang" theory. **3c, 3d, 5f**
- ▲ Write a research paper to explain how stars produce energy from nuclear reactions and how these processes led to the formation of other elements. **3d, 1a, 1b, 1c, 1f, E2a**
- ▲ Identify a place that is subject to periodic flooding, evaluate its positive and negative effects, and study different ways of maintaining, reducing, or eliminating the likelihood of flooding. **3e**

4 Scientific Connections and Applications

The student demonstrates conceptual understanding by using the concept to explain observations and make predictions and by representing the concept in multiple ways (through words, diagrams, graphs or charts, as appropriate). Both aspects of understanding—explaining and representing—are required to meet this standard.

The student produces evidence that demonstrates understanding of:

- 4a** Big ideas and unifying concepts, such as order and organization; models, form and function; change and constancy; and cause and effect.
- 4b** The designed world, such as the reciprocal relationship between science and technology; the development of agricultural techniques; and the reasonableness of technological designs.
- 4c** Health, such as nutrition and exercise; disease and epidemiology; personal and environmental safety; and resources, environmental stress, and population growth.
- 4d** Impact of technology, such as constraints and trade-offs; feedback; benefits and risks; and problems and solutions.
- 4e** Impact of science, such as historical and contemporary contributions; and interactions between science and society.

Examples of activities through which students might demonstrate conceptual understanding of scientific connections and applications include:

- ▲ Construct a computer-controlled robot arm that mimics the form and function of a human hand and forearm. **4a, 4b, 4c, 2a**
- ▲ Work with other students to give a presentation based on scientific principles arguing for a systemic solution to an environmental problem that concerns the school or community. **4a, 4b, 4c, 4d, 1a, 2d, 2e, A1b**
- ▲ Propose modifications to improve skateboards, in-line skates, bicycles, or similar objects to make them safer, faster, or less expensive. **4b, 4c, 1a, A1b**
- ▲ Conduct a study of the school cafeteria including: food storage and preparation, nutrition, and student preferences; and make recommendations for improvement. **4c, 4d**
- ▲ Debate the positive and negative consequences of a recently developed technological innovation. **4b, 4d, 4e, E3b**
- ▲ Earn the Food, Fibers, and Farming Merit Badge (Girl Scouts of the U.S.A.) and make a poster that shows understanding of agriculture or technology. **4b, 4c, 4d, 4e**



Samples of student illustrate standard-se performances for these dards can be found c pages 86-105.

The examples that fo performance descript each standard are ex of the work students do to demonstrate th achievement. The ex also indicate the natu complexity of activit are appropriate to ex students at the high s level.

The cross-references th low the examples high examples for which th activity, and possibly i the same piece of wo enable students to de strate their achieve relation to more than standard. In some cas cross-references highl examples of activities which students might strate their achieve relation to standards fo than one subject matte

5 Scientific Thinking

The student demonstrates skill in scientific inquiry and problem solving by using thoughtful questioning and reasoning strategies, common sense and diverse conceptual understanding, and appropriate ideas and methods to investigate science; that is, the student:

- 5a** Frames questions to distinguish cause and effect; and identifies or controls variables in experimental and non-experimental research settings.
- 5b** Uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.
- 5c** Uses evidence from reliable sources to develop descriptions, explanations, and models; and makes appropriate adjustments and improvements based on additional data or logical arguments.
- 5d** Proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.
- 5e** Identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.
- 5f** Works individually and in teams to collect and share information and ideas.

Examples of activities through which students might demonstrate skill in scientific thinking include:

- ▲ Evaluate the claims and potential benefits and risks of steroid use and apply the scientific evidence to a reported "case study" of an athlete. **5a, 5b, 5c, 5d**
- ▲ Predict how long a plant will live, planted in moist soil in a closed glass jar located by a window; explain what additional information would be needed to make a better prediction. **5a, 5b, 5c**
- ▲ Compare and contrast the nutritional value of several common brands of cereals. **5b, 5c, 5d**
- ▲ Compare and contrast lines of evidence for theories of dinosaur extinction. **5b, 5c, 5d, 2c, 2d**
- ▲ Explain the chain of inference in DNA testing and debate both positions regarding its inclusion as evidence in a capital trial. **5c, 5d, 1b, 1c, 2a, 2b, 4d**

6 Scientific Tools and Technologies

The student demonstrates competence with the tools and technologies of science by using them to collect data, make observations, analyze results, and accomplish tasks effectively; that is, the student:

- 6a** Uses technology and tools (such as traditional laboratory equipment, video, and computer aids) to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely, with appropriate consideration of accuracy and precision.
- 6b** Records and stores data using a variety of formats, such as data bases, audiotapes, and videotapes.
- 6c** Collects and analyzes data using concepts and techniques in Mathematics Standard 4, such as mean, median, and mode; outcome probability and reliability; and appropriate data displays.
- 6d** Acquires information from multiple sources, such as print, the Internet, computer data bases, and experimentation.
- 6e** Recognizes and limits sources of bias in data, such as observer and sample biases.

Examples of activities through which students might demonstrate competence in the tools and technologies of science include:

- ▲ Work with other students to repeat a historical series of experiments, such as those leading to the current understanding of photosynthesis, and write an essay comparing and contrasting the differences in available tools and technologies. **6d, 2a, 4d, 4e, 5c, 7b**
- ▲ Evaluate the accuracy and timeliness of information reported during the "life" of a hurricane or tropical storm. **6d, 3a, 4a, 5c**
- ▲ Use the Internet to get current information on a rapidly changing scientific topic. **6d**
- ▲ Use a computer interface to measure the velocity of objects. **6d, 1d, 5c**
- ▲ Use telecommunications to compare data on similar investigations with students in another state. **6d**
- ▲ Earn the Orienteering Merit Badge (Boy Scouts of America) and teach another student what to do if he or she gets lost. **6d, 3a, 5c, 7d**

These performance descriptions compare expectations for middle school and high school. Turn to page 167. The standards are from both the Research Council's Science Education and the American Association for the Advancement of Science's 161 Benchmarks for Science Literacy. The book of which this is one of a hundred pages, contains that amplifies the meaning of the terms used in the performance descriptions.

7 Scientific Communication

The student demonstrates effective scientific communication by clearly describing aspects of the natural world using accurate data, graphs, or other appropriate media to convey depth of conceptual understanding in science; that is, the student:

- 7a** Represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.
- 7b** Argues from evidence, such as data produced through his or her own experimentation or data produced by others.
- 7c** Critiques published materials, such as popular magazines and academic journals.
- 7d** Explains a scientific concept or procedure to other students.
- 7e** Communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow; critiquing written and oral explanations; and using data to resolve disagreements.

Examples of activities through which students might demonstrate competence in scientific communication include:

- Analyze a ballot initiative on a local endangered species. **7a, 7b, 2c, 4d, 5a**
- Critique a *Time* article which reports on something you have studied. **7c**
- Make a "claymation" video illustrating in simple terms how a virus attacks the human body. **7c, 2d, 4c, 5c**
- Give an oral report describing the change over time in local air quality. **7d, 2d, 3e, 4d, E3c**
- Earn the Model Design and Building Merit Badge (Boy Scouts of America) and explain what constitutes an effective model. **7d, 4b, 5c**
- Write an advertisement for a cold relief product that explains how it works. **7e, 4c, 5c, 5d, 6d**

8 Scientific Investigation

The student demonstrates scientific competence by completing projects drawn from the following kinds of investigation, including at least one full investigation each year and, over the course of high school, investigations that integrate several aspects of Science Standards 1 to 7 and represent all four of the kinds of investigation:

- 8a** Controlled experiment.
- 8b** Fieldwork.
- 8c** Design.
- 8d** Secondary research.

A single project may draw on more than one type of investigation. A full investigation includes:

- Questions that can be studied using the resources available.
- Procedures that are safe, humane, and ethical; and that respect privacy and property rights.
- Data that have been collected and recorded (see also Science Standard 6) in ways that others can verify, and analyzed using skills expected at this grade level (see also Mathematics Standard 4).
- Data and results that have been represented (see also Science Standard 7) in ways that fit the context.
- Recommendations, decisions, and conclusions based on evidence.
- Acknowledgment of references and contributions of others.
- Results that are communicated appropriately to audiences.
- Reflection and defense of conclusions and recommendations from other sources and peer review.

Examples of projects through which students might demonstrate competence in scientific investigation include:

- Investigate the effectiveness of common household cleaners on bacterial growth. **8a, 1c, 2a, 4c**
- Conduct research to determine if the incidence of asthma is related to weather. **8b, 3a, 4c**
- Conduct a study of the geology of an area near the school and describe the likely history of the region, using observations and reference materials. **8b, 8d, 3c, 6d**
- Compare and contrast the designs of different sports shoes and evaluate the designs considering the varying demands of different sports. **8c**
- Conduct an investigation to determine if the shape of a stereo speaker container affects sound quality. **8c, 1f**
- Study the distribution of a species in the region or state and discuss the likelihood of it becoming endangered. **8d, 2c, 5c, 6c**



Samples of student work illustrate standard-setting performances for these standards can be found on pages 86-105.

The examples that follow performance descriptors for each standard are examples of the work students do to demonstrate the achievement. The examples also indicate the nature and complexity of activities that are appropriate to expect students at the high school level.

The cross-references follow the examples highlight examples for which the activity, and possibly the same piece of work enable students to demonstrate their achievement relation to more than one standard. In some cases cross-references highlight examples of activities which students might demonstrate their achievement relation to standards in more than one subject matter.

Work Sample & Commentary: Density of Sand

The task

This work sample was an entry in a Golden State Examination Science Portfolio for the category "problem solving investigation." Students were required to submit a piece of work and the "Self-Reflection Sheet." In this case, the student designed and conducted an investigation to determine the density of sand.

Circumstances of performance

This sample of student work was produced under the following conditions:

- alone in a group
- in class as homework
- with teacher feedback with peer feedback
- timed opportunity for revision

The work was done with a partner and written up individually.

What the work shows

1b Physical Sciences Concepts: The student produces evidence that demonstrates understanding of the structure and properties of matter....

A B C Throughout the work, the student explained the relationship between mass, volume, and density, often with a level of detail revealing excellent conceptual understanding. There is also ample evidence that the student appreciated the relevance of density in everyday situations.

The Density of Sand

Purpose: To determine the density of a sample of sand with air around the sand granules and then the density of the sand alone.

Procedure:

<u>Find mass of sand + cup</u>	Record
<u>Find mass of empty cup</u>	Record
Subtract the mass of the empty cup from the mass of the sand + the cup. The result is the mass of the sand.	Record
<u>Put sand in a graduated cylinder, note volume.</u>	Record
<u>Remove sand, put 20 mL water in graduated cylinder.</u>	Record
<u>Add sand to water, note volume of sand + water.</u>	Record
Subtract the volume of the water (20 mL) from the volume of the water + the sand. The result is the volume of the sand.	Record

Data:

Mass of sand + cup (g)	Mass of cup (g)	Mass of sand (g)
17.30	1.85	15.45

Volume of water + sand (mL)	Volume of water (mL)	Volume of sand (w/o air) mL
28.0	20.0	8.0

Volume of with air: 10.4 mL

Density with air: $\frac{M}{V} = \frac{15.45 \text{ g}}{10.4 \text{ mL}} = 1.49 \text{ g/mL}$

Density without air: $\frac{M}{V} = \frac{15.45 \text{ g}}{8.0 \text{ mL}} = 1.93 \text{ g/mL}$

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This work sample illustrates a standard-setting performance for the following parts of the standards:

- 1b** Physical Sciences Concepts: Structure and properties of matter.
- 5a** Scientific Thinking: Frame questions to distinguish cause and effect; and identify or control variables.
- 5c** Scientific Thinking: Evaluate the accuracy, design, and outcomes of investigations.
- 5f** Scientific Thinking: Work individually and in teams.
- 6a** Scientific Tools and Technologies: Use technology and tools.
- 7e** Scientific Communication: Write instructions that others can follow.

5a Scientific Thinking: The student frames questions to distinguish cause and effect; and identifies or controls variables in experimental and non-experimental research settings.

D Here and throughout, the work displays evidence of appropriate scientific thinking and use of experimental data to reach conclusions.

5c Scientific Thinking: The student identifies problems; proposes and implements solutions; and evaluates the accuracy, design, and outcomes of investigations.

E F G The student continually evaluated and critiqued the appropriateness of the experimental design and the accuracy of the measuring process, and described the situations in which the techniques employed would be most effective.

Density of Sand

Calculations and Analysis:

1. This lab was conducted using sand sample A. The mass of the sand was found by finding the mass of the sand in the cup, and then subtracting the mass of the cup. The mass of the sand was 15.45 g. The sand's volume with air, which was found by placing the sand in a graduated cylinder, was 10.4 mL. The sand's volume without air, which was found using the water displacement method, was 6.0 mL.
2. The density of the sand with air was found to be 1.49 g/mL, and the density of the sand alone was 2.6 g/mL. The sand with the air had a lower density than the sand alone. The equation for density is mass divided by volume. For both density calculations, the mass of the sand was the same. However, the volume of the sand with the air was larger than the volume of the sand alone. This is because the grains of sand were separated by air, which made the volume larger than it would be if air was not present. Since the volume of the sand with air was larger, it had a lower density.
3. Our answers were compared with those of four other groups.

group #1:	density with air	1.4 g/mL
	density without air	2.5 g/mL
group #2	density with air	0.65 g/mL
	density without air	1.02 g/mL
group #3	density with air	3.0 g/mL
	density without air	1.5 g/mL
group #4	density with air	1.49 g/mL
	density without air	2.73 g/mL
4. Three out of the four groups we compared results with had answers very similar to our own. One group, #2, had results that were very different. Since density is an intensive property, the difference in sample sizes among the other groups should not have affected the results. Other groups also may have made errors in their measurements or in their procedures. By double-checking each group's measurements and calculations, it would be possible to determine which group had the most accurate results.
5. The procedure utilized in this lab would work well for small, irregular solids such as sand. Many objects, however, would be far too large to place in a graduated cylinder and use the water displacement method. In their instance larger containers could be used. It also would also be much easier to determine the density of regular solids using calculations of length, width, and other dimensions in conjunction mathematical formulas. This method was extremely successful in this example.

5f Scientific Thinking: The student works individually and in teams to collect and share information.

E Comparison of results among groups provided partial confirmation of results.

H The student has acknowledged the benefits of collaboration.

6a Scientific Tools and Technologies: The student uses technology and tools (such as traditional laboratory equipment...) to...measure objects directly, indirectly..., and with appropriate consideration of accuracy and precision.

I The student used traditional methods and understood them.

E Comparison of results among groups was an effective method for judging accuracy.

7a Scientific Communication: The student communicates in a form suited to the purpose and the audience, such as by writing instructions that others can follow....

GSE SELF-REFLECTION SHEET

GSE Self-reflection Sheet: Problem-solving Investigation

1. Thoroughly explain the scientific concept you are investigating in this entry. Give specific examples that show how this concept relates to your Problem-solving Investigation.

The purpose of this experiment was to determine the density of sand with air around it and the density of sand alone. The main concept in this lab is how the presence or the absence of air affects the mass and volume, namely through the sample. This investigation introduces the idea that density is an intensive property, a concept that is reinforced by providing for different groups to use varied amounts of sand when performing these calculations. Density of a given substance remains constant regardless of the size of the sample used.

2. Describe, in detail, the part or parts of this investigation YOU personally designed.

This lab contained only a purpose, not a procedure. It was up to the students to design the entire method of determining the density of the sand both with and without air. I designed the plan to use the water displacement method for the volume of the sand without air, and to simply place the sand in a graduated cylinder in order to find it's volume with air. Please see the procedure section on page 1.

3. Describe how the scientific concept you investigated in this component is related to a real-world issue or personal experience (you may include issues that affect society or the environment).

The difference in density of objects around us is an integral part of our world. It would be rather difficult to float in the bathtub if water's density were as low as that of air, and just as difficult if water had a density similar to that of a solid. In the same way, it is crucial to our way of thinking and living that density be an intensive property. If the density of a given substance varied with the size of the sample measured, the results could be catastrophic. Imagine buying a 4"x4"x4" block of wood with which to build your home, and finding it to be of a much different consistency and stability than a 50"x50"x50" block of the same type of wood! Everyday we rely on the properties of density for our most basic functions and activities. This experiment simply made us aware of them.

GSE Self-reflection Sheet: Problem-solving Investigation (cont'd)

4. Describe how working with others on this investigation helped to increase your understanding of science.

Although a hypothesis was not necessary in this investigation, my group worked together to develop a procedure in order to fulfill the purpose of this experiment. My partner and I brainstormed for a great length of time, debating the most efficient set-up and procedures to achieve the most accurate results. This involved many ideas being rejected as inefficient or inaccurate. For example, our first instinct was to simply spill the sand out onto the triple beam balance when determining its mass. Careful thought and discussion, however, caused us to realize that this would result in lost sand and therefore inaccurate results. We then devised a more accurate plan of weighing the sand within the cup, and then removing the sand from the cup and weighing the cup alone. We then subtracted the mass of the empty cup from the mass of the cup and the sand, and indirectly determined the mass of the sand. The entire procedure for this investigation was the result of a collaborative effort between my partner and I.

5. What did you conclude from the investigation? Was the conclusion the same as or different from what you expected? Describe how your observations and data support your conclusions.

From this investigation, we concluded that a sample of sand has a lower density when it is surrounded by air than when air is not present. My partner and I found sand surrounded by air to have a density of 1.49 g/mL, whereas sand that was not surrounded by air had a density of 2.6 g/mL. My partner and I found it interesting to discover that the presence or absence of air affects the density of a substance. This discovery was shown by the difference in our calculations of the density of the sand with air and without air. By comparing our results with those of other lab teams, we concluded that density is an intensive property. Although all of the teams used different amounts of sand in their calculations, their results were very similar, and in some cases identical to our own. This means that the density of a given substance does not change with the size of the sample measured.

H In chemistry, as in most areas in life, collaborative efforts achieve the most accurate results in the most efficient manner. Working with a partner or a with a group enables individuals to master concepts and ideas that would be difficult or impossible for them to understand on their own. While brainstorming ideas for the procedure, my partner and I were able to "bounce" ideas off of one another and receive feedback and new ideas in return. In the same manner, if one partner had overlooked a small detail that might impede the obtaining of accurate results, the second partner was quick to see that potential problem and propose a solution. Through exchanging ideas, critique, questions, and information, my partner and I were able to understand the concepts presented in this investigation.

Work Sample & Commentary: Photosynthesis

The task

This work sample was an entry in a Golden State Examination Science Portfolio for the category "Problem-solving investigation." Students were required to submit a piece of work and the "Self-Reflection Sheet." In this case, the student designed and conducted an investigation of the factors that affect the rate of photosynthesis.

Circumstances of performance

This sample of student work was produced under the following conditions:

- alone
- ✓ in class
- ✓ with teacher feedback
- timed
- ✓ in a group
- as homework
- ✓ with peer feedback
- ✓ opportunity for revision

The work was done with a partner and written up individually. It followed a unit on biochemistry and photosynthesis.

What the work shows

1c Physical Sciences Concepts: The student produces evidence that demonstrates understanding of chemical reactions, such as...electrons, protons, and energy transfer....

A B In his descriptions of photosynthesis, the student explained the chemical reactions and interactions of energy and matter, often with sophisticated detail. This understanding is evident throughout the work.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 1c** Physical Sciences Concepts: Chemical reactions.
- 1f** Physical Sciences Concepts: Interactions of energy and matter.
- 2a** Life Sciences Concepts: The cell.
- 2e** Life Sciences Concepts: Matter, energy, and organization in living systems.
- 3a** Scientific Thinking: Frame questions to distinguish cause and effect; and identify or control variables.
- 3b** Scientific Tools and Technologies: Use technology and tools.
- 7a** Scientific Communication: Represent data in multiple ways.

PHOTOSYNTHESIS LAB

Introduction:

Photosynthesis is an important process that is carried out within the chloroplast of plants. This reaction uses 6 CO₂ and the electrons from six water molecules (6 H₂O) to make glucose (C₆H₁₂O₆) and free oxygen (O₂), which will be explained in the conclusion. This reaction is powered by light, as the name implies (photo means light). The purpose of this lab is to discover how different wavelengths of visible light; red, orange, blue, and so on affect the process of photosynthesis. My hypothesis is that the water plant elodea will produce the lowest rate of photosynthesis when exposed to the green light, the highest with full spectrum white light, (because we see that green light is reflected by the plant and not absorbed by the plant) with the other wavelengths somewhere in between.

Procedures:

- The elodea plants will be placed in a solution of sodium carbonate in a test tube. An identical test tube of sodium carbonate without any plant material will be used to demonstrate that the sodium carbonate alone produces no reaction when exposed to the various wavelengths of light.
- Place a 5 cm length of elodea in a test tube, then carefully add 10 ml of sodium carbonate, making sure that no bubbles form around the plant. If bubbles do appear, gently flick the tube until they disappear. Place the test tube in the test tube rack.
- Prepare a second tube of 10 ml of sodium carbonate, leaving the plant out, and place it in the test tube rack next to the first tube.
- Shine a full spectrum white light on the two tubes for 3 minutes, and count the number of bubbles which float to the surface. Record your results in the data table below.
- Repeat the experiment, using colored cellophane over the white light source until all of the colors of cellophane have been tested and recorded.

During the test we saw bubbles form on the elodea leaves and counted only those bubbles that actually broke free from the leaves and floated to the surface of the sodium carbonate solution. The bubbles were produced the fastest when the white light was shining on the plant. No bubbles were produced in any of the plain sodium carbonate tubes.

Color of Light	# of bubbles over 3 min.
White	8
Red	5
Green	2
Yellow	3
Blue	2

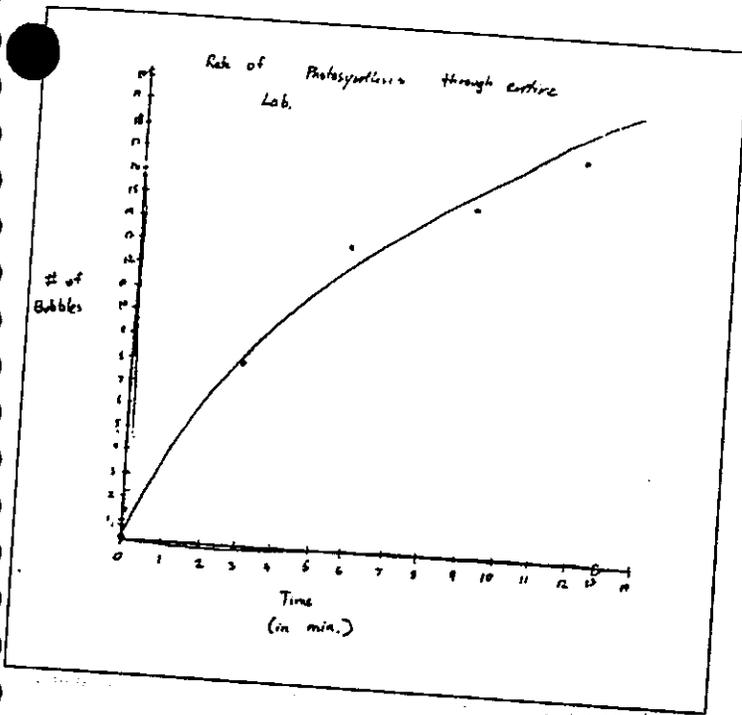
Rate of Photosynthesis

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1f Physical Sciences Concepts: The student produces evidence that demonstrates understanding of interactions of energy and matter, such as waves, absorption and emission of light, and conductivity.

C Here and elsewhere, the work shows evidence of understanding the interactions of matter and energy through the discussion of wavelengths of light. An alternative or additional explanation for the high rate of photosynthesis for the white light is that all of the colored filters reduced the intensity of the light, meaning that fewer photons reached the leaf. There is no mention of the intensity of the light, but from the description of the procedure it is unlikely that this variable was not controlled.

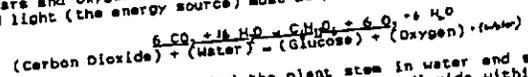
Photosynthesis



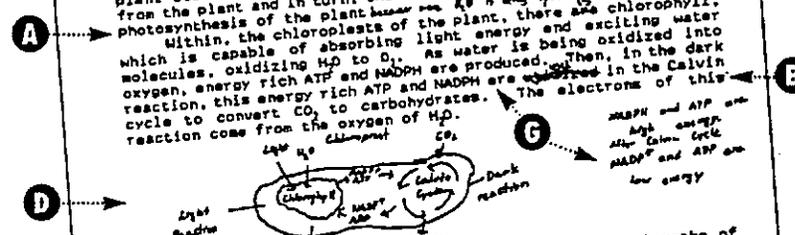
Conclusion:

We expected the green light to produce the least or no bubbles from the stem. Our hypothesis was partially correct. The tubes exposed to the green and blue light each gave off only two bubbles. The tube exposed to the yellow light gave off 3 bubbles, red light gave off 5, and the white light gave off 8 bubbles.

The concept of this lab is photosynthesis. Photosynthesis is the process in which carbon dioxide and water is turned to simple sugars and oxygen. In this reaction, chlorophyll (the catalyst) and light (the energy source) must be present.



In this lab, we soaked the plant stem in water and sodium carbonate. Sodium carbonate provided carbon dioxide within the water. Photosynthesis occurs in two basic reactions, light and dark reactions. The light reaction occurs first, oxidizing water to oxygen, and the dark reaction combines the hydrogen with carbon dioxide to form simple carbohydrates. Oxygen is given off as a waste product, which were what the bubbles we saw coming out of the plant stem were. The more bubbles, the more oxygen is produced from the plant and in turn, the more oxygen, the faster the rate of photosynthesis of the plant because O_2 is being split to O in the light reaction. Within the chloroplasts of the plant, there are chlorophyll which is capable of absorbing light energy and exciting water molecules, oxidizing H_2O to O_2 . As water is being oxidized into oxygen, energy rich ATP and NADPH are produced. Then, in the dark reaction, this energy rich ATP and NADPH are used in the Calvin cycle to convert CO_2 to carbohydrates. The electrons of this reaction come from the oxygen of H_2O .



For photosynthesis to be most efficient, two wavelengths of light must be present, one wavelength greater than 650nm (red) and one wavelength less than 650nm. This is why the white light had the fastest rate of photosynthesis. White light contains the whole visible color spectrum. In our lab, it seems that light with lower wavelengths don't supply energy as well as light with higher wavelengths since green, yellow, and blue light all had a slower rate of photosynthesis. We know this because our plant produced the least oxygen under these light conditions.

All life on earth is dependent on photosynthesis, directly or indirectly. Plants are the bottom of the food chain. They make food for themselves and are food for higher life forms. If all photosynthesis-capable life forms disappear, animals would slowly die.

E Life Sciences Concepts: The student produces evidence that demonstrates understanding of the cell, such as cell structure and function relationships; regulation and biochemistry; and energy and photosynthesis.

D In describing what happens in the chloroplast of the cell, the work shows evidence of understanding the structure and function relationships inside the cell. The entire piece of work demonstrates understanding of photosynthesis.

E Life Sciences Concepts: The student produces evidence that demonstrates understanding of matter, energy, and organization in living systems, such as matter and energy flow through different levels of organization; and environmental constraints.

F The explanation of the flow of energy offers evidence of sophisticated understanding of the dynamic process whereby plants produce energy and other organisms rely on that energy for survival.

G The phrase "energy rich ATP and NADPH" appears above and adjacent to the cell drawing. It is true that NADPH has reducing power, but it is not an energy source, although ATP is.

one by one would die of starvation. Also plants, during photosynthesis, produce oxygen for oxygen breathing life forms. Animals use oxygen by using carbon dioxide and creating oxygen as waste. Without plants, we would have no oxygen to breathe. Our conclusion is that different wavelengths of light does affect the rate of photosynthesis and the lower the wavelength, the faster the rate of photosynthesis. Our background information states that violet would also be an effective wavelength for photosynthesis. Unfortunately, we did not get a chance to test this color.

If there are any errors in conducting the experiment, it may have been in the experimental design. We could have weighed the plants as an additional control. We could have let the tubes stand in the light longer than 3 minutes, but I don't think either of these changes would have significantly changed the results of the experiment.

FURTHER TOPICS OF STUDY
Does the intensity of the light affect the rate of photosynthesis?

Photosynthesis

5a Scientific Thinking: The student frames questions to distinguish cause and effect; and identifies or controls variables in experimental and non-experimental research settings.

H Here and throughout, the work displays evidence of appropriate scientific thinking and use of experimental data to reach conclusions.

6a Scientific Tools and Technologies: The student uses technology and tools (such as traditional laboratory equipment, video, and computer aids) to observe and measure objects, organisms, and phenomena directly, indirectly, and remotely; and with appropriate consideration of accuracy and precision.

Appropriate tools and technologies are used effectively and procedures are executed thoughtfully.

7a Scientific Communication: The student represents data and results in multiple ways, such as numbers, tables, and graphs; drawings, diagrams, and artwork; technical and creative writing; and selects the most effective way to convey the scientific information.

Throughout the work, multiple representations (e.g., graphs, diagrams, and text) are effectively employed to enhance the communication of the scientific concepts.

GSE SELF-REFLECTION SHEET

1. Thoroughly explain the scientific concept you are investigating in this entry. Give specific examples that show how this concept relates to your Problem-solving Investigation.

Every time we take in a breath of air, we breath in oxygen. This oxygen is not infinite. It comes from plants carrying out photosynthesis, a complicated and beautiful process in which water and carbon dioxide is turned to oxygen and glucose. We breath in the oxygen, a waste product given off from the plants, while the plant uses the glucose. Normally, what powers this process is light from the sun. The purpose of this investigation is to explore how different wavelengths of light, or different power sources, effect the rate of photosynthesis. We investigated this by measuring the output of oxygen under different light sources. The more oxygen is produced, the faster photosynthesis had to run in the plant to produce this oxygen. (More info in Conclusion)

2. Describe, in detail, the part or parts of this investigation YOU personally designed.

I thought of what wavelengths of light we should investigate. I made sure that the choices were evenly spread over the color spectrum, to insure that most of the wavelengths of light are tested. I also designed the amount of time we should spend on each test counting bubbles, which was 3 minutes. I had to make sure that the time was long enough to get accurate test results while not so long that precious lab time is wasted.

3. Describe how the scientific concept you investigated in this component is related to a real-world issue or personal experience (you may include issues that affect society or the environment).

Every time we eat something, like hamburgers, hot dogs, spinach, and other foods, we are either directly or indirectly consuming the products of photosynthesis. It's obvious that when we eat plants, we are eating plants that nurtures itself with the glucose produced in photosynthesis. When we eat animals, those animals may have eaten other animals which may have eaten other animals which finally may have eaten the plant. The point is that if photosynthesis ceased to exist, there be no plants, which means there will be no animals because they feed on the non-existing plants and life on earth would just not be possible. Photosynthesis is a process we take for granted.

GSE Self-reflection Sheet: Problem-solving Investigation (cont'd)

4. Describe how working with others on this investigation helped to increase your understanding of science.

Before the lab, every single one of us was confused in their own way. When we got together and started discussing about it, our knowledge started to fill each other's gaps until we had the whole scientific concept of photosynthesis in our minds. Personally, I had no idea why the output of oxygen would tell us the rate of photosynthesis within the plant. I just knew the basic fact that the more oxygen produced, the faster photosynthesis is occurring. Now, we all know that the plant is not really trying to produce oxygen, but is producing glucose to nurture itself and oxygen just happened to be a waste product we need to survive produced while producing the glucose the plants need to survive.

5. What did you conclude from the investigation? Was the conclusion the same as or different from what you expected? Describe how your observations and data support your conclusions.

We concluded that different wavelengths of light do indeed effect the rate of photosynthesis. Our data shows oxygen being given off from the plant faster when red or white light was shined on the plant. We concluded that in the presence of red or white light, photosynthesis was occurring faster because the rate of oxygen being released indicated the speed of photosynthesis. We weren't surprised that white light was so effective because white light, unlike other colors, is not just one wavelength of light, but the whole spectrum of wavelengths of light combined. From the white light, the plant had access of every wavelength of light. We also found that in the presence of green light, the rate oxygen was being released was extremely slow compared to the other wavelengths of light, which means the rate of photosynthesis was also extremely slow. We conclude this is so because green is refracted from the leaves. When green light is shown on the plant, the plant probably reflects it back out instead of absorbs it because we could see the refracted green light. This is why plants are green. The results we saw was mostly what we expected because before starting the lab, we had the chance to get a lot of background information.

Work Sample & Commentary: *Bio-poem*

The task

Students in a high school biology class were asked to write a bio-poem about something they had learned. The biographical form required the students to include in their poems specific statements about characteristics, siblings, and needs.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-----------------------|--------------------------|
| ✓ alone | in a group |
| ✓ in class | as homework |
| with teacher feedback | with peer feedback |
| timed | opportunity for revision |

This task resulted from a series of assignments which allowed the students to express the relationships between living things in creative ways.

What the work shows

§2a Life Sciences Concepts: The student produces evidence that demonstrates understanding of the cell, such as cell structure and function relationships;... and energy and photosynthesis.

§2e Life Sciences Concepts: The student produces evidence that demonstrates understanding of matter, energy, and organization in living systems, such as matter and energy flow through different levels of organization....

B The student clearly identified the needs of plants and displayed understanding of the flow of energy between levels (plants to heterotrophs).

This work sample illustrates a standard-setting performance for the following parts of the standards:

§2a Life Sciences Concepts: The cell.

§2e Life Sciences Concepts: Matter, energy, and organization in living systems.

§4a Scientific Connections and Applications: Big ideas and unifying concepts.

§7d Scientific Communication: Explain a scientific concept or procedure to other students.

Plant

A Makes its own food, produces spores through meiosis,
captures energy from sunlight in thylakoid membranes, and passes
on genetic information to daughter cells **C**

Sibling of fellow plant cells formed by mitosis

Lover of fertilizer, light, and heat

Who feels at rest in winter, refreshed after rain,
and dehydrated in hot weather

B Who needs carbon dioxide, sunlight, and water
Who gives oxygen, carbohydrates, and the sole
source of energy for all heterotrophs

Who fears acid rain, weeds, and insects

Who would like to see more greenhouses,
preservation of rainforests, and less pollution

Resident of a leaf

Cell

§4a Scientific Connections and Applications: The student produces evidence that demonstrates understanding of big ideas and unifying concepts, such as order and organization...; change and constancy....

The student demonstrated a complex understanding of biology throughout the work. By relating genetics and reproduction to the physiological needs of the plant and the products of photosynthesis, the student integrated many important ideas of science.

§7d Scientific Communication: The student explains a scientific concept or procedure to other students.

C Using the bio-poem form, the student correctly explained several complex concepts related to plants. These concepts are complex to explain in simple language. In producing this type of poem the student demonstrated a deep understanding of the needs of, desirable conditions for, and energy flow through plants.

The use of "sibling" with respect to mitosis is a consequence of the literary form, not a misunderstanding of mitosis.



The quotations from Science performance descriptions in this commentary are excerpts. The complete performance descriptions are shown on pages 82-

Work Sample & Commentary: Erosion on the Minnehaha Creek

The task

The National Student Research Center (NSRC) encourages the establishment of student research centers in schools in the United States and around the world. The Center facilitates the exchange of information by publishing a journal of student investigations and by use of the Internet (nsrccmms@aol.com). It provides a standard format that students use to report their results. The format requires that students state a purpose and hypothesis; report their methods, data analysis, and conclusions; and suggest applications for their results.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone in a group
- ✓ in class ✓ as homework
- ✓ with teacher feedback ✓ with peer feedback
- timed ✓ opportunity for revision

What the work shows

- 3e** Earth and Space Sciences Concepts: The student produces evidence that demonstrates understanding of natural resource management.
- A** The student produced a list of hypotheses which is really a list of explanations that give evidence of conceptual understanding of the mechanisms of erosion.

Title: Erosion on the Minnehaha Creek

I. Statement of Purpose and Hypothesis:

The Minnehaha weaves through the city as a quiet creek that adds to the charm, beauty, and wildlife of the city. The creek is a recreational park that allows fishing, tubing, canoeing, and walks along the bank. The banks are eroding in many places causing problems such as damage to yards, houses, and city parks. Narrower and lost walkways along the parks prevent bikes, running, and walking along the creek. In addition, a significant amount of funds is required to correct the damage every year caused by erosion. A recent television program talked about erosion in the creek as a major problem for Minneapolis Park Board.

For these reasons, I chose my project to find more ways to prevent erosion along the creek and eliminate these problems. The questions I would like to answer include whether erosion control factors such as bank vegetation, trees, rocks, and storm drains reduce the amount of erosion along the Minnehaha Creek. This study may provide answers on how we can prevent erosion along it's banks. I want to know if erosion, as measured by the Erosion Index, is more where there is less erosion control present along the Minnehaha Creek. Specifically, the hypotheses to test include: 1) Erosion, as measured by the Erosion Index, is more at narrow and deep bends along the creek. 2) Erosion, as measured by the Erosion Index, occurs at places with less vegetation. These are places where there are no roots to hold the soil from being washed away by the water runoff. 3) Erosion, as measured by the Erosion Index, occurs where storm drains are not located along the creek. These places have higher erosion due to runoff from the rain making gullies and crevices. 4) Erosion, as measured by the Erosion Index, occurs at places with less trees on the banks.

This study will tell us whether these factors are important in controlling erosion along the creek. If so, these factors can be changed or implemented to provide a cost effective way of preventing erosion.

II. Methodology:

This study design will be an observational study to quantify the amount of erosion and erosion control factors that occur along the Minnehaha Creek. I hope to determine what factors play a role in erosion. Two independent observers will walk along a specific section of the creek to measure the

The Student Researcher. Used by permission of the National Student Research Center, Dr. John I. Swang, Mandeville Middle School, 2525 South Street, Mandeville, Louisiana 70448, 504-626-5980 or nsrccmms@aol.com.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 3e** Earth and Space Sciences Concepts: Natural resource management.
- 3a** Scientific Thinking: Frame questions to distinguish cause and effect; and identify or control variables.
- 3b** Scientific Thinking: Use concepts from Standards 1 to 4 to explain observations and phenomena.
- 3c** Scientific Thinking: Use evidence from reliable sources.
- 3d** Scientific Thinking: Distinguish between fact and opinion.
- 3e** Scientific Thinking: Identify problems and propose solutions.
- 3f** Scientific Thinking: Work individually and in teams.
- 3a** Scientific Tools and Technologies: Use technology and tools.

3e Scientific Thinking: The student frames questions to distinguish cause and effect; and identifies or controls variables in experimental and non-experimental research settings.

B C The work shows that a number of steps were taken to measure erosion, although the Erosion Index that plays a critical role in the study is not explained. However, there is detailed evidence that most of the critical variables were identified and controlled.

3b Scientific Thinking: The student uses concepts from Standards 1 to 4 to explain a variety of observations and phenomena.

A

Erosion on the Minnehaha Creek

55. Scientific Thinking: The student uses evidence from reliable sources to develop descriptions [and] explanations...; and makes appropriate adjustments and improvements based on additional data or logical arguments.

D The explanation of erosion control factors and probability is strong evidence of this student using data from the field study to reach a defensible conclusion.

55. Scientific Thinking: The student...distinguishes between fact and opinion.

D The student explained the mathematical basis upon which he built his conclusion.

55. Scientific Thinking: The student identifies problems; proposes...solutions....

E F The work shows that the student clearly identified and defined the problem and used data to back up the conclusions, recommending a practice to solve part of the problem.

55. Scientific Thinking: The student works individually and in teams to collect and share information and ideas.

G

56. Scientific Tools and Technologies: The student uses technology and tools (such as traditional laboratory equipment...) to observe and measure objects, organisms, and phenomena, directly, indirectly, and remotely, with appropriate consideration of accuracy and precision.

The student displayed attention to accuracy and precision by including the following steps: deciding on a representative sample, developing an observation form with help from experts, training independent observers, and taking observations from both sides of the creek.

amount of erosion and erosion control factors using the Erosion Index. I will obtain a map of about 10 blocks of the Minnehaha Creek from the Old Mill Dam in Edina to the city of Minneapolis. On the basis of on my preliminary observations, I feel this is a representative sample of the Creek that includes many areas of erosion and has had erosion control efforts completed to prevent erosion. In addition, this area is heavily used by pedestrians and is heavily populated with houses that may be effected by the erosion. First, I had to develop an index to score erosion and to score the presence of the erosion control factors. I did this with the help of the City of Minneapolis Park Board staff and specific references from my review of the literature. Then I designed a form for the observers to score the amount of erosion and erosion control factors as they walk along the creek. We needed two observers on both sides of the creek to make sure that the data collected was reliable. A score will be placed on the form for each block and each side of the creek inspected. Then I will add the scores up and compare the sum with the number in the erosion index that correlates to the bank and section. In addition, I will compare both of the numbers in a statistical analysis. This will include comparing the total of erosion control scores between blocks that have low erosion scores with an equal number of blocks that have high erosion scores.

III. Analysis of Data:

Three out of the 7 erosion control factors seem to correlate with less erosion or have a negative correlation with erosion. These are straight creek flow, shallow creek levels, and the rocks on the banks.

IV. Summary and Conclusion:

I have learned that most of the control factors are not a sure bet and that you cannot completely stop erosion. In addition, even if someone had all the factors they could not completely stop erosion. The best prevention is unfortunately not manmade and includes a straight creek and shallow water. If someone is trying to stop erosion and they do not live on a section of the creek that is straight, I would recommend that rocks and trees would work the best. Although the total correlation of all factors is close to zero the p-value (probability) is .83 which means that there is a big variance in the amount that erosion control factors effect erosion.

In general, I found out that when there were less Erosion Control Factors there was more erosion and when there was more Erosion Control Factors there was less erosion.

Application

I can apply this information in two ways. First, I can educate people on how to prevent erosion. Second, I can be more careful on how I treat the creek myself.

Work Sample & Commentary: Are Oysters Safe to Eat?

The task

The National Student Research Center (NSRC) encourages the establishment of student research centers in schools in the United States and around the world. The Center facilitates the exchange of information by publishing a journal of student investigations and by use of the Internet (nsrcmms@aol.com). It provides a standard format that students use to report their results. The format requires that students state a purpose and hypothesis; report their methods, data analysis, and conclusions; and suggest applications for their results.

Circumstances of performance

This sample of student work was produced under the following conditions:

- √ alone in a group
- √ in class as homework
- √ with teacher feedback with peer feedback
- timed √ opportunity for revision

What the work shows

2d Life Sciences Concepts: The student produces evidence that demonstrates understanding of interdependence of organisms, such as...cooperation and competition among organisms in ecosystems....

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2d** Life Sciences Concepts: Interdependence of organisms.
- 2e** Life Sciences Concepts: Matter, energy, and organization in living systems.
- 4c** Scientific Connections and Applications: Health, personal and environmental safety.
- 5a** Scientific Thinking: Frame questions to distinguish cause and effect; and identify or control variables.
- 5b** Scientific Thinking: Use concepts from Standards 1 to 4 to explain observations and phenomena.
- 5c** Scientific Thinking: Use evidence from reliable sources.
- 5d** Scientific Thinking: Distinguish between fact and opinion.
- 6a** Scientific Tools and Technologies: Use technology and tools.
- 6d** Scientific Tools and Technologies: Acquire information from multiple sources.
- 8a** Scientific Investigation: Controlled experiment.

TITLE: Louisiana Oysters: Are They Safe to Eat?

I. STATEMENT OF PURPOSE AND HYPOTHESIS:

The purpose of my research is to try and find out if raw Louisiana oysters, that many people love, are safe to eat. Studies have been done on the oysters to find out if they are harmful to humans, and many of these studies contradict one another. My hypothesis states that forms of salmonella and e. coli bacteria will be present in the oysters I test.

II. METHODOLOGY:

I began my research by stating my hypothesis and doing a review of the literature about the diseases caused by the eating of raw oysters. With this information, I developed a methodology and list of materials that would help me measure the amount of bacteria present in oysters, the amount of the bacteria that can be safely consumed, and the length of time needed to cook the oysters so that they are safe to eat.

For materials, I used twenty raw Louisiana oysters, boiling water for sterilization, a sterilized blender, an incubator, sterile swabs, four petri dishes, a tryptic soy agar with 5% sheep blood.

I began by sterilizing all equipment with boiling water for ten minutes. I then took five of the raw oysters and placed them in the blender until they were ground up. Then, using one of the sterile swabs, I smudged a small amount of the liquid from the oysters onto a petri dish. I then steamed five oysters for one minute, another five for three minutes, and another five for five minutes. I then ground up each of these groups of oysters separately and smudged a small amount of the liquid from each onto three different petri dishes. Next, I incubated all four of the petri dishes for about forty-eight hours. Then I counted the colonies and identified the types of bacteria that were present in each petri dish. I also determined what amount of each type of bacteria could be safely consumed.

III. ANALYSIS OF DATA:

The bacteria count in the raw oysters was much greater than in the steamed oysters because the steaming did kill many of the bacteria. However, the oysters that were steamed for three minutes contained less bacteria than the ones that were steamed for five minutes. This may have been due to the fact that I had a random selection of unweighed oysters in each group of oysters. Some of the oysters were larger than others and the heated steam may not have penetrated as deeply into them. Therefore the larger oysters may not have been as fully cooked and the bacteria in them not fully killed, causing this result.

In the five types of colonies found, one was a vibrio which is the worst bacteria and the second worst thing you could eat in an oyster. Vibrio cause gastroenteritis that may lead to bacteremia if the bacteria moves into the blood. The other four colony were types of pseudomonas that aren't harmful to humans unless you eat too many or have a health condition. Both vibrio types and the pseudomonas types are naturally found in the water that oysters are raised in, polluted or not.

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A Many animals and bacteria live in cooperation. The identification of bacterial forms that are naturally found in waters with oysters demonstrates understanding of this relationship.

B The use of agar as a growth medium and the identification of the need for sterile equipment provide evidence of understanding how bacteria grow as well as the importance of appropriate scientific procedures.

2e Life Sciences Concepts: The student produces evidence that demonstrates understanding of...organization in living systems, such as...environmental constraints.

C The student related the rate of bacteria growth to temperature and season.

4c Scientific Connections and Applications: The student produces evidence that demonstrates understanding of health, such as...personal and environmental safety....

The student offered two types of warnings regarding bacteria and oysters.

3 quotations from the
ence performance
criptions in this com-
entary are excerpted.
3 complete perfor-
nce descriptions are
wn on pages 82-85.

Are Oysters Safe to Eat?

D The first gives a method to reduce risk of bacterial infection significantly.

C The second indicates different levels of risk by season.

Both provide evidence of the quality of work expected at the high school level.

5a Scientific Thinking: The student frames questions to distinguish cause and effect; identifies and controls variables in experimental...research settings.

E The evaluation of data offers evidence that the student understood both variables she controlled and those she may have needed to control. The data analysis is focused and findings are used appropriately to answer the initial experimental question.

5b Scientific Thinking: The student uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.

F The student used concepts from **5d** here.

5c Scientific Thinking: The student uses evidence from reliable sources to develop descriptions, explanations...and makes appropriate adjustments and improvements based on additional data or logical arguments.

E G Discussion of unexpected results and critique of one's own procedures are the kind of scientific thinking that is required by this part of the standard.

5d Scientific Thinking: The student...distinguishes between fact and opinion.

D

5a Scientific Tools and Technologies: The student uses technology and tools (such as traditional laboratory equipment)...with appropriate consideration of accuracy and precision.

H The procedures are clearly reported, which makes it possible to find ample evidence that this part of the standard has been met. The use of sterile equipment was necessary for this investigation and shows appropriate attention to detail that is reflected in the reporting of the procedures.

5d Scientific Tools and Technologies: The student acquires information from multiple sources, such as print, the Internet...and experimentation.

The report is not explicit about how the bacteria were identified. Identifying bacteria is sophisticated work for a high school student. Assistance would have been appropriate (and should have been acknowledged).

Data Table		
	Number of Organism types	Number of colonies
Raw Oysters		
Steamed for 1 min.	5 types	100,000 +
Steamed for 3 min.	5 types	100,000 +
Steamed for 5 min.	1 type	1
	2 types	6

IV. SUMMARY AND CONCLUSION:

D I conclude that cooking oysters substantially reduces the amount of bacteria present in oysters. A Person would have to cook oysters until they were shriveled and small if they wanted to destroy 99% of the bacteria present in oysters. The only way to be sure you are not eating bacteria from oysters that may compromise your health is to not eat oysters at all because there are certain northeastern bacteria that aren't killed by cooking. These are not a problem in Louisiana.

G I reject my hypothesis. I did not find salmonella and e. coli bacteria in the oysters I tested. I did find bacteria that could make anyone sick not just those with compromised health as well as forms of bacteria that are only harmful if ingested in large quantities.

V. APPLICATION:

C My project can be a source for people to turn to with questions about eating oysters in Louisiana. For instance, during the warmer summer months of the year, bacteria that are found naturally in the waters of oyster beds reproduce at a greater rate. Thus raw oysters eaten at these times will be more likely to contain high levels of bacteria which could harm healthy individuals if eaten in great quantity and individual with compromised health conditions. My research indicates that some individuals may want to stop eating raw oysters at this time of the year or thoroughly cook them.

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5b Scientific Investigation: The student demonstrates scientific competence by completing a controlled experiment. A full investigation includes:

- Questions that can be studied using the resources available.

I

- Procedures that are safe, humane, and ethical; and that respect privacy and property rights.

H

- Data that have been collected and recorded (see also Science Standard 6) in ways that others can verify, and analyzed using skills expected at this grade level (see also Mathematics Standard 4).

D J

- Data and results that have been represented (see also Science Standard 7) in ways that fit the context.

J

- Recommendations, decisions, and conclusions based on evidence.

C D

- Acknowledgment of references and contributions of others.

- Results that are communicated appropriately to audiences.

C D

- Reflection and defense of conclusions and recommendations from other sources and peer review.

The student, as part of the NSRC format, loaded this work up onto the Internet for peer review. It is not stated whether this review informed the final report.

Work Sample & Commentary: Interview With Aspirin

The task

Students were asked to write a report on the benefits and risks of common medications. This student compared three medications: aspirin, acetaminophen, and ibuprofen.

Circumstances of performance

This sample of student work was produced under the following conditions:

- ✓ alone in a group
- ✓ in class as homework
- ✓ with teacher feedback with peer feedback
- timed ✓ opportunity for revision

What the work shows

2f Life Sciences Concepts: The student produces evidence that demonstrates understanding of behavior of organisms, such as nervous system regulation....

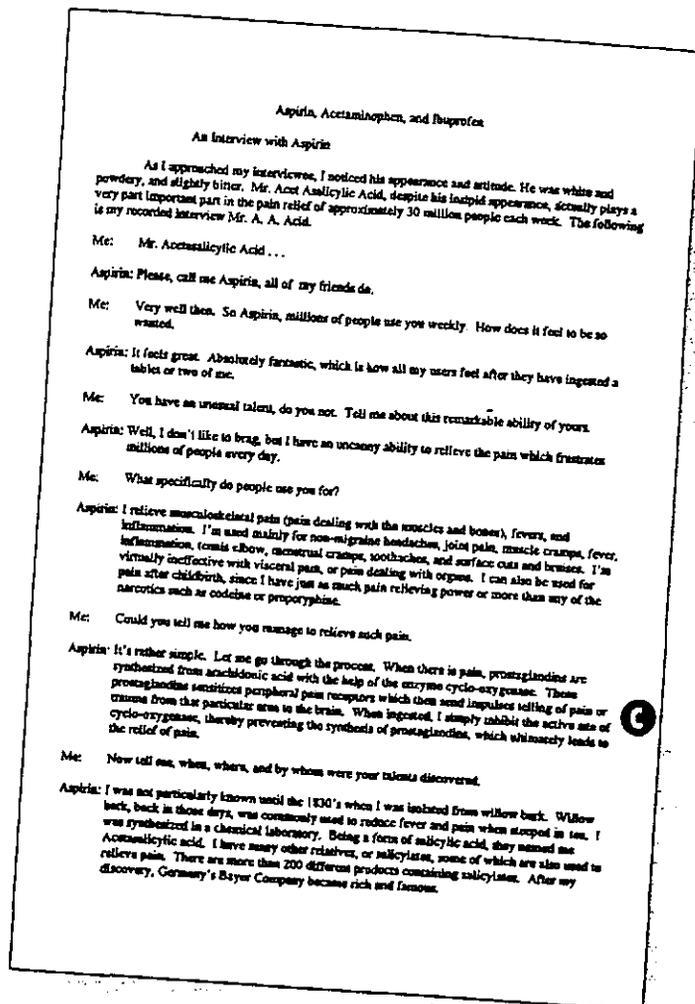
A The discussion of the effects of aspirin demonstrates understanding of homeostatic mechanisms on clotting and bleeding.

B The connection between overdose and effects on the central nervous system clearly shows conceptual understanding of system control, maintenance, and the benefits and risks of medication.

C The understanding that human systems are regulated by the production of specific chemicals is consistently demonstrated throughout this work.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2f** Life Sciences Concepts: Behavior of organisms.
- 4c** Scientific Connections and Applications: Health.
- 7a** Scientific Communication: Represent data in multiple ways.
- 7b** Scientific Communication: Argue from evidence.
- 7d** Scientific Communication: Explain a scientific concept or procedure to other students.
- 7e** Scientific Communication: Communicate in a form suited to the purpose and audience.
- 2a** Writing: Produce a report.



4c Scientific Connections and Applications: The student produces evidence that demonstrates understanding of health, such as...disease...; personal and environmental safety....

B Understanding of health is evident throughout this piece. For example, the distinction between curing ailments, reducing pain and fever, and the summary of the three medications shows understanding as well as detail.

7a Scientific Communication: The student represents data and results in multiple ways, such as...technical and creative writing.

The interview format is a creative way to provide a great amount of detail. This form requires the student to have a great deal of background knowledge and adequate understanding of the underlying concepts in order to present the information accurately.

Interview With Aspirin

7b Scientific Communication: The student argues from evidence, such as data produced through his or her own experimentation or...by others.

The work covers a range of information from uses to benefits and risks, giving a complete explanation and summary from varied sources. It does not consider the biases of these sources of information and this (apparently) uncritical acceptance of the information is a shortcoming of the piece.

7d Scientific Communication: The student explains a scientific concept or procedure to other students.

F The construction of the interview questions frames the topic in a way that allows an explanation of each medication to be given in depth. Careful attention to detail in the discussion of the effects of overdoses and how aspirin chemically blocks pain provides the clarity necessary to illustrate this part of **7**.

7e Scientific Communication: The student communicates in a form suited to the purpose and the audience....

The format for the comparison, an interview with each of the pain relievers, is an effective way of presenting information that could be tedious to read if presented in a traditional report. However, the format limits the depth of conceptual understanding that is demonstrated.

Me: Is Arachidonic acid one of your relatives?

Aspirin: No, but we both share the same parent group.

Me: You also have some undesirable traits, or, shall we say, side effects. Could you tell me about them.

Aspirin: I do. I usually don't like to talk about them, but I'll tell them to you, since you appear to be an intelligent, bright, shrewd, and acute young man. The side effects I have are many, but mainly don't affect those who are either allergic to me, or have stomachs that are irritated by me. It's their ulcers, severe bleeding, inflammation of mucous membranes, diarrhea, stomach cramps, asthma, severe breathing difficulty, skin rashes, shock, insulin shock, jaundice, kidney damage, ringing in the ears, nausea, blurred vision, mental confusion, vomiting, indigestion, and death. Many of the side effects for those who have problems digesting me can be taken care of if they take buffered aspirin. Less than 1% of the population is allergic to me. Those that are allergic to me are allergic to me, and should stay away from me. I don't want them to have me or my analgesic chikampox, should refrain from taking me, especially children with influenza or potential hazard for such people. It is believed that I increase the risk of having Reye's Syndrome in children with the flu or chikampox virus; though, it has not yet been clearly proven that I do so.

Me: Do you not also have an effect on the clotting of blood.

Aspirin: Yes, I do. I compromise the hemostatic mechanism which controls the coagulating type of capillary bleeding by irreversibly inhibiting platelet aggregation. Basically, in lay person's terms, I prevent the blood from clotting. In fact, after taking a single dose, or 650 mg, this effect can double bleeding time of, let me say, a tooth extraction, from 4 to 7 days. This is the reason why I'm not recommended for hemophilia, who naturally have poor blood clotting. **A**

Me: What happens when someone takes too much of you? **F**

Aspirin: Oh, nothing drastic. Overdoses with me are categorized as mild, moderate, and severe. The symptoms for an overdose are: lethargy, tinnitus, tachycardia and pulmonary edema, convulsions, coma, nausea, vomiting, hemorrhage, and dehydration. I also cause noticeable acid base disturbances. These range from respiratory alkalosis to metabolic acidosis. I can also cause severe internal bleeding. If there is a chronic loss of blood in the Gastrointestinal tract resulting from the continued use of me, this blood loss can cause an iron-deficiency anemia and alter hematological indices. Aspirin overdoses account for 37% of the non-prescription analgesic overdoses, which is the second most compared to the 40% of that other lesser Acetaminophen. Those who take too much of me in a single dose should note that increased doses increase the risk of side effects and doesn't significantly add to pain relief. I'm sure the people that take overdoses of me are wonderful people, I just don't want them die.

Me: Tell me about your competition.

Aspirin: What's there to say, my competition sucks. Let's look at Acetaminophen. Its ability to relieve pain and severe headaches is very similar to mine, but Acetaminophen has only weak anti-inflammatory activity, whereas I have superior anti-inflammatory activity. The only reason number of people in which Acetaminophen is less effective than me.

Me: How do you compare to Ibuprofen?

Aspirin: Uh -- um -- umm. Ibuprofen. I've never heard the buzz. I'm sure Ibuprofen is a lower just like Acetaminophen.

Me: Well, thanks for your time, information, opinions, etc., etc.

An interview with Acetaminophen

Acetaminophen is also an analgesic and antipyretic. This drug starts in several products such as Tylenol, Panadol, and Tempra, as well as many other non-aspirin pain relievers. This interview was done after that of Aspirin. The following is my interview with Mr. Acetaminophen.

Me: Mr. Acetaminophen, as an analgesic, what kind of ailments do you cure.

Acet: Well, I don't really cure anything. I do, however, reduce pain and fever. I am commonly used for headaches, fever, and muscle and joint pains. I am also best for pain secondary to dental surgery and osteoarthritis. **D**

Me: Who are your consumers?

Acet: Mainly children, who aren't supposed to take Aspirin. After all, Aspirin is the primary cause of death by poisoning among children under five. Aspirin has also been linked to the sometimes fatal complication of chikampox and influenza viruses called Reye's Syndrome. Other users are Aspirin-allergic people, and people with hemophilia. They are also unable to take Aspirin. Other users are people who just trust me over Aspirin and Ibuprofen, knowing that I have no real side effects, unless taken in large overdoses.

Me: Since I couldn't find anything about your history, we'll have to skip that part. So, how do you work to relieve pain?

Acet: Unlike Aspirin and Ibuprofen who produce analgesia by a peripheral effect, I produce analgesia through the Central Nervous System (i.e. the brain and spinal cord). Since I work on the CNS, I cannot really do much with inflammation. And again, since you couldn't find the specific, I can't really answer your question.

Me: Tell me what happens to people who do take large overdoses of you.

Acet: I mainly cause permanent damage to the liver and kidney. Symptoms of an Acetaminophen overdose are: nausea, vomiting, drowsiness, confusion, low blood pressure, and abdominal pain. Symptoms of severe overdoses are: CNS stimulation, excitement, cardiac arrhythmias, low blood pressure, and delirium. These are followed by CNS depression with a stupor, hypothermia, shock, and coma. Jaundice may also occur in severe overdoses. Many of these symptoms come from my effect on the CNS. **B**

Me: How would you rate yourself to Aspirin and Ibuprofen.

Acet: Well, I am better than them in the fact that I have no side effects and that I have no effect on platelet aggregation as both Aspirin and Ibuprofen do. I am just as effective and efficient as Aspirin is at relieving severe headaches and muscle pain. And though I am less efficient than Ibuprofen, meaning that it takes less of Ibuprofen to do what we do, I am just as effective as Ibuprofen is at relieving headaches and muscle pain. But of course, I'm still the best non-prescription analgesic in the business.

Interview With Aspirin

2a Writing: The student produces a report that:

- engages the reader by establishing a context, creating a persona, and otherwise developing reader interest;
- develops a controlling idea that conveys a perspective on the subject;
- creates an organizing structure appropriate to purpose, audience, and context;
- includes appropriate facts and details;
- excludes extraneous and inappropriate information;
- uses a range of appropriate strategies, such as providing facts and details, describing or analyzing the subject, narrating a relevant anecdote, comparing and contrasting, naming, explaining benefits or limitations, demonstrating claims or assertions, and providing a scenario to illustrate;
- provides a sense of closure to the writing.

The work is presented within the controlling idea of a series of interviews.

The reader's interest is engaged through the establishment of three independent personas in a familiar "interview-with-a-celebrity" format.

C The organizing structure of the interviews allowed the student to convey information to his teacher and fellow students in an interesting and memorable fashion.

The three sections, for the most part, include parallel facts and details, allowing for a useful comparison among the three pain relievers.

The student employed the strategy of communicating facts and details within a narrative.

E The student provided a clear sense of closure by summarizing the benefits and risks of three common medications.

An Interview with Ibuprofen

Last, but not least, came my interview with Ibuprofen. Ibuprofen is a much more recently developed analgesic, antipyretic, and anti-inflammatory drug. In these respects, it is much like Aspirin. Ibuprofen is found in Motrin, Nuprin, and Advil. Now, my interview with Mr. Bob Profun.

Mr: How do you work to reduce pain?

Mr: I work just as Aspirin does to relieve pain.

Mr: Mr. Profun, you are very similar to Aspirin, aren't you?

Mr: Yes, except I'm not chemically formulated the same and I am much better. Another difference is that I am classified as a nonsteroidal anti-inflammatory drug. Why I'm classified as something different than Aspirin is beyond me. Maybe it's because I am so much better.

Mr: How are you better than Aspirin?

Mr: Well, I have a reversible effect on platelet aggregation. The effect is reversed after 24 hours of the discontinuation of my use. I have a higher potential than aspirin for fast, long acting pain relief for mild to moderate pain.

Mr: How are you better than Acetaminophen?

Mr: I'm more efficient on a mg to mg basis than Acetaminophen as well as Aspirin. And I can reduce inflammation, fever, and pain whereas Acetaminophen can reduce only pain and fever.

Mr: You also have side effects. Could you tell me about them?

Mr: The only side effect I know of is my effect on platelet aggregation, which is like that of Aspirin except my effect is reversible. It is possible that I do have an effect on people that allergic to aspirin, but it's not proven. I don't know of any other side effects that I can cause.

Mr: What are the symptoms of an Ibuprofen overdose?

Mr: Symptoms are: nausea, vomiting, abdominal pain, lethargy, stupor, coma, dizziness, disorientation, lightheadedness, hypotension, bradycardia, tachycardia, dyspnea, and painful breathing. Unlike some certain other analgesics, I only account for 15% of accidental overdoses with non-prescription analgesics. I guess people feel so relieved after the first dose, they realize they don't need much more.

Mr: Who uses you?

Mr: It's not who uses me, it's who can't use me. I am not recommended for hemophiliacs. I am sometimes recommended for people allergic to Aspirin, but not often. Basically, there are very few people who can't use me.

A Comparative Summary on Aspirin, Acetaminophen, and Ibuprofen

Ibuprofen is more potent as an analgesic than either aspirin or acetaminophen. Ibuprofen, unlike aspirin, produces a reversible effect on platelet aggregation. Acetaminophen is preferred for those who have a history with hemophilia, for children, and for aspirin allergic people. Aspirin, despite its relative shortcomings, is still used as a common analgesic.

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- Seyler, Solomon H. ed. *Drugs & Pain*. Encyclopedia of Psychoactive Drugs Series 2. New York: Chelsea House Publishers, 1978.
- American Pharmaceutical Company. *Handbook of Nonprescription Drugs*. 10th ed. (1993). Turkington, Carol. *Painkillers and Antidotes*. New York: Maple-Vall Book Manufacturing Group, 1994.

Work Sample & Commentary: A Geographical Report

The task

Students were assigned to write a report for science class using at least five sources, only two of which could be encyclopedias. They were encouraged to include clarifications or illustrations of key points and a complete bibliography.

Circumstances of performance

This sample of student work was produced under the following conditions:

- √ alone
- √ in class
- √ with teacher feedback
- √ in a group
- √ as homework
- √ with peer feedback
- √ opportunity for revision

What the work shows

2d Life Sciences Concepts: The student produces evidence that demonstrates understanding of the interdependence of organisms, such as...cooperation and competition among organisms in ecosystems; and human effects on the environment.

A The student pointed out the necessity of having rabbits at the vernal pools to eat and then spread the seeds of digested plants.

B The pressure placed on this ecosystem is noted in the initial question.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2d** Life Sciences Concepts: Interdependence of organisms.
- 3e** Earth and Space Sciences Concepts: Natural resource management.
- 5a** Scientific Thinking: Frame questions to distinguish cause and effect.
- 5b** Scientific Thinking: Use concepts from Standards 1 to 4 to explain observations and phenomena.
- 5c** Scientific Thinking: Use evidence from reliable sources.
- 5d** Scientific Thinking: Consider alternative explanations.
- 7a** Scientific Communication: Represent data and results in multiple ways.
- 7d** Scientific Communication: Explain a scientific concept to other students.
- 7e** Scientific Communication: Communicate in a form suited to the purpose and audience.
- 8c** Scientific Investigation: Design.
- 8d** Scientific Investigation: Secondary research.

A GEOGRAPHICAL CONFLICT

My report is on a very rare and unique wetland that many people do not even know exists. They occur only in a few places around the world.

My topic is created by a specific geographical condition. Vernal pools in San Diego occur only on the local mesas and terraces, where soil conditions allow, but these are the ideal place for much of the city's urban and agricultural development. Is it possible to find a balance between the two conflicting purposes of expansion and preservation? **B**

This raises an interesting question; how can you establish vernal pools being thought of as a geographical asset?

METHODS

To answer my question I had to get information on vernal pools: what they are, where they are, and how they are a sensitive natural habitat. Then I needed to examine how city expansion is affecting vernal pools, and if it is apt to continue. I needed to know what the City thinks about the problem and what they are planning to do.

First I looked for any information available on vernal pools at public libraries, but I couldn't find what I was looking for. The topic is apparently too obscure. Next I went to a university library that had an environmental department, to get as much information as possible (University of San Diego).

I also interviewed several authorities in the field: the district representative for the U.S. Army Corps of Engineers, the federal agency responsible for the protection of wetlands; a senior environmental planner with the City of San Diego, who wrote the City's Resource Protection Ordinance **J**

3

C The student offered further explanation of human impact on this ecosystem.

B F The student made suggestions to minimize the damage caused by development.

3e Earth and Space Sciences Concepts: The student produces evidence that demonstrates understanding of...natural resource management.

F B H The student constructed a strong argument for the protection of the vernal pools.

5a Scientific Thinking: The student frames questions to distinguish cause and effect.... **B**

5b Scientific Thinking: The student uses concepts from Science Standards 1 to 4 to explain a variety of observations and phenomena.

F The student used conceptual information here and throughout the work to explain the pools and to develop the view of these wetlands as a geographical asset.



The quotations from Science performance descriptions in the commentary are excerpted from the complete performance description shown on pages 1-4.

The standards for school are set at the end of eighth grade for high school or of tenth grade. It is expected that students might achieve levels earlier and later than these grades. This work sample appears in the Standards Performance Standards Volume 1, illustrating a standard-setting performance in writing a report for the English Language standards at the school level. The actual understanding, however, is the level expected for school. Thus, we included the piece here despite the grade of the student produced it.

A Geographical Report

(RFD): the Station botanist at Miramar Naval Air Station, who is in charge of the vernal pool management plan on the land that has the largest number of pools remaining in the City of San Diego; a biologist working for RECON (Regional Environmental Consultants), a firm which is mapping the vernal pools for the City of Hemet, (another city in San Diego County facing the same issues); and finally a geographer working for SANDAG (San Diego Association of Governments), a regional organization that gathers, records, and analyzes data associated with regional planning and environmental issues. They answered many questions and offered their own ideas and information, including additional articles on my subject. I looked at several maps and photos of vernal pool locations, and charts of changing land use.

To decide how much education may be needed about vernal pools, I made a questionnaire, and surveyed two classrooms of elementary students, and a group of forty-two adults, trying to cover most age groups.

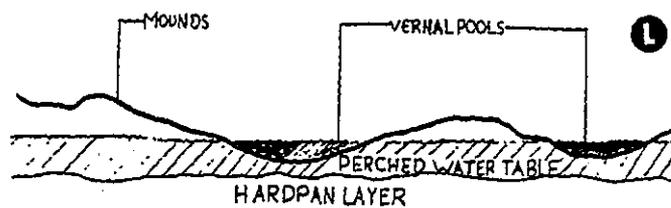
WHAT VERNAL POOLS ARE

Vernal pools are a unique and rare form of wetland. Wetlands are areas that are covered or soaked by water enough to support plants that grow only in moist ground. Some examples of wetlands are bogs, swamps, marshes, and edges of lakes and streams. These are what people think of when they hear "wetland". But vernal pools are different than these other types of wetlands. They are located on dry and flat places. No one would expect to find a wetland in such a dry area!

San Diego vernal pools are surrounded by small mounds called "mima mounds". The name mima mounds comes from the Mima Prairie near Olympia, Washington. People don't know for sure how mima mounds are formed. Some

think that they were formed by gophers piling up the earth. Others think that ice wedges from glaciers caused the upheaval, or maybe the wind pushed loose dirt, catching in clumps of shrubs. Mounds can be found on prairies or terraces with a hardpan or clay layer underneath.

Vernal pools are depressions between the mima mounds. In winter the pools are filled by rain storms. In spring the pools look their best, when plants are in full splendor. By summer the pools are dry and look only like a dry pothole. (See illustration of pool cycles and typical cross section.) A vernal pool does not dry by soaking into the ground; the layer of clay or rock underneath the pool prevents the water from soaking through. Instead they dry out from evaporation, or use by the plants. The mima mounds are not impervious so one pool tends to drain into another. Therefore, the pools have to be on flat land; the pools cannot be on a slope or the water would run off, and the pools would not be filled.



TYPICAL CROSS SECTION OF VERNAL POOL

5

5c Scientific Thinking: The student uses evidence from reliable sources to develop descriptions, explanations....

J K The student did not limit the work to what could be found at public libraries, but conducted interviews and a significant literature search to find the information needed.

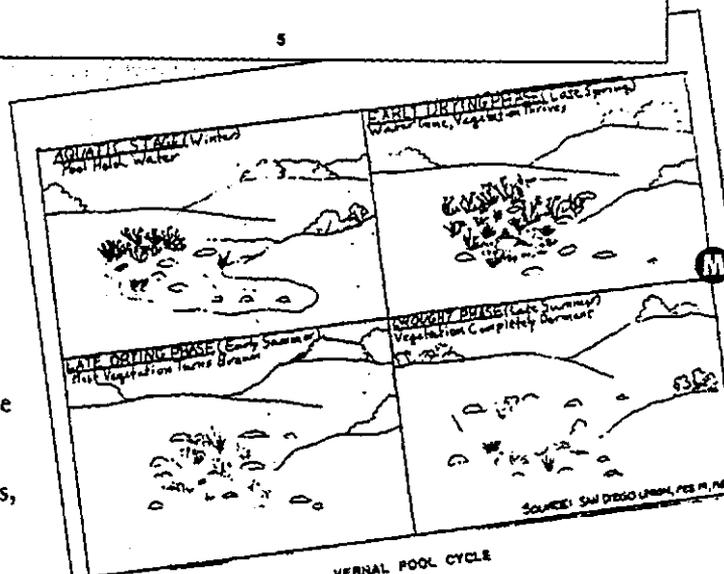
5d Scientific Thinking: The student proposes, recognizes, analyzes, considers, and critiques alternative explanations; and distinguishes between fact and opinion.

K Consideration of alternative explanations or solutions is not evident in the text itself, but the depth and breadth of the bibliography suggest that the work took into account a diversity of ideas.

7a Scientific Communication: The student represents data and results in multiple ways, such as...graphs; drawings, diagrams, and artwork; technical...writing; and selects the most effective way to convey the scientific information.

The student used a combination of clear writing, diagrams, and references to other portions of the work to clearly communicate the structure and cycles of these pools.

L M N The diagrams are particularly effective.



VERNAL POOL CYCLE

WHY VERNAL POOLS ARE SO IMPORTANT

Vernal pools are a very rare, specific habitat. Hardly any are left, so we don't have many to lose. There used to be vernal pools on many of the mesas and terraces of San Diego County, and the Central Valley of California. Now there are almost no vernal pools in the Central Valley, and an estimated 97% have been lost in San Diego County. An estimated 80% of the remaining pools in San Diego are located on Miramar Naval Air Station. (See map, next page.)

6

A Geographical Report

7d Scientific Communication: The student explains a scientific concept...to other students.

L M These drawings, which explain the cross-section of a vernal pool and the vernal pool cycle, are especially good examples.

7e Scientific Communication: The student communicates in a form suited to the purpose and the audience....

Throughout the work, the text succeeds in explaining and persuading.

8c Scientific Investigation: The student demonstrates scientific competence by completing a design project.

8d Scientific Investigation: The student demonstrates scientific competence by completing a secondary research project.

A full investigation includes:

- Questions that can be studied using the resources available.
- Procedures that are safe, humane, and ethical; and that respect privacy and property rights.
- Data that have been collected and recorded (see also Science Standard 6) in ways that others can verify, and analyzed using skills expected at this grade level (see also Mathematics Standard 4).

Throughout the work, the student left a clear path for another student to follow in order to replicate the investigation or verify the conclusions.

- Data and results that have been represented (see also Science Standard 7) in ways that fit the context.
- Recommendations, decisions, and conclusions based on evidence.

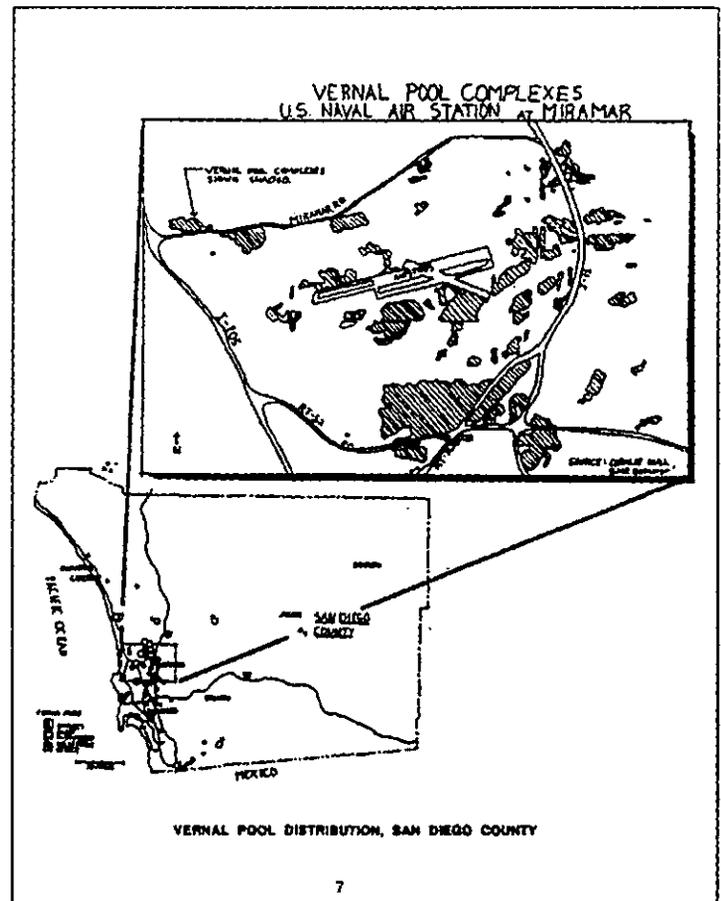
E N The student argued from evidence to draw conclusions and make recommendations in a way that is focused and coherent.

- Acknowledgment of references and contributions of others.

G Results that are communicated appropriately to audiences.

- Reflection and defense of conclusions and recommendations from other sources and peer review.

Peer review is not included in the work. However, the extensive communication with experts shows that the conclusions were informed, in part, with the help of iterative external review.



C It does not take much to disturb a vernal pool. Even grazing or off road vehicle use in the summer, when pool species are dormant and people could think they are just a dry hole, can damage them. Most are disturbed by grading and flattening of their habitat, or by breakup of the impervious layer. With just flat land there would be no depressions for vernal pools to form; what would form would be "vernal mud". With no impervious layer the water would just sink into the ground, and would be there only for a short period of time, not enough for wetland plants.

The mima mounds have to be protected too. If the watershed for the pools is changed, the condition of the pools changes. If there isn't enough water from runoff, then all plant or animal life in them disappears, because they need enough moisture at the right time, to live. If there is too much water, then the pool may turn into another kind of wetland, such as a bog.

Although people have begun to study them, there is still a lot to learn. One thing scientists know is that they are a part of a larger environment. Many animals travel from other areas to feed on plants or animals, or drink from the vernal pools. For example, water fowl from many other places will stop at the pools to eat the fairy shrimp and snack on the plants.

F Vernal pools have a large assortment of rare and exotic flora and fauna (plants and animals). Five of them are on the federal list of endangered species, and one more is a candidate for listing. The plants and animals in vernal pools are unusual because they have only developed recently compared to other changes in evolution. As scientists study the pools more intently they are finding more and more unknown species. There are temporary pools in other places around the world, but California's vernal pools are different because of their long drought phase, which causes the plants and animals to adapt to the climate. They go into a dormant phase. For example, fairy shrimp

A Geographical Report

lay eggs before the drought which hatch when it gets moist enough to be active. Some plants, in a short period of time, develop seeds; others appear to die out, but quickly sprout again from the rain. Many of these species cannot survive outside vernal pools, and some are "endemic" (species found only in a very restricted geographical area).

H

PROTECTION TECHNIQUES

The first step is to try to keep development away from vernal pools. But to do this you first need to know where the pools are. Thanks to regional mapping efforts, existing vernal pools have been fairly well identified in San Diego County.

D

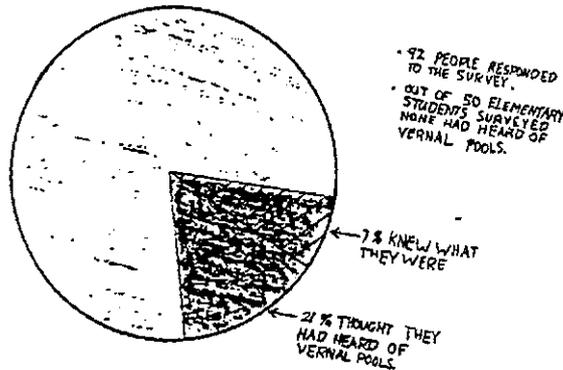
There are already laws against disturbances of vernal pools. You could go to jail or get fined a large sum of money for disturbing a wetland. The U.S. Fish and Wildlife Service protects the listed endangered species present, and the U.S. Army Corps of Engineers makes sure you don't fill any kind of wetland habitat, including vernal pools. The local office of the U.S. Army Corps of Engineers has submitted a proposal to Washington for a stricter permit process for vernal pools.

When possible the vernal pools should be part of a large preserve of open space. That way the pools would not be isolated islands, but part of their natural communities, and would be protected by a buffer of distance. Fences should not be put directly around the vernal pools unless it cannot be avoided, because it would keep some animals out, such as rabbits which spread plant seeds around when they eat them.

A

It is important to educate people about vernal pools so they know how important they are and what they look like, and so they know how to preserve

them. To see how much education may be needed in San Diego, I surveyed ninety-two people (forty-two adults and fifty elementary students to try to cover all age groups). I asked them if they had heard of vernal pools, and if they knew what they were. About 21% thought they had heard of them, but only 7% really knew what they were. (See pie chart.) I found that much education is needed.



SURVEY RESULTS

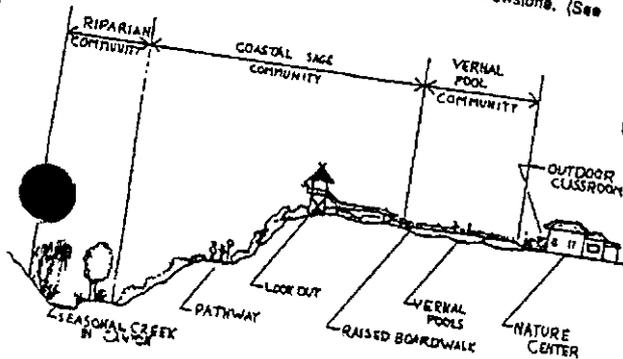
At N.A.S. Miramar the Station botanist has been putting articles dealing with vernal pools in almost every issue of the base newspaper. Now most people on the base know about vernal pools, and know how valuable they are.

RECOGNIZING AN ASSET

Education is a key to preserving vernal pools. Vernal pools are very unique and we do not have many to lose. Making new ones does not work. Studies done at the University of California, Santa Barbara, have shown that after five years their complexity goes down.

First, vernal pools must be protected. There could be different ranges of accessibility, from remote (available to research only), somewhat accessible (good for guided seasonal visits), to readily accessible (which may have to be protected by fencing or supervision). The most accessible ones would be a great educational opportunity for the general public. The pools closer to development could be developed into nature centers, with raised boardwalks to protect the habitat, as is done over the hot springs in Yellowstone. (See illustration.)

E



CROSS SECTION OF POSSIBLE NATURE CENTER

Interpretive signs and docents could provide information. Being very unique, vernal pools would make interesting learning centers. People would learn how the plants and animals adapt to the seasonal changes. This would teach people the importance of vernal pools, how complex they are, how to identify them, and how to preserve them when wet or dry. A park in the Sacramento area has an adjacent vernal pool with hiking trails around it; and it seems to work there because the people there know how important and delicate it is.

Ecotourism, a popular concept now, would be another idea. San Diego is a place where tourists already come. The very climate and geography that brings people here is what created vernal pools. Ecotourism would be easy to add to the other attractions, and would indirectly benefit the city. A tour company might be authorized to place advertisements to bring people to learn the importance of vernal pools and their ecosystem. With many people outside San Diego knowing about vernal pools and concerned about their well-being, there would be widespread support for vernal pool protection.

CONCLUSION

The problem of endangering vernal pools will not go away, because the City will need more land to develop. However, vernal pools remain a rare and unique wetland, and need protection. Even though there are laws made to protect them, pools are still being lost. Education is needed. Widespread education showing how important vernal pools are, and how easy they are to disturb, will create widespread support for protection.

A balance between expansion and preservation will not come easily, but if the public views vernal pools as a geographical asset, the balance will shift toward long-term vernal pool preservation.

A Geographical Report

K

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13

INTERVIEWS

- Senior research analyst, SANDAG (San Diego Association of Governments). January 6, 1995.
- Station botanist. U.S. Naval Air Station, Miramar. November 21, 1994.
- Director of biological services. RECON (Regional Environmental Consultants). December 6, 1994.
- Biologist. U.S. Army Corps of Engineers, San Diego Field Office. November 23, 1994.
- Senior Planner. City of San Diego, Environmental Services Department. December 7, 1994.

ACKNOWLEDGMENTS

First I would like to thank the library at the University of San Diego for supplying me with information and help. I would also like to thank all the people I interviewed, especially _____ for supplying me with two slides of a vernal pool. Also my uncle, _____ Department of Geography, Indiana University-Purdue University, Indianapolis, for information on mima mounds; and _____ Biology Department, University of San Diego, and _____ RECON, for recommending people to interview. I would like to thank Ms. _____ my former sixth grade teacher, and _____ Elementary School, for letting their classes take my survey.

Work Sample & Commentary: Compost

The task

Students were asked to design and conduct an experimental project that would improve the environment at their high school. The assignment, given to students in an environmental science class, followed a unit on the chemistry and biology of ground and water pollution.

Circumstances of performance

This sample of student work was produced under the following conditions:

- | | |
|-----------------------|----------------------------|
| alone | ✓ in a group |
| ✓ in class | as homework |
| with teacher feedback | ✓ with peer feedback |
| timed | ✓ opportunity for revision |

What the work shows

2d Life Sciences Concepts: The student produces evidence that demonstrates understanding of the interdependence of organisms, such as...cooperation and competition among organisms in ecosystems....

A B The work shows understanding of the interdependence of organisms, including populations, ecosystems, and food webs.

4a Scientific Connections and Applications: The student produces evidence that demonstrates understanding of the big ideas and unifying concepts, such as...models, form and function; change and constancy; and cause and effect.

C The compost bottle was a small scale model in which the variables could be controlled, then scaled up to the compost pile recommended in the conclusions.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 2d** Life Sciences Concepts: Interdependence of organisms.
- 4a** Scientific Connections and Applications: Big ideas and unifying concepts.
- 6a** Scientific Tools and Technologies: Use technology and tools.
- 6d** Scientific Tools and Technologies: Acquire information from multiple sources.
- 7a** Scientific Communication: Represent data and results in multiple ways.
- 8a** Scientific Investigation: Controlled experiment.

Our Compost Pile Project:

A Plan: We want to find out what kinds of insects help compost turn from just waste to useable mulch and soil helper. We also would like to know what conditions help to speed up the breaking down of the compost. Our final goal is to recommend the best placement of the school compost pile we are recommending to Mr. W. This will depend on light and water needed and if the pile needs insects that he might see as not desirable near a school. (roaches, flies etc.)

Procedure:

E 1. The materials we used for the Compost Column were: 2, 2 liter bottles and the cutting thing (with razor blade) and glue guns. We used the instructions for making the bottles from the Biology book.

2. Construct two bottles (see our drawing)

3. We filled the compost part of the bottles with grass clippings, fruit waste, and leaves. we put the same stuff in both bottles. We sealed the compost up in a pill and placed half in one and half in the other. We also measured the mass of the bottle with the compost in it to make certain. We adjusted the amount to account for a 12 gram difference in the bottles because of extra glue on one.

4. We put one bottle in a direct sunlight part of the room and the other in a location that only has sunlight in the morning. We selected right in the middle window in the back of the room facing south with full sun from 7AM until 6PM and on the east side of Mr. C's room where there is sun only from 7AM until about noon. We found that the south window also gets about 10 degrees hotter. This may effect our results. (these two locations are similar to the sun times of our two proposed sites for the school compost pile).

5. We watered both bottles and recorded the amount of water added each day. This needed to be the same in both bottles because we did not want to get more than one variable in our light experiment.

I 6. We took out a small sample of the compost (YUCK) and examined it with a hand lens and the microscope. WASH your hands and only do this again when you really have to! We recorded our observations in the data. (Later we voted to use gloves).

7. We did this for 2 weeks until we could identify some of the animals that came in with the compost and are helping to decompose the stuff (we think). We used a book on biology to help with identification. This was the most difficult part.

J 8. We were asked to throw the bottles away (it was very wasteful) after five weeks because they seemed to be the home of a big bunch of fruit flies. We decided to keep one compost column going and cover the top with a fine mesh cloth to keep the fruit flies in and continue our experiment. Also we wanted to use it when we present our idea of a compost pile to Mr. W.

D The discussion of the earwigs' niche shows an understanding of the interdependence of growth, population stress, and predator/prey relationships, all evidence of an understanding of change and constancy, and of cause and effect.

6a Scientific Tools and Technologies: The student uses technology and tools (such as traditional laboratory equipment...) to observe and measure...organisms and phenomena, directly....

E The students created the tools to make this investigation possible, overcoming the obstacle and impracticality of two full-size compost piles.

6d Scientific Tools and Technologies: The student acquires information from multiple sources such as print...and experimentation.

D D

Date:

Mass of compost in bottle 1: 512.0 g *U* *forget to weigh the bottles at the end so we didn't have any data we could use so this is just herobut we didn't use it!*

Mass of compost in bottle 2: 512.5g

Water Amounts: 100ml day 1 and 50 ml from day 2 to 10. (also 25 ml every other day. (none) on the weekend and did all the watering on Friday for Sat. and Sunday)

C Bottle Drawings:

F **COMPOST DWELLERS WE COULD IDENTIFY:**

F We could find lots of "stuff" we believe to be fungi. But, because we are interested more in the insects we just recorded it in the log or fungi and did not attempt this time to identify it.

G **Microscope:**

A Red to orange round insects that have four legs we could see: possibly mites. We found lots of these on the underside of leaves and grass. We saw these only with the microscope.

B The hair like worms. These were really thin and moved slower than we thought. We identified them as nematodes. There were, by simple count, the most abundant compost dwellers we could find. There were hundreds of them in almost every sample we looked at. There must be plenty of food for them. They were multiplying fast. The reference book says "they feed on decaying vegetation, bacteria and fungi" which we had lots of in the bottle. We also thought that not many of the bigger insects are there as a first choice or the population wouldn't have gone up so much each day. If we had watched it longer we think it would have leveled off and become the same day to day. Otherwise there would be more remaining than compost.

B ~~XXXX~~

D **Dermaptera** *2 pairs of legs* *3 leg pairs* *body segments*

H **Small Lizards and Insects:**

C Insects that looked like spiders with 8 legs. These we identified possibly centipedes. According to the Biology book they do not have the upright tail with the stinger. We could only see the stinger on the front and the one segment body similar to a spider. The stinger are probably used like a talon to catch and hold food.

D **Carvege:** These we recognized right away. They were by far the most numerous looking insects we saw. The classification book says they are omnivores (the book said that in biting a human can inflict a painful wound. We did not want to find out and wanted to use rubber gloves from them on experiment and leave first out of our bottle to find out if they need fruit to survive. We think they eat plants but also eggs. We found lots of eggs under the larger leaves and that is where we found the carvege mostly.

E **Carvege:** These bugs did not look as frightening. They have a cross-section mouthparts. It looks like a piece of armor or an arrowhead. They moved slow but did not respond in large numbers while we were doing this experiment. We only found three. They are feeding vegetation mostly and there was lots. We aren't sure what kept their population so low. There might be some old wood litter in the grass or the carvege eat them. We didn't have enough data to really say what kept their population low.

F **Worms:** The only worms we saw besides the microscopic ones were small redworms. We only saw a few at first and then by week three there were hundreds. We decided that if there had been a lot of the food eaten by the carvege we would see a lower population of worms and a much more carvege about when the worms were going to lay eggs. We didn't see that so they must not be the favorite food for the carvege.

F **Fruit Flies:** We aren't sure where these came in, but the eggs must have been there to start with because we had some flies by week four there were more than we could count flying around the room in the morning. The other explanation is that fruit flies were attracted to the compost and laid their eggs there during the experiment.

I **Other Observations:**

I **Other Observations:**

The insect population was about the same in both bottles. But, the larger insects and worms had reproduced faster in the fall sun location. The compost seemed to be better in the fall sun. The fall in the part sun went from 15 cm to 11 cm and stayed there for the rest of the experiment. The fall sun went from 15 cm to 9 cm and then back up to 11 before the last week. We think the insects are giving air (aerating) up the compost. Most mammals say you have to turn compost to give it air. We think that the insects do some of this.

The compost was in smaller pieces by the end of the experiment. We did not observe it much so we think that either the insects or the water or the heat helped break it down into smaller bits. But,

K **CONCLUSIONS:**

Our recommendation is that the compost pile be placed on the south side of the building just behind the driver's ed. classroom window. This location gets full sun all day and is close to a water hose or pail. We do think that you should only use yard waste and maybe fruit waste from the trees. If we have time we will experiment to find out which insects do the most good in a compost pile and see what we can add to the pile to make their numbers go up. We think that it is a waste to throw all that yard waste from all the grass away when we could make compost that other's broke into smaller pieces faster and seemed to decompose faster, the fall sun location would be better. This is because we would like the compost to break down quicker so that it can be used, so the pile it may stay a little smaller. The only disadvantage of this location is that the wind usually blows out of the southwest and the pile will be upwind from the new building. We thought that by placing it by the stovetop it would be far enough away (112 feet we measured) to dilute the smell and not cause a problem. The smell is the only bad effect of this location. The location is because a problem. We are willing to contact local landscapers to see if they will donate the for your time and reading our lab report.

57a Scientific Communication: The student represents data and results in multiple ways, such as...drawings...[and] technical writing....

- F G** The precision of the language, "we believe to be fungi" and "possibly mites," is excellent.
- C H** Drawings are used effectively.

58a Scientific Investigation: The student demonstrates scientific competence by completing a controlled experiment. A full investigation includes:

- Questions that can be studied using the resources available.
- The work shows consideration of appropriate resources by scaling down the compost pile to conduct the investigation accurately and practically in a pop bottle.
- Procedures that are safe, humane, and ethical; and that respect privacy and property rights.
- I J** The work also shows attention to safety and consideration for others.
- Data that have been collected and recorded (see also Science Standard 6) in ways that others can verify, and analyzed using skills expected at this grade level (see also Mathematics Standard 4).

This work shows thorough and appropriate documentation, both in the procedures and in the descriptions of the organisms that provide enough detailed information for others to replicate the investigation.

- Data and results that have been represented (see also Science Standard 7) in ways that fit the context.

C F G B

The writing contains some spelling and grammatical errors, but these do not detract from the quality of the report.

- Recommendations, decisions, and conclusions based on evidence.

I The conclusion is drawn from evidence.

- Acknowledgment of references and contributions of others.

B B

- Results that are communicated appropriately to audiences.

K The conclusion of the report is an appropriate recommendation to the school principal, "Mr. W.," as to where the school should keep a compost pile.

- Reflection and defense of conclusions and recommendation from other sources and peer review.

Evidence of peer review is not included in this report.

Introduction to the performance standards for

Applied Learning

Applied Learning focuses on the capabilities people need to be productive members of society, as individuals who apply the knowledge gained in school and elsewhere to analyze problems and propose solutions, to communicate effectively, and coordinate action with others, and to use the tools of the information age workplace. It connects the work students do in school with the demands of the twenty-first century workplace.

As a newer focus of study, Applied Learning does not have a distinct professional constituency producing content standards on which performance standards can be built. However, the Secretary's Commission on Achieving Necessary Skills (SCANS) laid a foundation for the field in its report, *Learning a Living: A Blueprint for High Performance* (1992) which defined the concept of "Workplace Know-how." We worked from this foundation and from comparable international work to produce our own "Framework for Applied Learning" (New Standards, 1994). That framework delineated nine areas of competence and spelled out their elements. The nine areas of competence were as follows:

- Collecting, analyzing, and organizing information;
- Communicating ideas and information;
- Planning and organizing resources;
- Working with others and in teams;
- Solving problems;
- Using mathematical ideas and techniques;
- Using technology;
- Teaching and learning on demand;
- Understanding and designing systems.

The Applied Learning performance standards have been built upon this framework. The standards have also been built on the experience of the Fort Worth Independent School District's applied learning initiative and the application projects developed by Mountlake Terrace High School in Washington.

We adopted the approach of developing distinct standards for Applied Learning rather than weaving them through the standards for the core subject areas. The advantage of establishing distinct standards for Applied Learning is that it focuses attention on the requirements of these standards and asserts an explicit role for Applied Learning as a domain for assessment and reporting of student achievement. "Cross-curricular" standards run the risk of being absorbed and lost within the expectations of the different subjects. However, the disadvantage of this approach is that it may be interpreted as advocating the development of Applied Learning as a subject in its own right to be studied in isolation from subject content. That is not the intention of these standards. We do not advocate development of Applied Learning as a separate subject. We expect that the work students do to meet the Applied

Learning performance standards will take place generally within the context of a subject or will draw on content from more than one subject area. This expectation is stated in the performance description for **A1**, Problem Solving.

There are five performance standards for Applied Learning:

- A1** Problem Solving;
 - A2** Communication Tools and Techniques;
 - A3** Information Tools and Techniques;
 - A4** Learning and Self-management Tools and Techniques;
 - A5** Tools and Techniques for Working With Others.
-

A1, Problem Solving is the centerpiece of the standards. The performance description defines problem solving projects focused on productive activity and organized around three kinds of problem solving:

- Design a product, service or system in which the student identifies needs that could be met by new products, services, or systems and creates solutions for meeting them;
- Improve a System in which the student develops an understanding of the way systems of people, machines, and processes work; troubleshoots problems in their operation and devises strategies for improving their effectiveness;
- Plan and organize an event or an activity in which the student takes responsibility for all aspects of planning and organizing an event or an activity from concept to completion.

The performance description specifies the criteria for each kind of problem solving project. These criteria become progressively more demanding from elementary school to high school.

The four "tools and techniques" standards are designed to work in concert with the Problem Solving standard. Each of these standards describes tools and techniques that are needed for success in completing projects of the kinds outlined above.

The tools and techniques described in **A2-A5** (such as gathering information, making a multi-media presentation, learning from models, and working as a member of a self-directed team) are only meaningful when considered in the context of work that has a genuine purpose and audience. The key to effective use of these tools and techniques is the capacity to put them to use in an integrated way in the course of completing a real task. It is critical, therefore, that they be learned and used in such contexts rather than practiced in a piecemeal way as skills for their own

sake. Students are expected to demonstrate their achievement of the tools and techniques standards in the context of problem solving projects. This is reflected in the examples listed under the performance descriptions. At the same time, it is unlikely that any one project will allow students to demonstrate their achievement in relation to all of the standards. This is evident from the work samples and commentaries. In fact, it is likely that a project that attempts to cover all of the parts of the standards will accomplish none of them well.

The Applied Learning performance standards reflect the nine areas of competence defined in the "Framework for Applied Learning." But the match is not complete. ■6, ■8, ■6, and ■8 embody many of the competencies that were defined by the "Framework for Applied Learning" in "Using mathematical tools and techniques" and "Using technology." These competencies have not been duplicated in Applied Learning. However, the Applied Learning standards do include an explicit requirement that students use information technology to assist in gathering, organizing, and presenting information. At the high school level, the requirements include using appropriate software to create documents, data bases, and spreadsheets, in addition to using on-line sources. Given the importance of ensuring all students develop the capacity to make effective use of information technology, we resolved that the overlap among the standards in this area was warranted. (See "Introduction to the performance standards for Science," page 80, for discussion of the resource issues related to this requirement.)

Another area in which we decided that some overlap was warranted relates to ■2. The first part of this standard, which involves an oral presentation, is similar to one of the requirements of the Speaking, Listening, and Viewing standard in English Language Arts (■3). The difference is that the Applied Learning standard focuses explicitly on presenting project plans or results to an audience with expertise in the relevant subject matter, while the purpose and audience for the presentation are not specified in ■3. As the cross-referencing of examples under the performance descriptions indicates, oral presentations that meet the requirements of ■2a may also satisfy the requirements of ■3c; however, the reverse would not necessarily be the case. ■2b is also similar to the report included in ■3c. However, ■2b requires a specific purpose and audience, whereas these are not specified by the Writing standard. Accordingly, a report produced to meet the requirements of ■2b may also satisfy the requirements of ■2c, but the reverse would not necessarily be true.

The capacities defined by the tools and techniques standards (■2-■3) are difficult to pin down. There is a tendency to describe them in terms of general dispositions that render them almost impossible to assess in any credible way. Each part of these standards is defined in terms of a work product or performance that students can use to provide concrete evidence of their achievement. The overall set of products and performances required to meet the standards is similar at each grade level, but the spe-

cific requirements differ and grow in demand from elementary to high school. (See "Appendix IV: The Grade Levels Compared: Applied Learning," page 168.)

The first year of developmental testing of Applied Learning portfolios in 1995-96 provided an opportunity to test these performance standards (as they were presented in the *Consultation Draft*) in practice. Students in about 50 classrooms conducted projects designed around the standards. Their experience and the experience of the teachers who supported them was a valuable source of information for refining the performance descriptions. Refinements were also made in response to reviews by representatives of business and industry groups and community youth organizations, such as 4-H, Girl Scouts of the U.S.A., Boy Scouts of America, Junior Achievement, and Girls and Boys Clubs of America. The refinements were largely confined to the detail of the performance descriptions, but there were two more significant changes, both related to ■. The first was the definition of more explicit requirements for using information technology, especially at the high school level, in response to comments from business and industry representatives. The second was the inclusion of a specific requirement for "research" as set out in ■a. Research was implicit in the draft performance standards. The decision to make it explicit arose in the process of review of student projects where it was clear that the successful projects were those in which students had invested energy in research and could demonstrate that research in the work they produced.

Experience in using the standards to shape student work raised several issues. It was notable that most projects focused on "design" and on "planning and organizing." There were fewer examples of "improving a system." This was not surprising, but indicates the need to focus attention on gathering examples of such projects.

The circumstances in which the projects were conducted varied markedly. Some projects were initiated by the teacher and some were initiated by students; some projects were conducted by whole classes, some by small groups of students, and some by individuals; some projects were conducted as part of classwork and some were conducted largely outside class. It was clear, however, that regardless of how a project was initiated, a critical part of its success was the development of a sense of responsibility among the students involved for figuring out the work that needed to be done to complete the project and for making sure that the work got done. What was less clear were the relative merits of different arrangements of whole class, small group, and individual projects. A further question was the appropriate level of scaffolding of projects by teachers and the degree of scaffolding that is appropriate at different grade levels. Our capacity to resolve this last issue was complicated by the fact that, for most of the teachers and students involved, these were the first projects of this sort they had ever undertaken. The work samples and commentaries should be read with this fact in mind. These are issues that can only be resolved through practice and experience.

...fully drivable, fully operational solar/electric car. I am
 ...almost by coincidence. High School received an electric
 motor, a speed control, and two batteries from P.J.D in early November.
 ...for a number of years a solar/electric vehicle. Immediately I
 turned at the rare opportunity to build the Electro-Hawk 1. Unfortunately

Performance Descriptions



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Problem Solving

Apply problem solving strategies in purposeful ways, both in situations where the problem and desirable solutions are clearly evident and in situations requiring a creative approach to achieve an outcome.

The student conducts projects involving at least two of the following kinds of problem solving each year and, over the course of high school, conducts projects involving all three kinds of problem solving.

- **Design a Product, Service, or System:** Identify needs that could be met by new products, services, or systems; and create solutions for meeting them.
- **Improve a System:** Develop an understanding of the way systems of people, machines, and processes work; troubleshoot problems in their operation; and devise strategies for improving their effectiveness.
- **Plan and Organize an Event or an Activity:** Take responsibility for all aspects of planning and organizing an event or activity from concept to completion, making good use of the resources of people, time, money, and materials and facilities.

Each project should involve subject matter related to the standards for English Language Arts, and/or Mathematics, and/or Science, and/or other appropriate subject content.

Design a Product, Service, or System

2a The student designs and creates a product, service, or system to meet an identified need; that is, the student:

- develops a design proposal that:
 - shows how the ideas for the design were developed;
 - reflects awareness of similar work done by others and of relevant design standards and regulations;
 - justifies the choices made in finalizing the design with reference, for example, to functional, aesthetic, social, economic, and environmental considerations;
 - establishes criteria for evaluating the product, service, or system;
 - uses appropriate conventions to represent the design;
- plans and implements the steps needed to create the product, service, or system;
- makes adjustments as needed to conform with specified standards or regulations regarding quality or safety;
- evaluates the product, service, or system in terms of the criteria established in the design proposal, and with reference to:
 - information gathered from sources such as impact studies, product testing, or market research;
 - comparisons with similar work done by others.

Examples of designing a product, service, or system include:

- ▲ Design software for managing portfolio work. **2b, 4a**
- ▲ Design an electricity-powered vehicle to enter in a competition. **2a, 5a, 51d, 51e, 54a, 54b**
- ▲ Design a plan for development of a park recreation area. **2a, 2c, 5a, 5b, 53e, 54b**
- ▲ Design and build a staircase. **M2i, M6a, M6i, M8c**
- ▲ Design a market research service, providing advice on best-value products. **3b, 5b, M4b, M4c, M4d, M4e**
- ▲ Design a business plan for publication of a magazine. **M3a, M3i, M8**
- ▲ Design and build a cantilevered wooden deck. **2a, M2a, M2d, M2i, M6a, M6i, M8c**
- ▲ Design a tourist guide for the local area. **2c, 3b, 5c, E7b**
- ▲ Design a tutoring program in desktop publishing. **3b, 5b**

Improve a System

1b The student troubleshoots problems in the operation of a system in need of repair or devises and tests ways of improving the effectiveness of a system in operation; that is, the student:

- explains the structure of the system in terms of its:
 - logic, sequences, and control;
 - operating principles, that is, the mathematical, scientific, and/or organizational principles underlying the system;
- analyzes the way the system works, taking account of its functional, aesthetic, social, environmental, and commercial requirements, as appropriate, and using a relevant kind of modeling or systems analysis;
- evaluates the operation of the system, using qualitative methods and/or quantitative measurements of performance;
- develops and tests strategies to put the system back in operation and/or optimize its performance;
- evaluates the effectiveness of the strategies for improving the system and supports the evaluation with evidence.

Examples of troubleshooting problems in the operation of a system or improving the effectiveness of a system in operation include:

- ▲ Troubleshoot and repair faults in the operation of an automobile, tractor, or computer based communications system.
- ▲ Customize applications software for financial management to better suit a specific use. **2b, 4a, 5c**
- ▲ Improve the system of waste management in a community access area. **2c, 51c, 52d, 54b**
- ▲ Improve the yield of a farm or garden plot. **2a, 3a, 52b, 54b,**
- ▲ Improve the system for emergency evacuation of the school. **2a, 2b, 5c**

Plan and Organize an Event or an Activity

1c The student plans and organizes an event or an activity; that is, the student:

- develops a planning schedule that:
 - is sensible in terms of the goals of the event or activity;
 - is logical and achievable;
 - reflects research into relevant precedents and regulations;
 - takes account of all relevant factors;
 - communicates clearly so that a peer or colleague could use it;
- implements and adjusts the planning schedule in ways that:
 - make efficient use of time, money, people, resources, facilities;
 - reflect established priorities;
 - respond effectively to unforeseen circumstances;
- evaluates the success of the event or activity using qualitative and/or quantitative methods;
- makes recommendations for planning and organizing subsequent similar events or activities;

Examples of planning and organizing an event or activity include:

- ▲ Organize a public exhibition of student artwork. **4a**
- ▲ Organize a weekend volunteer cleanup of a neighborhood. **3a**
- ▲ Arrange a series of career information seminars. **5a**
- ▲ Organize a community festival to promote local businesses.
- ▲ Organize a team sports tournament. **M1i, M5**
- ▲ Organize a schedule for practices and events at the school gymnasium and swimming pool, taking account of home and away games, junior varsity and varsity, and boys' and girls' teams. **M1i, M3a, M3i, M5**

Communication Tools and Techniques

Communicate information and ideas in ways that are appropriate to the purpose and audience through spoken, written, and graphic means of expression.

- 2a** The student makes an oral presentation of project plans or findings to an audience with expertise in the relevant subject matter; that is, the student:
- organizes the presentation in a logical way appropriate to its purpose;
 - adjusts the style of presentation to suit its purpose and audience;
 - speaks clearly and presents confidently;
 - responds appropriately to questions from the audience;
 - evaluates the effectiveness of the presentation and identifies appropriate revisions for a future presentation.

Examples of oral presentations include:

- ▲ A presentation of designs for a building or cantilevered wooden deck to an audience including an architect and civil engineer; or designs for a vehicle to an audience including a person with expertise in electronics. **1a, 5a, E3c**
- ▲ A presentation of proposals for design of a recreation area to the local parks authority. **1a, 2c, 5a, 5b, E3c**
- ▲ A presentation of findings of research into the system for emergency evacuation of the school to a panel including representatives of the police and fire departments. **1b, 2b, 5c, E3c**
- ▲ A presentation of a report on improving the yield of a farm or garden plot at an agricultural field day or horticultural show. **1b, 3a, E3c**

- 2b** The student prepares a formal written proposal or report to an organization beyond the school; that is, the student:

- organizes the information in the proposal or report in a logical way appropriate to its purpose;
- produces the proposal or report in a format similar to that used in professionally produced documents for a similar purpose and audience.

Examples of written proposals and reports include:

- ▲ A proposal to a software design company for marketing software. **1a, 4a**
- ▲ A submission to a community organization in response to its request for a proposal to develop customized financial management software. **1b, 4a, 5c**
- ▲ A briefing for the school board on results of the investigation of the system for emergency evacuation of the school. **1b, 2a, 5c**

- 2c** The student develops a multi-media presentation, combining text, images, and/or sound; that is, the student:

- selects an appropriate medium for each element of the presentation;
- uses the selected media skillfully, including editing and monitoring for quality;
- achieves coherence in the presentation as a whole;
- communicates the information effectively, testing audience response and revising the presentation accordingly.

Examples of multi-media presentations include:

- ▲ A presentation of proposals for design of a recreation area, combining video, graphics, and text. **1a, 2a, 5a, 5b**
- ▲ An oral presentation incorporating electronically produced graphics and videotape to explain proposals for improving waste management. **1b, E3c**
- ▲ A videotaped guide to tourist attractions in the area, combining music, still and moving images, and text. **1a, 3a, 3b, 5c**



Samples of student illustrate standard-se performances for th standards can be fo pages 112-137.

The cross-references low the examples at some of the ways b single Applied Learni ject may provide a v demonstrating othe of several parts of it dards. The cross-refe ore based on the ex that are linked to the Problem Solving stor is intended that stud demonstrate their oc ment of the four Tool Techniques standards junction with Problem projects.

Performance Descriptions

Information Tools and Techniques

Use information gathering techniques, analyze and evaluate information, and use information technology to assist in collecting, analyzing, organizing, and presenting information.

2a The student gathers information to assist in completing project work; that is, the student:

- identifies potential sources of information to assist in completing the project;
- uses appropriate techniques to collect the information, e.g., considers sampling issues in conducting a survey;
- interprets and analyzes the information;
- evaluates the information in terms of completeness, relevance, and validity;
- shows evidence of research in the completed project.

Examples of gathering information to assist in completing project work include:

- ▲ Research information about soil types and their impact on productivity to assist in a project to improve the yield of a farm or garden plot. **1b, 2a**
- ▲ Research local public safety regulations to assist in organizing a weekend volunteer cleanup of a neighborhood. **1c**
- ▲ Research the history of local landmarks to assist in preparing a tourist guide for the local area. **1a, 2t, 3b, 5c**

2b The student uses on-line sources to exchange information for specific purposes; that is, the student:

- uses E-mail to correspond with peers and specialists in the subject matter of their projects;
- incorporates into E-mail correspondence data of different file types and applications.

2c The student uses word-processing software to produce a multi-page document; that is, the student:

- uses features of the software to create and edit the document;
- uses features of the software to format the document, including a table of contents, index, tabular columns, charts, and graphics;
- uses features of the software to create templates and style sheets for the document.

Examples of using word-processing software to produce a document include:

- ▲ Produce the proposal to the local parks authority for design of a recreation area. **1a, 2a, 5a**
- ▲ Produce a proposal to a software design company for marketing software. **1a, 2b, 4a**
- ▲ Produce submission to a community organization in response to a request for a proposal to develop customized financial management software. **1b, 2b, 3a, 4a, 5c**

2d The student writes, adds content to, and analyzes a data base program that uses a relational data base; that is, the student:

- writes a program capable of handling data with at least two files;
- creates macros to facilitate data entry, analysis, and manipulation;
- creates multiple report formats that include summary information;
- merges data from the data base with other files.

Examples of creating a data base include:

- ▲ Create a data base of volunteers for the weekend cleanup of a neighborhood. **1c, 3a**
- ▲ Create a data base of participants in a team sports tournament. **1c**
- ▲ Create a data base of works to be exhibited in a public exhibition of student artwork. **1c, 4a**

2e The student creates, edits, and analyzes a spreadsheet of information that displays data in tabular, numeric format and includes multiple graphs; that is, the student:

- creates a spreadsheet that displays the use of formulas and functions;
- uses features of the software to sort, arrange, display, and extract data for specific purposes;
- uses features of the software to create multiple spreadsheets and to synthesize the spreadsheets into a single presentation.

Examples of creating a spreadsheet include:

- ▲ Create a spreadsheet to record and analyze data related to the performance of a vehicle designed to enter in a competition. **1a, 2a, 5a**
- ▲ Create a spreadsheet as part of customizing applications software for financial management. **1b, 2b, 3c, 4a, 5c**
- ▲ Create a spreadsheet to record and analyze data related to improving the productivity of a farm or garden plot. **1b, 2a**

Learning and Self-management Tools and Techniques

Manage and direct one's own learning.

- **1a** The student learns from models; that is, the student:
 - consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment and decision making;
 - identifies models for the results of project work, such as professionally produced publications, and analyzes their qualities;
 - uses what he or she learns from models in planning and conducting project activities.

Examples of learning from models include:

- ▲ Shadow a software designer at work. **1a, 2b**
- ▲ Undertake volunteer work in a community organization and assist in the management of financial records. **1b, 2b, 5c**
- ▲ Gain work experience in a museum and study the work of a curator in mounting an exhibition. **1c**

- **1b** The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- develops and maintains work schedules that reflect consideration of priorities;
- manages time;
- monitors progress towards meeting deadlines and adjusts priorities as necessary.

Examples of using tools and techniques for reviewing one's own progress include:

- ▲ Maintain project log books.
- ▲ Use project management software.
- ▲ Develop flow charts for determining the sequence in which tasks need to be tackled.

- **1a, 1c** The student evaluates his or her performance; that is, the student:

- establishes expectations for his or her own achievement;
- critiques his or her work in light of the established expectations;
- seeks and responds to advice and criticism from others.

Examples of using tools for evaluating one's own performance include:

- ▲ Have a friend videotape an oral performance to allow for review.
- ▲ Ask a professional in the relevant field to review a draft design.
- ▲ Ask a friend to review a draft report.

Tools and Techniques for Working With Others

Work with others to achieve a shared goal, help other people to learn on-the-job, and respond effectively to the needs of a client.

- **2a** The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among team members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

Examples of working in teams include:

- ▲ Work in a team to design and build a vehicle to enter in a competition. **1a, 2a**
- ▲ Work in a team to design a recreational area. **1a, 2a, 2c, 5b**
- ▲ Work in a team to organize a series of seminars on careers. **1c**

- **2b** The student plans and carries out a strategy for including at least one new member in a work program; that is, the student:

- plans and conducts an initial activity to introduce the new member to the work program;
- devises ways of providing continuing on-the-job support and advice;
- monitors the new member's progress in joining the program, and revises the kinds and ways of providing support and advice accordingly;
- reviews the success of the overall strategy.

Examples of including new members in a work program include:

- ▲ Respond to growth in demand for a market research service by including a partner in the enterprise. **1a, 3b**
- ▲ Provide training to other students on how to develop and conduct a tutoring program, based on experience in devising and running a tutoring program on desktop publishing. **1a, 3b**
- ▲ Include a student new to the school in an ongoing project, such as a project to design a proposal for use of a park recreation area. **1a, 2a, 2c, 5a**

- **2c** The student completes a task in response to a commission from a client; that is, the student:

- negotiates with the client to arrive at a plan for meeting the client's needs that is acceptable to the client, achievable within available resources, and includes agreed-upon criteria for successful completion;
- monitors client satisfaction with the work in progress and makes adjustments accordingly;
- evaluates the result in terms of the negotiated plan and the client's evaluation of the result.

Examples of responding to a commission from a client include:

- ▲ Produce a tourist guide to the local area at the request of the local tourist authority. **1a, 2c, 3a, 3b**
- ▲ Customize applications software for financial management at the request of a community organization. **1b, 2b, 4a**
- ▲ Conduct an investigation of procedures for emergency evacuation of the school in response to a request from the school board. **1b, 2a, 2b**



Samples of student v illustrate standard-set performances for the standards can be found pages 112-137.

The cross-references 1 low the examples ill some of the ways by single Applied Learning project may provide a w demonstrating achiev of several parts of th dards. The cross-refer are based on the exa that are linked to the Problem Solving stan is intended that stud demonstrate their ad ment of the four Tool Techniques standards junction with Problem projects.

Work Sample & Commentary: *ElectroHawk 1*

The task

Students were required to complete an application project that would develop their skills in gathering and using information, communication, and problem solving, and help them to become self-directed learners. The students defined the project and acquired a mentor from outside the school to assist them. The students were supervised by a teacher throughout the process of developing a proposal and planning a presentation of the project. This student designed an electric car for a local competition.

Circumstances of performance

The student worked as a member of a team to get most of the work done. This student was also the actual driver of the car in competition. The team worked with an adult mentor and a teacher advisor. The students were required to maintain a journal to record the time they spent on the project. The work culminated in a presentation to interested adults and peers.

What the work shows

- **Problem Solving:** The student designs and creates a product, service, or system to meet an identified need; that is, the student:
 - develops a design proposal that:
 - shows how the ideas for the design were developed;
 - reflects awareness of similar work done by others and of relevant design standards and regulations;
 - justifies the choices made in finalizing the design with reference, for example, to functional, aesthetic, social, economic, and environmental considerations;
 - establishes criteria for evaluating the product, service, or system;
 - uses appropriate conventions to represent the design;

This work sample illustrates a standard-setting performance for the following parts of the standards:

- **Problem Solving: Design a product, service, or system.**
- **Learning and Self-management: Learn from models.**
- **Learning and Self-management: Review own progress and adjust priorities as needed.**
- **Learning and Self-management: Evaluate own performance.**
- **Working With Others: Participate in the establishment and operation of self-directed work teams.**

Application Project Proposal Paper

Have you ever wanted to go for a ride into the future? Or maybe drive an almost non-polluting vehicle? For my application project, I propose to build a full size, fully drivable, fully operational solar/electric car. I am currently, and will continue to build, and improve an electric vehicle. I, along with the aid of 4 other students, and the watchful eye of Mr. _____, and Mr. _____, am currently building this vehicle in the _____ Technology Department. The vehicle, along with the many tests and upgrades, should be completed by the end of July.

I have chosen to build an electric car for my application project almost by coincidence. _____ High School received an electric motor, a speed control, and two batteries from P.U.D in early November. In return, we must build an electric or, solar-electric vehicle. Immediately I jumped at the rare opportunity to build the ElectroHawk 1. Unfortunately it took us until after December to get a team together to build this vehicle. This is the main reason that I have started my application project in the middle of building this vehicle.

- E → There are many skills that have helped me along the way, as well as many new skills I have acquired while building this vehicle. Some of the most important skills I have are those pertaining to my familiarity of the various tools (saws, drills, grinders, sanders, etc.) used to fabricate the vehicle. I have been around these different tools all of my life since my father owns a custom woodworking company. I have also taken many classes in the Technology Department, teaching me the safety skills necessary to operate all the tools. I also feel that I get along well with others which helps to build a stronger team, and more important, a higher quality electric vehicle. Without a high quality electric vehicle, somebody will get hurt.
- E → The variety of skills I plan to attain from this project are those related to metal works. I have already learned how to "tack" or make small welds, as well as what is necessary to cut metals. I will also have a better

- plans and implements the steps needed to create the product, service, or system;
- makes adjustments as needed to conform with specified standards or regulations regarding quality or safety;
- evaluates the product, service, or system in terms of the criteria established in the design proposal, and with reference to:
 - information gathered from sources such as impact studies, product testing, or market research;
 - comparisons with similar work done by others.

The proposal explains the genesis of the project: the P.U.D. (Public Utilities Department) provided the school with an electric motor, a speed control, and two batteries as the basis for designing and building an electric or solar-electric vehicle for entry in a competition with other schools in the local area.

The process of design of the vehicle emerges through the "Proposal Paper," "Time Line," and journal. The proposal records the plan the student envisaged early in the process. This plan is reflected in the timeline. The journal provides insight into the reality of the design process, especially the ways in which the students responded to problems they encountered as the design took shape.

understanding of what goes into the fabrication of any vehicle, be it cars, planes, or boats. I will also have the thrill of being able to drive something that I made, with the help of the best team I could ever hope to work with, with my own two hands.

Finding a mentor has proven to be difficult since there are not that many people that build electric cars for a living. By coincidence however, Mr. _____, a former student teacher at MTHS was part of a team that built an electric car for _____ University and has agreed to be my mentor for the duration of the project.

For this project we have needed, and received many donations. One of the most important has been the donation of wood for our mock up, as well as the donation of the steel used to build the vehicle. We are also looking for donations for dinners (for all of our late nights). To complete this vehicle we still have to wire it up so that it will run safely and efficiently. We also have to complete the front and rear axles which are necessary for any vehicle. Front wheels need to be found as well as tubes and tires that will fit them. It is also necessary that we find a chain as well as sprockets that fit. We additionally need to go over the rules and regulations to make sure we fit within required safety parameters. A body is also something that we would like to have, should time allow. Once the vehicle is built, we will then need to run many tests on it. Some of these tests will include structural testing, battery testing, and efficiency rating of the motor.

First, to complete this project, we must complete welding on the chassis. To do this safely the team has decided to have Mr. _____ do this. We decided upon this for two reasons, the first is the fact that he has experience in welding which would give us a much safer vehicle, and the second is the fact that none of us are comfortable doing the actual welding of the vehicle.

Second, we need to finish work on the rear axle and suspension. To do this we need to figure out where the motor will be mounted on the suspension, how much room is necessary in the rear portion of the suspension for the wheel, and how we will attach it.

Next we have to locate a chain as well as a sprocket that matches the required gear ratio of the rear wheel sprocket. Mr. _____ has been putting his time in to locate these items since he seems to have the best understanding of exactly what we need.

After deciding what needs to be done on the rear suspension, and gearing, we need to begin work on the front axle and suspension. This task includes many variables such as: how the vehicle will be steered, how the suspension will attach to the vehicle, as well as wheel size. Mr. _____ has told us that he knows someone who builds front suspension kits, and that it might be possible to order one. Mr. _____ has told us about a unique front suspension he has designed based on three-wheel bikes he saw while visiting the Oregon coast.

Once we have the entire chassis finished we can begin mounting and wiring all of the electrical components such as speed control, throttle, and batteries. Our vehicle is very compact, and finding adequate space will be difficult. We also need to wire up the vehicle, and from the schematics, it does not look easy.

After everything is wired up, and in place we will begin going over all of the rules and regulations to make sure that we are legal and able to race. There will be a practice day when all of the competing vehicles will turn out at _____ Speed Way to take practice runs, as well as have a judge look over our vehicle for anything we may be missing.

Finally, after everything is completed we will begin doing tests and trials. Our main goal of running the various tests will be to find any flaws in the structure that may be present and get the vehicle running at it's most efficient levels. We will also begin lightening the vehicle at this point to see what the least amount of material is needed to make the vehicle hold together.

When presentation time comes I will have many ways of showing what I have learned. I hope to have a journal, several pictures, and several graphs and charts showing the vehicles rating of efficiency increasing as

A The students began by building a wooden mock up for the vehicle (not shown).

E The proposal records some of the design issues that the student envisaged would require resolution. These are reflected in the "Time Line."

E The journal records some of the problems the students encountered and the strategies they adopted to solve them.

The design solutions reached during the course of construction of the vehicle are justified in terms of functional considerations.

D The student established criteria for evaluating the design.

Apart from reference to the mock up (which is one of the ways of presenting a design for a product of this sort), there is no reference to the presentation of design plans.

E The proposal notes some of the skills the student identified he would need to learn in order to complete the project.

E G The time line records the planned steps for turning the design into a reality while the journal entries record the ways in which those steps were achieved in practice and the modifications to the process the students made along the way.

H The proposal and journal contain several references that demonstrate attention to relevant regulations and to matters related to safety.

each modification to the vehicle is done. There is also a plan in the making to mount an in-car camera so that a video can be shown on presentation day giving my audience a feel of what it is like to ride in an electric car.

D When all of the dust has cleared from the construction and the frantic running around looking for all of the missing parts of the vehicle has ended, and there is a solid, well built, highly efficient electric vehicle left standing, I will know my job is done. I know that my project will receive only the highest grade because I will allow nothing but quality work to be put into the construction of this vehicle of the future. And I hope that when people look at the ElectroHawk 1, they will see nothing but quality.

I The students devoted a lot of time and energy to testing their design and to trying out strategies to improve its performance and efficiency. The strategies included analysis of records of performance.

J The students were very aware of comparisons with other vehicles built for the competition. Even the use of "XXX" in the journal indicates an awareness that other electric car developers could gain advantages from the information the students' gathered in their tests.

ElectroHawk 1

F

Application Project Time Line

- | | |
|---|-----------|
| March 30, 1995: | Completed |
| By this date the mock-up will be completed and work on the metal chassis will commence. | |
| April 14, 1995: | Completed |
| By this date the chassis will be completed and work on the rear suspension will commence. | |
| April 21, 1995: | Completed |
| By this date the rear suspension will be completed and work on the front suspension will commence. | |
| May 9, 1995: | |
| By this date work on the front suspension will be completed and work on wiring the car will commence. | |
| May 6, 1995: | |
| Work on wiring the car will be completed and safety checks will be performed. As well as checks to make sure our vehicle can satisfy the rules. | |
| May 9, 1995: | |
| By this date all safety parameters will be met, and performance testing of the vehicles systems will begin. | |
| May 13, 1995: | |
| The vehicle will be taken to _____ speedway to get looked over by a judge that will check to make sure that we meet all the necessary guidelines. | |

May 16, 1995:

Work on a body for the vehicle will begin as well as any improvements that may need to be made to the vehicle to improve efficiency.

May 26, 1995:

A body will be completed and test runs for the vehicle will be made with a body on. We will also run the batteries down to see what the speed the vehicle can run at and maintain speed during the race.

May 27, 1995:

Race Day! The vehicle will be raced for one hour at Evergreen speedway against other vehicles to see which vehicle can travel the furthest distance without running out of power.

May 30, 1995:

From here on out efficiency tests will be run on the vehicle to improve our distance during race day's. We will also make any necessary repairs to the vehicle as they arise.

August 1995:

Will have improved the car to it's maximum efficiency and have competed in at least 3 events.

December 1995:

Will have presented in Fall '95 presentation.

Learning and Self-management Tools and Techniques: The student learns from models; that is, the student:

- consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment and decision making;
- identifies models for the results of project work, such as professionally produced publications, and analyzes their qualities;
- uses what he or she learns from models in planning and conducting project activities.

K The proposal records the difficulties the students experienced in identifying a mentor, though they eventually succeeded in finding a person who had taken part in a similar project.

L The team also made extensive use of the assistance of teachers with knowledge and expertise in areas such as welding. The student's recognition of the importance of these models to the eventual result is evident throughout the journal.

G 3/31-(2 hrs)

This evening I finally finished my goal statement for this project after 3 rewrites. Several times I forgot to include little details here and there. but now I have finished and am ready to go. I also found out today that info for the front axle of the car didn't come and is now over a week late, and if we don't get an order in by the end of this week I will get a little concerned due to the time factor which is quickly becoming an enemy to us as race day approaches. Oh well, guess it just means longer hours.

4/11-(5 hrs)

Today we worked very hard to try and get a rear axial and suspension finished but instead we had to settle for a nearly finished rear axial. I expect we should be finished with the rear axial by our next meeting. I also started work on a very unique front axle system conceived by Mr. using the same concept as the 3 wheel "banana" bikes at Seaside Or. I did manage to get a full mock-up of the system built. We may also still use the front axial kit. Mr. _____ is going to try and order one as soon as possible.

4/14-(4 hrs)

Today we made up our minds that we wanted the vehicle driveable by 4/22. And to do this we needed to devise a plan of attack. We made the decision to work this Saturday. I was given the duty to try and get _____ Pizza to sponsor us by giving us a couple of pizzas for lunch. We also decided to work late Tuesday and Thursday since we needed to be done the following Saturday which is when time trials and first inspection of the vehicle. It is not absolutely necessary to have our vehicle ready on this date, but we would still like to make a showing. As far as work goes we finished the rear axial as well as the part that the axial attaches to the car. We also built the mock-up of the battery box. There isn't a whole lot of room for it, but we will do what we can.

4/15-(5hrs)

Today was the first Saturday we worked. We did manage to get alot done. We put the final touches on the rear axial today only to discover a minor flaw in our design. When we installed the rear tire we realized we didn't leave enough room for it. We had welded

ElectroHawk 1

the brackets that hold the tire to far forward. To correct this we thought it would mean rebuilding the entire rear suspension. Fortunately I got the wheels upstairs turning and found an alternative. The piece in the front of the axle that was blocking the tire could just be cut off and moved forward. A roll bar was also put on the vehicle. Mr. also welded up the car instead of having us do it mainly for safety reasons. We also have a partially completed battery box to hold and keep the batteries from leaking and possible putting the driver in danger. A front axial also got started today as well, but it still needs allot of work.

4/18-(4 hrs)

Today I managed to get work off so I would have more time on the car. We got the rear axial completed and now all we have to do is attach it. This will take very precise work making it happen so that we can get the axial on straight. We also began major work on the front axial and suspension. This is proving to be more difficult then we were hoping trying to build the suspension around the axial itself using the unique system that we decided to use.

4/19-(5 hrs)

Today the magic happened. The rear axle and suspension was placed in the car. Before we did this though we had to cut some very precise holes into the frame to give the axle something to connect to. This means that we have 4 total holes that need to line up perfectly. And we are relying solely on our measurements. And when the moment of truth happened, the axial went in nice and snug, and the suspension had very little play. We also worked more on the battery compartment. It is nearly completed. We also began making decisions as to where we want to place electrical components onto the vehicle. We are going to be calling it very close. It will be a late night Thursday for sure.

4/20-(8 hrs)

Today we worked almost solely on the front suspension. I worked most of the day machining the front axial making it the correct size for the wheel to fit on. I am wondering if this axial is strong enough to support itself since it is barely 1/4" thick. I also got pizzas for dinner tonight donated by. I also completed a battery box

pushed the throttle forward, and very, very quietly the car rolled away. As Mr. picked up the speed our car looked better and better. Eventually he reached very comparable speeds to some of the fastest vehicles there. As he was driving we noticed a slight shimmy or fish tail action of the vehicle that raised a little concern. Mr. finally came in after a series of test runs. We all were very pleased with the vehicles performance. And then we learned the Mr. hadn't even run the vehicle to its fullest potential. So we told him to get back in and push it as fast as it would go. And so he took the car around to the larger outer track. We were very pleased with the results. According to our calculations and estimation the car achieved a top speed of about 33 mph. We all think that we can improve this to around 35-40 mph after we run a few efficiency tests and put a body on the car. After about 5 laps he came in. And before I knew it I was being strapped into our creation. I rolled out onto the track put the accelerator on and with a few wobbly steps I became the 2nd to drive the first of a new breed of _____ vehicles. It was just like flying. It was amazing, and it was the smoothest ride I have had in any vehicle. but I got a little too curious as to the vehicles potential. About the 4th lap around my front axial had exceeded its maximum load limit and buckled. Luckily I still had minimal control of the vehicle and brought it safely to a stop. So we packed up and called it a day.

4/25-(3 hours)

Today we worked mostly on disassembling the car. We also got a head-board made for the roll bar. Mr. _____ finished up welding the car. The team also discussed ideas on the body and possible ways we could improve our vehicle.

4/27-(4 hours)

Today, we worked on getting the car back together. I worked most of the day trying to get another front axle made. It didn't work out though. We failed on two axles because we just didn't have the necessary equipment. So we decided to turn the job over to my fathers friend who is a professional metal worker and has all the necessary equipment. We also got masonite from my fathers shop to use for the body.

to protect the driver from acid spills in the event of a role-over. We also connected the support for the axle and completed the front axial.

4/21-(10 hrs)

Tonight was the longest night I have ever worked on this car yet. We worked until midnight. We kind of had to since the practice run is tomorrow. Tonight we worked on many things. Our first priority was to check if our front axial steering system was going to work. Apparently the angle the steering system was at wouldn't work. it didn't have a sharp enough turn. So to adjust it we had to increase the angle of slope. After doing this our turning radius was dramatically increased. We also attempted to wire the vehicle and place all of the insides of the vehicle. This proved easier said then done. The schematics made almost no sense at first but we managed to get most of it done. Mr. _____ spent most of his evening looking for things we needed such as correct sized nuts, sprockets, chains, mirrors, and other equipment. We all eventually got a little cranky by the time 12:00 rolled around so we decided to call it quits and return early in the morning to finish all of the little unimportant items.

4/22-(6 hrs)

Today was safety inspection and practice day. before we headed off for the race track we still had a few things that needed to be done. Some minor adjustments as well as electrical wiring. We worked hard and fast to get everything done that needed to be done. We still didn't get it all done. It came time to head off to the track so we packed up and decided to finish our work there. Once we arrived at the race track we immediately began work on the electrical system and gearing. And just as quickly as we got started working on the car peoples curiosity grew as other teams came over to get a glimpse of our unique steering system. After about two hours of hard work, and safety inspection we finally rolled the car onto the track. And then the moment of truth came with Mr. as our test pilot. He pushed the throttle forward, there was no response, he pushed the throttle again and still there was no response. I began going over all the wires in the system. Turns out to be a wire disconnected from the motor. Very quickly we got the wire connected back on only to realize that our chain wasn't tight so again we responded quickly moving the tire back. And then it was time to test our creation. Mr.

5/9-(4 hours)

Today we disassembled the car so that we could get our chassis painted. We also had to make a temporary paint room to do this. Brian also got to work on making his nose easier to remove. This evening, I was asked to make a spreadsheet and some charts showing our cars performance. We also made repairs to the body with fiber-glass.

5/10-(3 hours)

Today we painted the chassis so that it wouldn't rust on us. We also did a little analyzing of the charts I made. We concluded that our motor was running at to slow of R.P.M.'s.

5/11-(7 hours)

Today we painted the body completely white. I personally think it looks much better now. We also started working on the front brakes. A decision was made to change our gear ratio to XX/XX because Mr. _____ heard from somebody that a XX tooth sprocket is most efficient for the chain. And then we decided that our motor is most efficient running at XXXX R.P.M.'s. We also got some wheel covers to reduce drag from the wheel spokes.

5/16-(5 hours)

Today, we worked on getting the cars front brakes done. We also started the long process of putting humpty together again (electrical mostly). We also worked on the wheel covers, as well as the rear wheel and getting the sprocket. And we got the air-scoop for the motor put onto the body.

5/17-(4 hours)

Today we painted the air-scoop, and put the bottom and body on. We also got the rear top section made. And on top of that, our new nose cone for use with "in-car-cam" was completed as well as battery tests which told us that 2 of our 3 batteries are pretty much useless for the race.

ElectroHawk 1

5/18-(4 hours)

Today for some reason, Mr. _____ discovered that one of our bad batteries was playing tricks on us. It only lasted 57 minutes of the required 60, but due to "amazo" battery that lasted 75 minutes, we figured that it should do just fine. But one draw-back is that we really don't have any idea of what amperage were running at. We also finished what we could to get the car ready for Saturday. The front brakes were completed. And we got the seat back in place, and the motor aligned. A speed control was also made to help keep us a little more efficient.

5/19-(2 hours)

Today we hurriedly put finishing touches on the car. Making sure that all bolts are tightened down. We got the sponsors on the car, and now all we really have to do is get the batteries wired up when we get to the track tomorrow.

5/20-(5 hours)

Race Day #2
Today was race day, and probably one of the most stressful days of my life. I honestly thought that we weren't going to get out onto the track. It all started with a wire suddenly bursting into flames from the driver's shut-off switch. Apparently it was touching one of the battery hook-ups. From the amount of smoke coming from that wire, I thought we had fried our speed control box for sure. Then another one of the guys got a wrench stuck between the positive and negative connections of a battery. And someone else got a drill-bit stuck in our axle on the right side which kept us from getting our wheel on. At this point there were ten minutes to race time. My grandfather told me later that he thought he was going to have a heart attack, had he not went and sat in his car. Luckily some of the officials came over and saved our lives by giving us a hand. The race was also held 10 minutes for us even though we insisted they go ahead. Finally I heard somebody yell "O.K., were ready!" And before I knew it I was being strapped in. And then as the green down began, I switched the car on and prayed. As the green flag signaling the start of the race I throttled up and jolted away very quickly to my surprise. Now the only thing that was on my mind was battery power, and the fact that we had done everything we can; all the tests, all the calculations. And I had to stay at 26

mph.(It was supposed to be 28-29 mph, but we weren't sure about how our batteries were.) This meant I had to let everybody pass me. And that is what they did. However, I also knew that we would do about 78(later ended up being 76) laps according to our calculations. And we knew that the most any of them there could do would be about 60-65 laps. So after about 40 minutes had gone by, I knew we had it because the first and second place holders beginning to slow, and be passed by me (who was still going strong at 26 mph.). And once the race was over, we won by seven laps (not including the victory lap I was forced to take. I have to say that I have never felt prouder in my entire life about something I did. Everything went almost exactly according to plan, aside from a few minor mishaps. And it couldn't have been done without the team work of Mr. _____, Mr. _____, and the best electric car crew I could ever hope to work with.

Note: We celebrated with some _____ Sparkling Cider afterwards. Most of which ended up on Mr. _____.

One thing we have to do after races from now on is keep our "insides" covered up. Allot of people were very curious about our gear ratio. One man brought a video camera over to try and get some footage of our car. Luckily my father covered the rear with a blanket.

5/23-(2 hours)

We just can't seem to stay away from this car. We got the results back from the "in-car-cam." They were a bit wobbly. The camera had apparently been jolted to the side of the car, so we got a nice view of what I think were the stands going by. Today we mostly talked about what needed to be done as well as make up a time line so that we don't end up doing last minute jobs at the track. I also have been talking about the possibility of getting a CB radio for communication through a grant for Application projects.

5/24-(3 hours)

Today we worked on getting the body of the car off. We have decided to make our front axle vertically shorter so that it doesn't stick out of our body. I also got the application for financial aid to get the CB radios. We all hope this is the last time that we have to take the body off.

b Learning and Self-management Tools and Techniques: The student reviews his or her own progress in completing work activities and adjusts priorities as needed to meet deadlines; that is, the student:

- develops and maintains work schedules that reflect consideration of priorities;
- manages time;
- monitors progress towards meeting deadlines and adjusts priorities as necessary.

F The work schedule was established in the time-line.

M The journal records several instances in which the students found it necessary to adjust their priorities in order to deal with unforeseen problems and to meet deadlines.

c Learning and Self-management Tools and Techniques: The student evaluates his or her performance; that is, the student:

- establishes expectations for his or her own achievement;
- critiques his or her work in light of the established expectations;
- seeks and responds to advice and criticism from others.

The proposal and journal reflect the student's expectations for his own achievement. The journal also records the student's analysis of his work in light of those expectations. The entries focus on the efforts he and his fellow team members made to reach a satisfactory result, rather than a detailed analysis of the student's own performance. There is also evidence of seeking and responding to advice, especially from the teachers who provided assistance to the team.

The student's recognition of his accomplishment is evident throughout the written work, as is his pride which comes through in a humble voice.

ElectroHawk 1

1/2-1/5 (3 hours)

This week I have worked on getting the rest of my journal onto the computer translating it from _____ language into the English language so that everyone can enjoy the trials and triumphs of the ElectroHawk 1. It is also good to note that work on the ElectroHawk 2 has begun this week. I have also once again been trying to get the scanner to work without any luck. So I may use the advice Mrs. _____ gave me and go and see Mr. _____ in the Hawkeye room and use their scanner.

1/5-1/11 (1 hour)

This week I did finally see Mr. _____. He said it would be fine for me to come in and scan. Now all I have to do is find time when both him and myself can meet. Unfortunately this week has been hectic since I have been in charge of the Martin Luther King Jr. assembly.

1/11-1/18 (1 hour)

Due to this weeks unusual schedule, I have not been able to meet with Mr. _____. I have however, organized my pictures, and reviewed some of the raw footage to decide what I would like to use for the presentation.

1/18 to 1/25 (3 hours)

This week I finally got into the Hawkeye room to scan some of my pictures. Most of them turned out looking pretty good. Unfortunately, my computer at home only accepted a little more than a half due to some incompatibility. I will try to correct the problem as time goes on, but for now I'm stumped.

1-25 to 2/1 (3 hours)

This week I have just completed the opening sequence of the presentation using some of the pictures I have available to me. It is awesome! I am using music from the soundtrack to "Grand Canyon" and it is cool stuff. I plan to get some interview's with some of the "guys" and edit it into the computer, along with some race footage. So far, there have been no prob's with the computer, other than a couple of freeze-ups.

Lap #	A	B	C	D	E	F	G
Lap #	Time (sec)	M.P.H.	RPM of Wheel	RPM 42/9	RPM 42/11	RPM 42/13	
1	79	15.95	279.54	1305.47	1067.96	902.93	
2	54	23.33	408.96	1909.96	1562.24	1320.85	
3	55	22.91	401.53	1975.13	1533.83	1296.93	
4	56	22.50	394.35	1941.65	1506.44	1273.77	
5	58	23.77	416.68	1945.89	1591.71	1345.87	
6	50	25.20	441.69	2062.64	1687.22	1426.63	
7	46	27.38	490.09	2242.00	1833.93	1550.69	
8	46	27.39	490.09	2242.00	1833.93	1550.69	
9	48	26.25	460.08	2148.59	1757.52	1486.07	
10	51	24.71	433.02	2022.20	1654.13	1398.65	
11	46	27.39	490.09	2242.00	1833.93	1550.69	
12	45	28.00	490.76	2291.83	1874.68	1585.14	
13	45	28.00	490.76	2291.83	1874.68	1585.14	
14	49	26.71	450.69	2104.74	1721.65	1455.74	
15	51	24.71	433.02	2022.20	1654.13	1398.65	
16	48	26.25	460.08	2148.59	1757.52	1486.07	
17	48	26.25	460.08	2148.59	1757.52	1486.07	
18	45	28.00	490.76	2291.83	1874.68	1585.14	
19	45	28.00	490.76	2291.83	1874.68	1585.14	
20	50	25.20	441.69	2062.64	1687.22	1426.63	
21	44	28.64	501.91	2343.91	1917.29	1621.17	
22	43	29.30	513.58	2388.42	1961.88	1658.87	
23	42	30.00	525.81	2455.53	2006.59	1698.36	
24	42	30.00	525.81	2455.53	2006.59	1698.36	
25	44	28.64	501.91	2343.91	1917.29	1621.17	
26	43	29.30	513.58	2388.42	1961.88	1658.87	
27	44	28.64	501.91	2343.91	1917.29	1621.17	
28	42	30.00	525.81	2455.53	2006.59	1698.36	
29	42	30.00	525.81	2455.53	2006.59	1698.36	
30	45	28.00	490.76	2291.83	1874.68	1585.14	
31	42	30.00	525.81	2455.53	2006.59	1698.36	
32	42	30.00	525.81	2455.53	2006.59	1698.36	
33	44	28.64	501.91	2343.91	1917.29	1621.17	
34	42	30.00	525.81	2455.53	2006.59	1698.36	
35	44	28.64	501.91	2343.91	1917.29	1621.17	
36	42	30.00	525.81	2455.53	2006.59	1698.36	
37	42	30.00	525.81	2455.53	2006.59	1698.36	
38	43	29.30	513.58	2388.42	1961.88	1658.87	
39	44	28.64	501.91	2343.91	1917.29	1621.17	
40	46	27.39	490.09	2242.00	1833.93	1550.69	
41	47	30.73	538.63	2515.42	2057.56	1739.79	
42	47	28.81	483.87	2194.30	1794.91	1517.69	
43	44	28.64	501.91	2343.91	1917.29	1621.17	
44	44	28.64	501.91	2343.91	1917.29	1621.17	
45	46	27.39	490.09	2242.00	1833.93	1550.69	
46	45	28.00	490.76	2291.83	1874.68	1585.14	
47	45	28.00	490.76	2291.83	1874.68	1585.14	
48	46	27.39	490.09	2242.00	1833.93	1550.69	
49	45	28.00	490.76	2291.83	1874.68	1585.14	
50	48	26.25	460.08	2148.59	1757.52	1486.07	

Tools and Techniques for Working With Others:

The student participates in the establishment and operation of self-directed work teams; that is, the student:

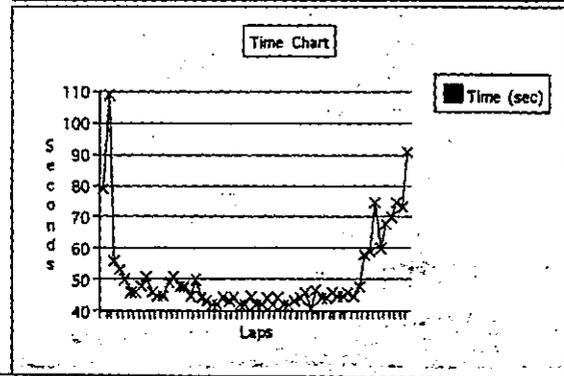
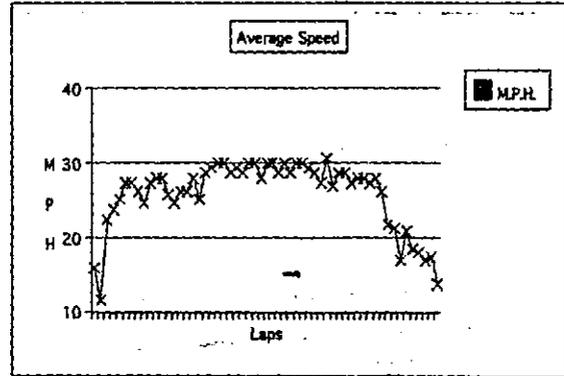
- defines roles and shares responsibilities among team members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

It is clear from the journal entries that the work was a team effort, though there are few references to the definition of roles and responsibilities or of the processes the team established for decision making. The journal also makes it clear that the students took responsibility for the project despite the close involvement and assistance of their advisors.

The proposal and timeline establish the objectives and time frame and the journal provides evidence that the team reviewed their progress and made adjustments as required.

The student makes several references to the importance of teamwork in arriving at the goal of winning the competition. He notes also the connection between a strong team and the quality of the vehicle, and the connection between quality and safety.

The written work included with this project contains some errors, e.g., "parameters" is misspelled in the proposal; and the journal contains errors such as "allor" and "to" (instead of "too") and errors in the spelling of "available," "interview," and "awesome." Nevertheless,



theless, the narrative engages and maintains the reader's interest. The written work was completed primarily for personal use and to provide evidence of work on the project. It was not intended for wider publication.

Work Sample & Commentary: *Caring for Your Campus Lawn*

The task

Chemistry students were asked to determine the most effective, economical, and environmentally safe grass fertilizer for the school district. The students were to produce an analytical report with detailed procedures and conclusions and to make a recommendation to the school district's Grounds and Maintenance Department.

Circumstances of performance

The students were given seven weeks to complete the project. They were responsible for all arrangements, such as making contacts with outside resources and obtaining permissions needed to complete the plan. Class time was used to visit other campuses for soil collection, and time outside the school day was also used to complete various parts of the project. The students divided into groups with responsibility for specific components of the project plan. The Director of the Grounds and Maintenance Department for the school district worked closely with the class during the project both as an advisor and as a client who would benefit from the project. The teacher facilitated the project and assisted the students as a resource person. Much of the work was completed as practical science work.

What the work shows

1b Problem Solving: The student troubleshoots problems in the operation of a system in need of repair or devises and tests ways of improving the effectiveness of a system in operation; that is, the student:

- explains the structure of the system in terms of its:
 - logic, sequences, and control;
 - operating principles, that is, the mathematical, scientific and/or organizational principles underlying the system;
- analyzes the way the system works, taking account of its functional, aesthetic, social, environmental,

This work sample illustrates a standard-setting performance for the following parts of the standards:

- 1b Problem Solving:** Improve a system.
- 2b Communication:** Prepare a formal written proposal or report.
- 5a Working With Others:** Participate in the establishment and operation of a self-directed work team.
- 5c Working With Others:** Complete a task in response to a commission from a client.

A

To: Mr. _____, Principal
 From: Mr. _____ Period 1 Chemistry IB Class
 Date: April 22, 1992
 Subject: Proposal for funds for Applied Learning Project

For the next four to six weeks, our class is working on an Applied Learning Project called "The Chemistry of Soil and Fertilizers." This research is a part of Superintendent _____ C3 Project. The C3 Partnership not only addresses workplace readiness but also prepares students for success in higher education. The anticipated products of the C3 Project are a higher graduation rate, a practical alliance of schools and businesses linking the classroom with the world of work, and students who are better prepared to compete for entry-level jobs and to successfully complete college.

The purpose of our project is to determine the most effective, economical, and environmentally safe grass fertilizer for the Fort Worth Independent School District. The class will produce an analytical report with detailed procedures, conclusions, and recommendations for the Fort Worth Independent School District Grounds and Maintenance Department. The Grounds and Maintenance Department will use the recommendations for future orders of fertilizer for the district.

- The following is a list of the sequence of events to complete the project:
1. Prepare a basic project plan that will include projected costs and a research time table.
 2. Prepare a proposal for submission to the principal (or other appropriate resources) requesting the necessary funds for the project.
 3. Write to the Grounds and Maintenance Department of the school district requesting information on current fertilizing practices.
 4. Write letters to plant nurseries and fertilizer companies requesting information on types of fertilizers and their percent compositions.
 5. Interview a plant specialist to get ideas and gather information on grass types and fertilizers.
 6. Research the basic grass types for the Fort Worth I.S.D.
 7. Research the fertilizer requirements for different grasses on the school grounds.
 8. Research the price, percent composition, and environmental safety of various brands of commercial fertilizers.
 9. Based on our findings, we will determine the most effective, economical, and environmentally safe fertilizer for the school district campuses.
 10. Write a letter to the Grounds Department either congratulating them on their choice of fertilizer or recommending a change in fertilizer.
 11. Log all our efforts and produce a manual so that other students can monitor and/or replicate our efforts.
- In order to complete this research, funds are needed. Our class has agreed that \$100 will be sufficient to begin this important and worthwhile project. Please consider this proposal and help us obtain these necessary funds. A prompt response and your cooperation are greatly needed and appreciated.

and commercial requirements, as appropriate, and using a relevant kind of modeling or systems analysis;

- evaluates the operation of the system, using qualitative methods and/or quantitative measurements of performance;
- develops and tests strategies to put the system back in operation and/or optimize its performance;
- evaluates the effectiveness of the strategies for improving the system and supports the evaluation with evidence.

The students investigated the requirements for maintenance of campus lawns in the school district in order to arrive at recommendations to improve the effectiveness and efficiency of existing operations. The project documentation provides evidence that the students:

- A B** developed a procedure for undertaking the project;
- C D E F G** studied the scientific principles underlying the maintenance system, and analyzed the design and management of the system, especially with regard to environmental requirements and cost analysis;

Caring for Your Campus Lawn

B

TIME TABLE

- April 6 - April 10 Formed groups, study chemistry packet, call FWISD about current use of fertilizer, notes from parents, talk to Mr. _____ about the project.
- Data/Control Group - Worked on proposal for money. Also typed a letter for the soil testing group. Set up folder and a list of all the groups.
- Research Group - Made phone calls around to the various groundsmen. Read through Texas Master Gardener Handbook, and other books for information. They also compared the A&M and chemistry packet for differences.
- Soil Tester Group - Looked up various schools and decided what schools to go to. Called and got permission to come out to campuses. Called _____ Nursery and asked about how to test the soil.
- Interviewers (5) AT&T - Made phone calls. Got results from the different nurseries. Invited guest speaker _____. Wrote out questions to ask.
- April 13 - April 18
- Data/Control Group - Typed letter for money proposal. Typed a request letter for the Research group. Edited the letters and typed them up and sent them off.
- Research Group - Received answers from _____ Nursery. Received information from _____. Made questions to ask. Planned questions for _____. Made phone calls. Wrote a letter. Went to the library for more information. Received a letter from _____.
- Soil Testers Group - Called schools to get permission. Planned to get soil samples but was put on hold. Went to the library.
- Interviewers (5) AT&T - Called _____ again to set up date. Made more phone calls to different organizations. Made questions for FWISD representative. Wanted to see if other places would visit but there were no responses. Jason brought camera and taped different groups working.

April 20 - April 24

- Data/Control Group - Our group took notes from the guest speaker _____. Wrote two thank you letters, one to _____ for visiting our class and the other to _____ for approving our proposal.
- Research Group - Looked over information USDA sent. Made phone calls. Had visitor _____. Took notes. Found info. about organic fert. Wrote a paper about FWISD. Watched a tape make sure facts were correct.

Soil Testers - Gathered soil from 4 different schools.

Interviewers (AT & T) - Made phone calls. Took notes over _____. Made a list of all the people called.

April 27 - May 1

Data/Control Groups - We typed reports and letters and edited the reports and letters. Several groups went out to measure the square feet of different schools. We sent out most of the letters we had to type.

Research - Edited letter and made changes for Stacy to type. Also, called _____ to find out about measuring lawns. He brought out his measure. Chose schools to measure. Received information. Went to certain schools and measured lawns.

Soil Testers - Got soil samples and took picture of schools and them working. Began testing the soil samples. Got results from testing the soil but they all came out the same.

Interviewers (AT&T) - Organized the notebook and went to measure the schools that were chosen. Also, collected money. Made phone calls to ask about prices of fertilizer.

May 4 - May 8

Data/Control Group - Made phone calls to get directions to three schools. Some of the groups went to measure the sq. footage of school campus front lawns. Typed letters and reports. Trying to bring project to a close.

Research - Went to schools to measure lawns of school campuses. Made phone calls. Compared organic to inorganics prices. Started

C D E F evaluated the system using quantitative measures; and
H made recommendations for improved techniques for managing the system based on analysis of fertilizers.

H I The students submitted their report to the Director of the Grounds and Maintenance Department and produced a set of procedures for revised practices in lawn maintenance to be used by grounds keepers, which was published by the Grounds and Maintenance Department.

This project illustrates an appropriate task for the high school level. Its scope extended beyond the school and immediate community of the students. It involved consideration of a range of factors including implications for cost. Finally, the project led to changes in practice.

working on pamphlet. Looked over two handbooks for more information.

Soil Testers - Tested soil. Tried one soil test which didn't do so well. Then they got another more complicated soil testing kit after that failed, finally ended up sending soil samples to Texas A & M. Currently awaiting results.

Interviewers (AT & T) - Made phone calls.

May 11 - May 15

Data/Control Group - Started writing paper for journal. Typed out the averages of the schools front lawns. Typed testing procedures, safety, cleaning, and preparing soil samples. Worked on pamphlet. Wrote thank you letter to Dr. _____.

Research - Called to get info. on organic vs. inorganic. Called _____ for prices, compared prices, helped come up with conclusion.

Soil Testers - Received soil testing results from A&M. Analyzed data and made data table. Wrote conclusion.

Interviewers (AT&T) - Talked to _____ from Tarrant County Extension Service. Talked to _____ from Dallas who refused to speak to class. Contacted _____.

May 18 - May 22

Data/Control Group - Finished summary. Finished pamphlet. Sent pamphlet to all Fort Worth schools. Put pictures in notebook.

Research - Finished summary. Presented results to _____ with pamphlet.

Soil Testers - Analyzed data and proofed summary.

Interviewers (AT & T) - Contacted _____.

Caring for Your Campus Lawn

FWISD Grass Type

Bermudagrass

Bermudagrass is a low, creeping grass that grows year round. In the United States bermuda grass is a valuable lawn and pasture grass throughout the southern states.

Bermudagrass should be mowed at 1 1/4 inches every 5 to 6 days. Leaving grass clippings on the lawn contributes valuable nutrients to the soil.

Watering thoroughly and infrequently is best. During the summer, lawns require about 1 inch of water every 5 to 6 days. Watering in early morning is best because less water is lost in evaporation.

Bermudagrass requires 4 to 6 pounds of nitrogen per year to maintain color and density. Apply 2-3 pounds of fertilizer per 1,000 sq. ft. Apply the fertilizer at the following intervals: April 15, June 1, July 15, Sept. 1. By using a fertilizer containing sulfur-coated urea or ureaformaldehyde, a slow and even growth can be attained.

Current FWISD Fertilizing Practices

Athletic Field

During playing seasons, athletic fields in the FWISD grow turf grass. After the baseball season is over, fescue grass is grown. The current practices call for the fields to be fertilized four times during the warm season and twice during the cold season.

Front Lawns

The most common grass found on the FWISD campuses is bermuda. The front lawn fertilizing practices are as follows:

- 6 lbs. of Nitrogen per 1000 sq. ft. per year
- fertilize with 15-5-10 four times a year starting after the last freeze, approximately March 15
- other treatments follow eight weeks apart (5/15, 7/15, 9/15)
- 1 1/2 lbs. of Nitrogen is used each time

The FWISD uses ammonical based fertilizer for economical reasons. The ammonical based fertilizer runs about \$175.00 per ton, while organic fertilizers cost between \$275.00 and \$325.00 a ton. Because of the amount of land needing to be fertilized and the expense of organic fertilizers, current practices continue to use ammonical based fertilizers.

Size of the Front Lawns in Fort Worth ISD

School Type	School	Area (sq. ft.)
High Schools	1. Southwest High School	41,045.5
	2. Arlington Heights	8,837
	3. Western Hills	15,728
Average		21,890 * 12 high schools => 262,680 sq. ft.
Middle Schools	1. Leonard	6,831
	2. McLean	21,780
	3. Rosemont	34,180
	4. Wedgwood	6,877
Average		17,417 * 19 middle schools => 330,923 sq. ft.
Elementary Schools	1. Western Hills	8,070
	2. Tanglewood	4,000
	3. Bruce Shulkey	3,966
	4. West Cliff	4,364
	5. Ridgela Hills	3,640
	6. Hubbard Heights	4,601
	7. West Park	12,321
	8. JT Stevens	26,445
	9. Woodway	37,318
	10. Westcreek	11,520
	11. Greenbriar	13,230
	12. South Hills	18,920
	13. South Hi Mount	12,561
	14. C. ...	10,450
Average		12,243 * 68 elementary => 832,524 sq. ft.
Total of 1,426,127 sq. ft.		

* 1 acre has 43,560 sq. ft. 1,426,127/43,560 => 33 acres for the Fort Worth ISD

SOIL TESTING RESULTS
Ph, NITROGEN, PHOSPHORUS, AND POTASSIUM

SCHOOL	Ph	N	P	K
1. Arlington Heights H.S.	8.1	Low	Very High	Very High
2. Kirkpatrick Elementary	7.9	Very High	Very High	Very High
3. Meachum M. S.	7.9	Moderate	Very High	Very High
4. Northside H.S.	8.0	Moderate	Very High	Very High
5. South Hi Mount Elementary	7.8	High	Very High	Very High
6. Striping M.S.	7.9	Very High	Very High	Very High
7. Forest Hill Elementary	8.0	Low	Very High	Very High
8. Forest Oak M.S.	7.6	Very High	Very High	Very High
9. Southwest H.S.	7.3	High	Very High	Very High
10. Tanglewood Elementary	8.0	High	Very High	Very High
11. Wedgwood M.S.	7.7	Very High	Very High	Very High
12. O.D. Wyatt H.S.	8.0	Low	Very High	Very High

Caring for Your Campus Lawn

G

SOIL TESTING OBSERVATIONS

Out of the 12 schools tested over the F.W.I.S.D., we found that all of the schools were abundant in phosphorus and potassium. Three of the schools were low in nitrogen, two were moderate, three were high, and four were very high in nitrogen.

The pH level ranged from 7.3 to 8.1 (7.3 lower, 8.1 higher). We found that five of the schools had a pH level of 8 or more. The seven remaining schools had a pH level of 7.3 to 7.9.

PREPARING SOIL SAMPLES

For lawns, annuals or plants, take the soil sample from about 2 - 3 inches below the surface. For perennials, especially shrubs, vegetables and fruits, the sample should be from 4 inches deep. Avoid touching the soil with your hands. Place the soil in one of the containers. Break the sample up with the trowel or spoon and allow it to dry out naturally. This is not essential, however; it makes working with the sample easier. Remove any small stones, organic material such as grass, weeds or roots, or hard particles of lime. Then, crumble the sample finely and mix it thoroughly.

Test different areas of your soil, as it may differ according to past cultivation, underlying soil difference of a local condition. It is preferable to make individual tests on several samples from different areas, than to make the samples together.

SAFETY

The poly bag of capsules should be returned to the storage chamber of the appropriate comparator after it has been washed and dried. Fit the caps on each comparator and make sure the color charts are in place. Replace all the components back into the package. The side blister has been especially designed to be reused as a storage container. Store your kit indoors in clean, dry conditions, as you would store household cleaners. Keep out of the reach of children.

CLEANING

Dispose of the test solutions by rinsing it down the sink. Empty gelatin capsules should be disposed of immediately with household waste. Remove the color charts. Wash the comparator and caps in warm, soapy water immediately after each use. Make sure any sediment or color staining is removed. Rinse well and dry. Replace the color chart on the appropriate comparators.

TESTING PROCEDURES

1. Fill the second container with 1 part of soil sample and 5 parts water.
2. Thoroughly shake or stir the soil and water together for at least one minute and then allow the mixture to settle out. Wait 10 minutes, longer if possible. The time for the mixture to settle will vary according to the type of soil you have. Fine clay soil will take longer than coarse sandy soil. The clarity of the solution will also vary from virtually clear to cloudy. Cloudiness will not affect the accuracy of the test.
3. Select the appropriate comparator for the test you wish to make. Remove the cap and take out the poly bag of capsules which should be the same color as the cap. Make sure the color chart (film) is in place and avoid interchanging color charts between comparators.
4. Using the dropper provided, fill the test and reference chambers, to the fill mark on the chart, with solution from your soil sample. Avoid disturbing the sediment - transfer only liquid.
5. Fill the storage chamber to the same level with clean tap water.
6. Remove one of the appropriate colored capsules from its poly bag. Carefully separate the two halves and pour the powder into the test chamber.
7. Fit the cap onto the comparator, making sure it is seated properly and caps tightly. Shake thoroughly.
8. Allow the color to develop in the test chamber for the following times; pH - 1 min.; Nitrogen - 10 mins.; Phosphorus and Potash - 5 mins. Before taking a reading, invert the comparator several times to obtain a uniform color, then compare the color of the solution in the test chamber to the color chart.

Organic vs. Inorganic

Inorganic

- cheaper
- soil pollutants
- more readily available
- easier to apply
- need less per 1000 sq. feet
- contains lots of salt and nitrates that kill or repel beneficial organisms in soil
- does nothing for resistance to diseases
- decomposes slowly and can enter water system and harm us

Organic

- much more expensive
- better for soil
- harder to get
- harder to apply
- need more per 1000 sq. feet
- low levels of salts and nitrates, which kill or repel beneficial organisms in soil
- increases resistance to most diseases
- decomposes easily

Inorganic

33 acres - 7 lbs./1000 sq. feet - apply 4 times a year => \$ 3,000

Organic

33 acres - 40 lbs./1000sq. feet - apply 3 times a year => \$ 10,225

total difference is \$ 7,225 less for inorganic

Caring for Your Campus Lawn

2b Communication Tools and Techniques: The student prepares a formal written proposal or report to an organization beyond the school; that is, the student:

- organizes the information in the proposal or report in a logical way appropriate to its purpose;
- produces the proposal or report in a format similar to that used in professionally produced documents for a similar purpose and audience.

H The project led to the production of a formal written report to the Director of the Grounds and Maintenance Department for the school district. The report clearly sets out the procedures the students followed and their findings. It adopts a memorandum format appropriate to communicating a technical report of this sort, particularly one produced effectively in-house, and it is written in a style consistent with a memorandum.

I The students also chose the format of a memorandum for the pamphlet they prepared to communicate the project findings to grounds keepers, again an appropriate format. In this document, however, they adjusted the style, making it less discursive and more direct. This is appropriate, given the purpose of the pamphlet which was to provide directions. The information is set out clearly and logically, consistent with its purpose. See page 45 for commentary on this memorandum as a functional document within the requirements of the English Language Arts standards.

These documents are presented as finished work, as is appropriate to their purposes and audiences. The polish of these documents can be compared with the errors that appear in the Proposal to the Principal and with errors in some of the students' working documents.

H
To: Mr. _____, F.W.I.S.D. Grounds and Maintenance Dept.
From: Mr. _____ Period 1 Fertilizer Research Group
Date: May 19, 1992
Subject: Fertilizer Project Report

This report summarizes the extensive research conducted by Mr. _____ first period chemistry class at _____ High School, 1991-1992. The data gathered support the following conclusions and recommendations.

Based on six weeks of library and field research, the most efficient, economical and environmentally safe fertilizer for the Fort Worth I. S.D. front lawns is inorganic fertilizer 15-5-10. This fertilizer should be applied at 7 lbs per 1,000 square feet four times annually on the following dates: April 15, June 1, July 15, and September 1. The approximate cost for the district is \$3,000 a year based on a financial bid which the class was unauthorized to make.

The library and field research teams collected information on the current Fort Worth I.S.D. fertilizing practices, average size of Fort Worth I.S.D. front lawns, grass types, soil chemistry, and organic versus inorganic fertilizers. Plant nurseries, fertilizer companies, and soil and fertilizer chemistry experts were consulted.

Along with advice from experts, library research was conducted. Texas A & M University's *Texas Master Gardener Handbook* gave us several important facts and a list of experts to consult. _____, Texas A & M soil chemistry professor, sent us information on soils, fertilizers, and plant nutrition. This information along with other sources answered questions about grass types, soil nutrients, and fertilizer chemistry.

Guest speakers were invited into the classroom to give us answers to many of our questions and to give the project better direction. One of these speakers was _____ of the Fort Worth I.S.D. Grounds and Maintenance Department. He answered questions about current Fort Worth I.S.D. practices, lectured on the basics of soil chemistry, and helped focus the project.

According to several sources, organic fertilizer is more environmentally safe and productive compared to inorganic. After considering the economics of organic versus inorganic, inorganic is the choice fertilizer because it costs \$7,000 less per year for the district. When the proper inorganic fertilizer percentage is applied at the proper time, it is just as efficient and effective as its organic counterpart.

After deciding that inorganic is the best fertilizer for Fort Worth I.S.D., the percentage of nitrogen, phosphorus, and potassium content had to be determined. Two soil testing kits were used to test the soil. Neither the _____ kit nor the _____ testing kit gave

conclusive data. After two weeks of soil testing, the soil was sent to Texas A & M University for analysis. The soil testing results revealed that most of the Fort Worth I.S.D. soil is in good shape. Some of the lawns need nitrogen, but all that were tested are high in phosphorus and potassium and the pH level is good also. After analyzing this data, a 15-5-10 inorganic fertilizer applied at 7 lbs. per 1,000 square feet about four times a year is recommended.

After organizing our data, the attached analytical pamphlet was compiled that includes fertilizing, mowing, and watering recommendations for the Fort Worth I.S.D. front lawns. The pamphlet was sent to the grounds keepers at all of the Fort Worth schools. The goal of the pamphlet is to help the grounds keepers improve and maintain the health and appearance of school front lawns.

The knowledge gained by Period 1 in the fields of fertilizer and soil chemistry is immeasurable. This applied learning project was practical, pertinent, interesting. If you have any questions, please call _____.

Caring for Your Campus Lawn

3a Tools and Techniques for Working With Others: The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among team members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

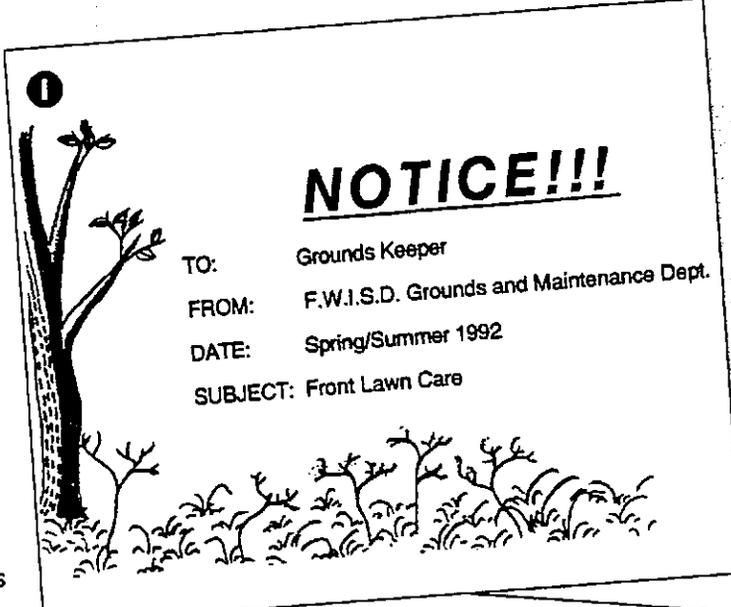
B The timetable indicates that students shared the load of the work required for the project by forming groups, each with responsibility for a specific component of the project. The record suggests cooperation among the groups to set objectives and maintain time frames. However, the available evidence does not allow for commentary on the effectiveness of the work processes the students adopted or their strategies for reviewing progress.

3c Tools and Techniques for Working With Others: The student completes a task in response to a commission from a client; that is, the student:

- negotiates with the client to arrive at a plan for meeting the client's needs that is acceptable to the client, achievable within available resources, and includes agreed-upon criteria for successful completion;
- monitors client satisfaction with the work in progress and makes adjustments accordingly;
- evaluates the result in terms of the negotiated plan and the client's evaluation of the result.

H I The client for this work was the Director of the Grounds and Maintenance Department for the school district. The memorandum to the Director documents communication between him and the students during the course of the project. But there is no evidence documenting negotiation of the plan or documenting the monitoring of the Director's satisfaction with the work in progress. The pamphlet the students wrote for grounds keepers, setting out procedures for lawn maintenance, appears under the title of the Grounds and Maintenance Department, which suggests that the Director was satisfied with the students' report and accepted their recommendations.

The written work included with this project contains some errors. For the main part the errors are confined to working documents which were not intended for publication. The three pieces of finished writing are the Proposal to the Principal (which contains an error in the spelling of "maintenance"), the memorandum to the Director, and the notice to grounds keepers.



1

NOTICE!!!

TO: Grounds Keeper
 FROM: F.W.I.S.D. Grounds and Maintenance Dept.
 DATE: Spring/Summer 1992
 SUBJECT: Front Lawn Care

PLEASE POST

CARING FOR YOUR CAMPUS LAWN

For a well maintained lawn follow these quick and easy steps!

FERTILIZATION

1. Measure the square footage of the lawn.
 To measure the square footage, multiply A and B together.

To get A & B, simply walk off the number of feet.

A B

Then, divide the answer of A and B by 1,000.
 Next, take the answer from above and multiply by 7. This gives you the amount of fertilizer in pounds for each time that you fertilize.

2. Fertilize on these dates for best results: April 15, June 1, July 15, September 1
3. Use 15-5-10 percentage fertilizer.
4. Requisition fertilizer from the F.W.I.S.D. warehouse.

MOWING

1. Mow the lawn at 2 inches weekly or when grass blade reaches one-third mowing height.
2. Leave grass clippings on the lawn--Don't Bag It!

WATERING

1. Water in early morning so less water is lost to evaporation.
2. Water thoroughly and infrequently making sure that in the summer the lawn gets 1 inch of water every week.

If you have any questions, please call _____ at _____.

This information is based on extensive research done in Mr. _____ first period chemistry class at _____ High School, 1991-1992.

The wide range of lawn areas of the various school campuses raises doubt about the adequacy of the sample used to arrive at the estimate of total lawn area. Given its derivation from the sample, the use of the exact figure (1,426,127 square feet) for some calculations is inaccurate. Rounding the figure to 33 acres is preferable, as used in "Organic vs. Inorganic."

Work Sample & Commentary: Fire and Home Safety

The task

Following several fire-related deaths in homes located in a community near the school campus, the students in a high school parenting class identified the need for local residents to become more aware of safety practices. The students assumed responsibility for planning and organizing a fire and home safety project in order to accomplish this goal. The project included home demonstrations of safety practices, installation of smoke detectors, and the distribution of first-aid kits and safety booklets.

Circumstances of performance

The students developed the safety project over a period of six weeks, in partnership with personnel from a local division of the fire department. Working usually in class or during the school day, the students produced work as individuals and in small groups and received feedback from peers and the teacher. The students were also assisted by other adults at the school. The teacher monitored the work to ensure that students accomplished content objectives.

What the work shows

- c **Problem Solving:** The student plans and organizes an event or an activity; that is, the student:
 - develops a planning schedule that:
 - is sensible in terms of the goals of the event or activity;
 - is logical and achievable;
 - reflects research into relevant precedents and regulations;
 - takes account of all relevant factors;
 - communicates clearly so that a peer or colleague could use it;

**APPLIED LEARNING PARENTING CLASS
JANUARY 17, 1996**

Captain _____ met with the first period students
 Jaquela _____
 Candice _____
 TaShica _____

The students discussed concerns, dates, time, transportation and meals.

The following are the results of the meeting:

1. On January 22 Captain _____ will meet with periods 1 & 2 at 1:00 to demonstrate CPR. The fire department will supply the mannequins. We need your permission to talk to our first period classes and arrange to meet with second period.
Principal will make arrangements
 Approval, Ms. _____, Principal _____ 1/17/96
2. On January 29, 30, & 31 both classes will go together to the homes of five families. We will share the following information with the help of the fire department:
 - a. install smoke detectors
 - b. demonstrate CPR
 - c. organize an escape route and a meeting place outside
 - d. teach children how to Stop, Drop, and Roll; check closed doors, and crew
 - e. present & discuss the first aid kit and its contents
 - f. 29th, we will work with 2 families from 9:00 am - 3:00 pm with the assistance of fire person Ms. Audi _____

30th we will meet with 2 more families at the same time with Captain _____

31st, we will meet with our last family from 9:00 am - 12:00 with the assistance of Captain _____

Captain _____ has agreed to be responsible for transportation on all days and we have all signed permission forms from our parents to ride either in the school car or in a government vehicle.

Also, if all goes well, Captain _____ and the fire department will be responsible for meals on two, hopefully three days.

Captain _____ did mention that if he could not get a van from the fire department, he will get in contact with Nina _____ and see if she will furnish one of those yellow buses.

3. We asked for a tour of one of the fire stations. Captain _____ suggested the largest, newest, and most equipped station at the Alliance Airport in between Fort Worth and Denton. February 5th is the date chosen. With your approval we will proceed with this field trip.
February 29, 30, 31
 Approval, Ms. _____, Principal _____ 1/18/96
4. One last request was made for the fire department to assign a female fire person to talk about a career as a fire person, educational requirements, etc. Captain _____ volunteered Ms. Audi _____ for this request.

This work sample illustrates a standard-setting performance for the following parts of the standards:

- c **Problem Solving:** Plan and organize an event or an activity.
- a **Communication:** Make an oral presentation.
- a **Information:** Gather information.
- a **Learning and Self-management:** Learn from models.
- a **Working With Others:** Participate in the establishment and operation of a self-directed work team.

- implements and adjusts the planning schedule in ways that:
 - make efficient use of time, money, people, resources, facilities;
 - reflect established priorities;
 - respond effectively to unforeseen circumstances;
 - evaluates the success of the event or activity using qualitative and/or quantitative methods;
 - makes recommendations for planning and organizing subsequent similar events or activities.
- Having clearly defined a need and a goal, the students formulated a plan and followed it step by step

B

Itinerary for Fire and Home Safety Project

I. Introduction

Candice _____

II. Install smoke detectors

Lindsey _____

Stacey _____

Latoya _____

III. Explain contents of the first aid kit

Catrina _____

Roseanne _____

Jennifer _____

IV. Show how to: make escape routes choose a meeting place outside the home Stop, Drop, and Roll

TaShica _____

Tamara _____

JaQuita _____

Danya _____

V. Demonstrate CPR

Marie _____

Catherine _____

Candice _____

to a successful conclusion. The students recorded the process in a scrapbook in such a way that other people can easily follow it. (All the documents and photographs shown here appeared originally in the scrapbook.)

A The project was proposed to the principal by a representative group from the class. The principal's approval is implied by her approval of this subsequent, related correspondence.

B The students accomplished the goal of increasing the families' awareness of safety practices by arranging to visit several homes. At the homes, they installed smoke detectors; demonstrated CPR, the Heimlich maneuver, and "Stop, Drop, Roll," and helped families chart escape routes in case of a fire.

A They made all the arrangements needed to organize the home visits. Their involvement of a captain from the local fire department provided the students with a direct (and essential) source of information and advice on relevant regulations. The captain trained them in administering CPR and the Heimlich maneuver. He also helped them install the smoke detectors when they visited the families.

C D After researching relevant procedures, the students wrote a "Home Safety Check List" for posting in the homes and designed a safety booklet for use by the families. These are extracts from the safety booklet.

G

Home Safety Check List

- *Post local emergency numbers(s).
- *Have battery-operated smoke detectors.
- *Keep medications safely and securely stored out of the reach of children.
- *Keep cleaners and other poisonous materials safely and securely stored.
- *Turn off the oven and other appliances after use.
- *Keep a working fire extinguisher in your home.
- *Have an emergency plan in the event of injury, sudden illness, or natural disaster.
- *I practice emergency plans with my family or roommates.
- *Wear a safety belt when driving or riding in a motor vehicle.
- *Refrain from operating motor vehicles after drinking alcoholic beverages.
- *If you own a gun, you should keep it unloaded and locked in a safe place.
- *Stairs where you live should have rails.
- *Use a stepladder or sturdy stool to reach high, out-of-reach objects.
- *Have adequate lighting in halls and stairways.
- *Use good lifting techniques when lifting.
- *You and your child should wear a helmet when riding a bicycle, motorcycle, or skateboarding.
- *You and your child should wear a lifejacket when participating in activities on or near the water.
- *You should use safety protection, such as goggles and hearing protection, and follow equipment safety recommendations when operating power tools.

D

-Preparing for emergencies

-Keep information about you and your family in a handy place, such as on the refrigerator door or in your automobile glove compartment.

-Keep medical and insurance records up-to-date.

-Find out if your community is served by an emergency 911 telephone number. If it is not, look up the numbers for the police or fire department, EMS, and poison control center. Emergency numbers are usually listed in the front of the telephone book. Teach everyone in your home how and when to use these numbers.

-Keep emergency telephone numbers in handy place, such as by the telephone or in the first aid kit. Include home and work numbers of family members and friends who can help. Be sure to keep both lists current.

-Keep a first aid kit handy in your home, automobile, workplace, and recreation area.

-Learn and practice first aid skills.

-Make sure your house or apartment number is easy to read. Numerals are easier to read than spelled out numbers.

-Wear a medical alert tag if you have the a potentially serious medical condition, such as epilepsy, diabetes, heart disease, or allergies.



D

Gun Safety

Every day in America, 12 children under the age of 10 are killed by a gun. Many more are wounded.

The numbers are shocking and disturbing. But, worst of all, they're growing. And what makes this problem especially painful is that it doesn't have to happen.

Parents who have guns in their homes, and even those who don't, should educate their children about the dangers of firearms. News reports state that nearly 90% of accidental shootings involving children are linked to easy-to-find, loaded handguns in the home. Here are some guidelines to help prevent you and your child from becoming victims of unnecessary tragedy.

*Guns should be stored and locked away so they are not accessible to children.

*Any gun that is in the house should be unloaded at all times.

*Ammunition should be stored the same way as guns - out of reach and out of sight. It should also be locked away in a different place than the gun.

*Ask your local police for education on safe storage and gun locks.

*In case children encounter a gun in their own home, at a friend or neighbor's house, or in a public place, they should be taught to follow these simple but important rules:



Fire and Home Safety



ary 10, 1996

ies and Gentlemen:

New Lives Parenting Class is currently working on a fire and home safety project. This is an applied learning class, therefore each student is personally responsible for the success of our project. Our class has adopted the _____ Fire Department to help us educate five families. We plan to teach these families to install smoke detectors, demonstrate CPR, and show various other home safety procedures. We are also putting together a safety book explaining what to do in emergency situations. The final project we are working on is putting together a first aid kit for these five families including things such as:

- bandages
- alcohol
- aid tape
- gauze pads
- packs
- neosporin
- oral thermometer
- peroxide
- scissors
- tweezers

We wanted to know if your organization could donate any of these items for our community project. If donations are possible we can pick them up by January 16, 1996. We can be contacted at _____ Ext.118. Any donations would be greatly appreciated.

Sincerely,

Mrs. _____ Parenting Class

[Signature]
Approval, Ms. _____, Principal

G

Thank you letters that must be written.

1. *Athenas*. A letter to all parents for letting us come into their home and make the presentation.
2. *Saquita*. A letter to Mr. John _____ for his patience and donation of reduced prices for the meals.
3. *Carolee*. Captain _____ for waiting us all over city hall after we had a delicious meal.
4. *Maria*. Randy for driving and having a good time with us.
5. Ms. _____ for going on the field trip with us *Collins*.
6. Ms. _____ for going on the field trip with us.
7. *La Sayat*. _____ for their donation of pizza.
8. *Tahseer*. _____ Fire Department for sharing two of their vans for transportation.
9. *Becky*. Mrs. _____ for furnishing the last family for us.
10. *Jennifer*. Assistant city manager for sitting and encouraging us to pursue a career in life to us.
11. *Letitia*. The acting mayor for the pains and for taking time from her busy schedule to talk to us.
12. *Jenny*. Mrs. _____ for her support and guidance/paying for transportation to _____.
13. *Jasmin*. Mrs. _____ / Mrs. _____ for proof reading and checking the grammar on most of the papers we mailed or faxed from the building.
14. *Rendy*. A letter to all donors letting them know the project was a success and because of their donations we were able to help five families in this city.
15. *[Signature]*. A letter to _____ Telegram (Class Acts) explaining our project and the success we had.
16. *Steve*. A write up to Channel _____ (Family First) again explaining our project and the success.

E Later, the class collected supplies for first-aid kits that they gave to the families.

E The samples contain evidence that the students considered relevant factors and made efficient use of time, people, and resources. Because their resources for funding the project were limited, the students made strategic decisions to explore alternatives. They contacted representatives of several businesses and organizations, including the acting mayor, and asked for donations or supplies in order to provide families with first-aid kits and smoke detectors.

G The thank you list confirms their success.

H When possible, students located information written in Spanish and included it in their safety materials in order to accommodate bilingual families.

I E K The thank you note from one of the families and the students' own evaluations indicate the activity accomplished its goal. The students used professional practices, hence their assessment of the project as a success was based not only on their opinion but also on comparison of their performance with that of adults who perform these same tasks.

Fire and Home Safety

CIUDAD DE FORT WORTH, TEXAS

PROTEJA SU CASA DE INCENDIOS FATALES



DETECTORES DE HUMO:

1. Siempre vigile si se instalan y se mantienen en buenas condiciones.
2. Usted debe de tener detectores de humo cerca de las recámaras (alcobas, dormitorios).
3. Detectores de humo deben de instalarse por lo menos 12 (doce) pulgadas de la pared.
4. Sus probabilidades de sobre vivir un incendio, obviamente son mejores si se instalan más de un detector de humo.
5. Los detectores de humo se deben mantener limpios, sacudidos y aspirados regularmente.
6. Revise su detector de humo cada mes y cambie las pilas cuando sea necesario.
7. Es necesario cambiar las pilas de los detectores de humo cuando los oiga saber.
8. Usted debe de tener un plan de escape, y practicar con su familia por lo menos dos veces al año.
9. Si usted necesita un detector de humo y no tiene medios para pagarlo, comuníquese al número 871-6811 para ver si califica para recibir un detector de humo gratuitamente.



BARANDILLAS, REJAS, O PARRILLAS DE ACERO EN SUS VENTANAS Y PUERTAS:

1. Ofrece una protección, pero puede hacer el escape de emergencia imposible para los ocupantes.
2. Deben de ser instaladas según los requisitos y reglamentos del Departamento de Bomberos.
3. Por lo menos una de las rejas, parrillas, o barandillas, de cada cuarto debe de estar equipada con seguros que puedan permitir abrirse por dentro sin tener que usar llave, conocimientos especiales, o sin alterarla.
4. Si usted está planeando comprar e instalar una casa, o si ya vive en una casa que tiene rejas, barandillas, o parrillas, asegúrese que sean revisadas por el Departamento de Bomberos o el Departamento de Vivienda para asegurar que dichas rejas, barandillas, o parrillas estén aprobadas.



5. Si su casa tiene barandillas, rejas, o parrillas, es necesario que la casa este equipada con detectores de humo.
6. Haga sus planes por adelantado y practique con su familia el plan de escape en caso de incendio.

See other side for English.

A2 Communication Tools and Techniques: The student makes an oral presentation of project plans or findings to an audience with expertise in the relevant subject matter; that is, the student:

- organizes the presentation in a logical way appropriate to its purpose;
- adjusts the style of presentation to suit its purpose and audience;
- speaks clearly and presents confidently;
- responds appropriately to questions from the audience;
- evaluates the effectiveness of the presentation and identifies appropriate revisions for a future presentation.

L As an integral component of the project, the students made oral presentations in which they combined practical applications with providing useful information. The students used the data they collected to explain home safety practices and then utilized the training they had received in order to demonstrate safety procedures to several families.

M The students performed the presentation and demonstration in the presence of a safety expert who accompanied them to the homes of the families. The hands-on nature of the presentation was appropriate for the audience and purpose of the task. The complimentary letter from the expert verifies that the students did "an outstanding job of communicating with...and...instructing [the] families...."

2-9-90

To whom it may concern
 Maria has come to my
 house and talked to me
 about home safety. She
 taught me CPR and told
 me what to do in case of
 a fire. She taught my
 kids how to stop, drop, and
 roll. We also put a smoke
 detector in my kitchen.

Thank you
 Nancy

J Final Evaluation

Fun, exciting, educational, and helpful are all the words I would use to describe what I liked most about the project. I used those words because of all the things we learned and then passed on to others. The best part was helping people and working with others to do that.

The project wouldn't have been as successful without Captain _____ He gave us a ride, donated smoke detectors, taught CPR and toured us at city hall. I also did my part by teaching (CPR) Cardiopulmonary Resuscitation. Which also made me feel good because our presentation may save a life.

The group that I worked with was great. We did our best to teach CPR and the hystic maneuver. We also learned as we taught.

If I could hang anything I would of given a little more time, but in all it turned out great.

The families participated very well. Even though they weren't always there on time or on the day, but they allowed us to educate them. So without them it really would not have been possible.

As I said the families were great and I didn't dislike anything about them. They actually made it a little more fun, because we went to city hall to learn more about government jobs. What I least liked about the project was just probably the weather being cold. I like warm weather. Things I learned through the project are how to work in a group and survival skills.

In all, the best part was helping to educate people on survival skills. I also liked being with the class and having a good time as we taught. Captain _____ is also a very fun person to be with.

If I was to grade myself and the class we would all get A's. The reason I think we should all get A's is because of all the hard work and devotion we gave toward the project. We are a great group, and no matter what grade we get I give us all A's.

Catherine _____
 February 9, 1998

Fire and Home Safety

2a Information Tools and Techniques: The student gathers information to assist in completing project work; that is, the student:

- identifies potential sources of information to assist in completing the project;
- uses appropriate techniques to collect the information, e.g., considers sampling issues in conducting a survey;
- interprets and analyzes the information;
- evaluates the information in terms of completeness, relevance, and validity;
- shows evidence of research in the completed project.

The project required the collection of information about safety practices.

N O One group of students took responsibility for researching the effects of smoke inhalation and teaching the class about ways of avoiding these effects.



K

Final Evaluation

At the beginning of the project I really thought that it was a good idea. We were going to be able to teach families how important it is to be ready in case of a fire. I helped develop the home safety book, which included information on what to do in an emergency.

What I liked most about the project was that I got to interact with my classmates. Since I'm very shy it gave me the opportunity to work and get to know them. I wouldn't change anything about the project because it was all well organized. We provided all the information that was needed and was very important to know.

When we went out to the families I had to demonstrate CPR. We taught families what to do if an infant or grown-up is choking or not breathing. The group I worked with was very cooperative and friendly. We agreed on everything and helped each other. The visit to the families was fun. They were nice and generous with us. They listened to what we had to say and most important of all, they let us come into their homes.

What I learned during the project was that it is very important to be prepared in case of emergencies. That having an escape route and a meeting place can save many lives. The fire department educated us and in turn we educated the families. We adopted the _____ Fire Department. Captain _____ works for the fire department educating people in the community about home safety. He was very helpful to us in this project because he provided transportation to families houses. Captain _____ also helped install the smoke detectors which he and the _____ Fire Department provided.

If I were grading myself I would give myself an A. The reason for this is that I think I explained CPR very good. I got along with my classmates and did what I was told to do. I also believe, for me being so shy I really came out and did my part for this project.

Maria _____

Mrs. _____

February 9, 1996

M

CITY OF _____



June 4, 1996

To Whom it May Concern:

It was my pleasure to work with the Parenting Students at _____ School to teach fire and home safety to five families in Fort Worth. The students and I went out to the homes of these five families and provided the following:

- CPR Training
- First Aid Training
- Rescue Breathing
- Installed Smoke Detectors
- Presented a Home Safety Book that discussed treatment and illustrated types of burns, insect bites, and poisonings. The book also included fire escape and tornado drill planning for homes, etc.
- Presented a Home safety kit with the essentials for common accidents in the home.

The _____ Parenting students did an outstanding job of communicating with the families and sharing very important and needed information. It was wonderful working with students that had a purpose and motivation to work with others in their neighborhood.

The students were excellent and did an outstanding job of instructing families. I strongly feel that this lifesaving information could possibly aid in saving a life in a fire or emergency medical situation.

Thank you,

Lucy
Captain Lucy _____

Fire and Home Safety

What Smoke Inhalation does to your lungs in a fire and why it causes death

Sanya

When you breathe, air enters through the nose or mouth, passes through the pharynx, and then moves downward into the trachea, or windpipe. After it goes down the windpipe, it goes into two large tubes called bronchial tubes. At the end of the bronchial tubes there are alveoli sacs. Oxygen and carbon dioxide exchange occurs in the alveoli. Blood then reaches the alveoli via capillaries which come from the pulmonary arteries. In the alveoli, the level of carbon dioxide is low and the oxygen level is high. Under these conditions, the carbon dioxide in the blood diffuses into the alveoli and the oxygen in the alveoli diffuses into the blood. This is the breathing process for a normal person.

Hilda

When smoke from a fire goes through, it passes the same way. The chemicals in the fire are absorbed by the lungs and transferred to other parts of the body to do damage. The irritant gases include chlorine, nitrogen, dioxide, ammonia, and sulfur dioxide. These cause changes in the

Hilanda

Airways, including inflammation and obstruction of the airways. There is an airway obstruction because of chemical tracheobronchitis caused by inhalation of particulate debris and irritant volatile vapors from synthetic polymers on materials used in construction, furniture, and decorations. Instead of breathing in oxygen, you breathe in heated gas that cooks your lungs. You don't receive any oxygen and the only thing that your body has is the toxic gas, which eventually kills you. Most deaths from fires occur from smoke inhalation, and not from flames. Some of the most volatile vapors are in furniture, construction and decorations.

in h. l. ...
Sm: ka

4a Learning and Self-management Tools and Techniques: The student learns from models; that is, the student:

- consults with and observes other students and adults at work and analyzes their roles to determine the critical demands, such as demands for knowledge and skills, judgment, and decision making;
- identifies models for the results of project work, such as professionally produced publications, and analyzes their qualities;
- uses what he or she learns from models in planning and conducting project activities.

H The students modeled their work on the work of a safety expert, a captain from the local fire department. The safety expert provided training in the techniques the students were to demonstrate to the families and was in attendance at each of the home visits. There is evidence of the students making use of what they learned from their model in planning and conducting the project. The safety expert supported this in his evaluation of the students' work.

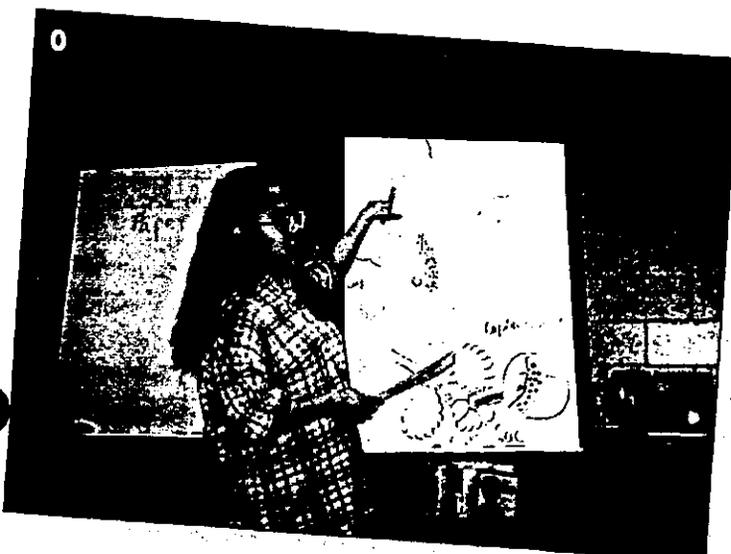
3a Tools and Techniques for Working With Others: The student participates in the establishment and operation of self-directed work teams; that is, the student:

- defines roles and shares responsibilities among members;
- sets objectives and time frames for the work to be completed;
- establishes processes for group decision making;
- reviews progress and makes adjustments as required.

B The itinerary indicates that the students organized themselves into teams to conduct the project with each team taking responsibility for a specific aspect of the project.

J K The students' self-evaluations provide some evidence of the work processes established by the groups, but do not provide evidence on which to base specific commentary in relation to the criteria identified above.

The written work included with this project contains some errors. For the main part, the errors are confined to working documents which were not intended for publication. The three pieces of finished writing are the proposal, the Home Safety Check List, and the extracts from the safety booklet. These contain virtually error free writing.



Thurgood Marshall Academy Charter School Amendments to Charter Application

#2: Elaborate on how assessment results will be used to make adjustments in instruction, not only for individual students, but also for whole classes or the school as a whole.

Teachers constantly will use authentic assessments from outside sources or of their own design (collaboratively created) to diagnose student weaknesses and strengths. Armed with this information, teachers and school leadership will strategize across disciplines to improve and adjust instruction in the school programs, as well as to decide academic needs, appropriate support strategies, and ultimately, student promotion. Built into the weekly schedule will be time for teachers to collaborate and plan curricula, significantly informed by these assessments. At trimester evaluation periods, the school as a whole will examine the results of the school assessments to determine patterns of academic struggles and to create instructional strategies to address them. At the conclusion of each school “level” (see #1, above, and Accountability Plan, previously submitted), students will be assessed according to school performance standards and promotion will be based on those assessments.

External assessment measurements, such as standardized exams like the SAT-9 and America’s Choice Reference Exams, will give annual gauges of each student’s competencies, and the results will be considered in future pedagogical methods and instructional content. In June of 2001, after the students have enrolled, teachers and America’s Choice will administer assessments to measure students’ skills in English and math. That information will significantly influence the development of curriculum during the summer. After students take the SAT-9 exam in the Fall of their first year, the results will be disaggregated to clarify school- and class-wide trends as well as individual student strengths and weaknesses. If a significant number of students are weak in a particular area, the curriculum as a whole will shift to address those weaknesses. Alternatively, if only a few students suffer from deficiencies on a particular matter tested, those students will have those weaknesses addressed as part of their after-school or Saturday tutoring.

Internal assessments will be used prevalently and have high internal validity, reliability, and weight. They (like America’s Choice Reference Exams) will be based on the benchmarks of the New Performance Standards (published by the National Center on Education and the Economy—see #1, above) and ultimately determine student promotion and remedial needs. Performance and other authentic assessments aligned with those school-wide standards will be an integral part of classroom instruction, and the school culture among staff and students will integrate reflection and planning for improvement based on those assessments.

At the end of the two years of Lower School, each student will be evaluated according to the standards in each subject. If they have demonstrated proficiency in each standard, they may advance to the Upper School. If at the end of their second year they fail to demonstrate proficiency, they will attend an intensive summer program to help them achieve the standards. If at the end of the summer program they are still not able to show proficiency, they will receive extra remediation during the subsequent school year while still remaining part of the Lower School. Similarly, students will not be permitted to graduate until they have demonstrated proficiency for each standard at the Upper



School level, with similar supplemental educational strategies. TMA adopts this stringent policy because we believe it is a disservice to young people and their parents to promote students if they have not satisfied our clearly-defined standards and expectations.



Thurgood Marshall Academy Public Charter School
Enrollment Projections

	SY01-02 Projection	SY02-03 Projection	SY03-04 Projection	SY04-05 Projection	SY05-06 Projection	SY06-07 Projection	SY07-08 Projection	SY08-09 Projection	SY09-10 Projection
Enrollment By Category & Grade Level									
Seventh	-	-	-	-	-	-	-	-	-
Eighth	-	-	-	-	-	-	-	-	-
Ninth	80	80	80	80	80	80	80	80	80
Tenth	-	80	80	80	80	80	80	80	80
Eleventh	-	-	80	80	80	80	80	80	80
Twelfth	-	-	-	80	80	80	80	80	80
Adults									
Adult Education (GED, ESL)	-	-	-	-	-	-	-	-	-
Capital Enhancement-Total Enrollment	80	160	240	320	320	320	320	320	320
Special Needs Supplemental									
<u>Funding Eligibility Levels</u>									
		% age							
Level 1	9	10.47%	17	26	34	34	34	34	34
Level 2	5	5.96%	10	15	20	20	20	20	20
Level 3	3	3.69%	6	9	12	12	12	12	12
Level 4									
LEP/NEP									
Summer School									
Other									
Total	17		33	50	66	66	66	66	66

**Thurgood Marshall Academy Public Charter School
Per Pupil Reimbursement Rates**

	SY00-01	SY01-02	SY02-03	SY03-04	SY04-05	SY05-06	SY06-07	SY07-08	SY08-09	SY09-10
	Budgeted									
<i>Per-Pupil Funding Allocations from DCPS</i>										
Seventh	5,728	5,871	6,018	6,168	6,322	6,480	6,642	6,808	6,979	7,153
Eighth	5,728	5,871	6,018	6,168	6,322	6,480	6,642	6,808	6,979	7,153
Ninth	7,466	7,680	7,872	8,069	8,271	8,478	8,690	8,907	9,130	9,358
Tenth	7,466	7,680	7,872	8,069	8,271	8,478	8,690	8,907	9,130	9,358
Eleventh	7,466	7,680	7,872	8,069	8,271	8,478	8,690	8,907	9,130	9,358
Twelfth	7,466	7,680	7,872	8,069	8,271	8,478	8,690	8,907	9,130	9,358
Adults										
Adult Education (GED, ESL)	4,296	4,403	4,513	4,626	4,742	4,860	4,982	5,106	5,234	5,365
<i>Capital Enhancement</i>	1,482	1,482	1,482	1,482	1,482	1,482	1,482	1,482	1,482	1,482
<i>Special Needs Supplemental Funding</i>										
Level 1	1,259.73	1,291.22	1,323.50	1,356.59	1,390.50	1,425.26	1,460.89	1,497.42	1,534.85	1,573.22
Level 2	4,581.75	4,696.29	4,813.70	4,934.04	5,057.39	5,183.83	5,313.43	5,446.26	5,582.42	5,721.98
Level 3	9,908.68	10,156.39	10,410.30	10,670.56	10,937.32	11,210.76	11,491.03	11,778.30	12,072.76	12,374.58
Level 4	18,330.00	18,788.25	19,257.96	19,739.41	20,232.89	20,738.71	21,257.18	21,788.61	22,333.33	22,891.66
LEP/NEP	2,290.88	2,348.15	2,406.85	2,467.02	2,528.70	2,591.91	2,656.71	2,723.13	2,791.21	2,860.99
Summer School	572.98	587.30	601.98	617.03	632.46	648.27	664.48	681.09	698.11	715.57
Residential	9,737.50	9,980.94	10,230.46	10,486.22	10,748.38	11,017.09	11,292.51	11,574.83	11,864.20	12,160.80

Thurgood Marshall Academy Public Charter School
 FORECASTED STATEMENT OF ACTIVITIES
 EACH YEAR OF THE NINE YEARS IN THE PERIOD ENDING SEPTEMBER 2010

	Pre-Opening 2001	PROJECTED SY01-02	PROJECTED SY02-03	PROJECTED SY03-04	PROJECTED SY04-05	PROJECTED SY05-06	PROJECTED SY06-07	PROJECTED SY07-08	PROJECTED SY08-09	PROJECTED SY09-10
Revenue										
District Charter Funding	\$ -	\$ 732,992	\$ 1,496,706	\$ 2,292,293	\$ 3,120,944	\$ 3,187,112	\$ 3,254,934	\$ 3,324,451	\$ 3,395,706	\$ 3,468,743
Federal Entitlements	55,000	156,572	255,098	343,317	423,673	430,665	437,831	445,177	452,706	460,424
Grants & Donations	769,500	450,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Donated Assets	42,000	105,000								
Interest Income	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Total Revenue	868,500	1,446,564	1,953,804	2,837,610	3,746,617	3,819,776	3,894,765	3,971,628	4,050,413	4,131,167
Expenses										
Operating Expenses										
Salaries and Fringe Benefits	123,690	453,530	1,147,471	1,407,654	1,609,750	1,658,043	1,707,784	1,759,017	1,811,788	1,866,141
General Expenses	16,000	127,100	252,190	344,665	423,260	426,856	430,560	434,375	438,304	442,351
Academic Expenses	-	76,000	136,000	194,000	252,000	252,000	252,000	252,000	252,000	252,000
Other Expenses	18,169	77,713	156,666	199,282	233,951	239,140	244,484	249,989	255,659	261,499
Total Operating Expenses	157,859	734,343	1,692,327	2,145,601	2,518,962	2,576,039	2,634,828	2,695,381	2,757,751	2,821,992
Change in Net Assets from Operations	710,641	712,221	261,477	692,009	1,227,655	1,243,738	1,259,937	1,276,247	1,292,662	1,309,175
Other Expenses										
New Construction	-	-	-	-	-	-	-	-	-	-
Depreciation & Amortization	8,400	32,500	38,700	48,000	58,900	61,400	48,200	52,900	54,500	54,500
Bond Interest	-	314,000	311,000	308,000	304,000	300,000	295,000	291,000	286,000	280,000
Interest Expense	-	-	-	-	-	-	-	-	-	-
Total Other Expenses	8,400	346,500	349,700	356,000	362,900	361,400	343,200	343,900	340,500	334,500
Total Expenses	166,259	1,080,843	2,042,027	2,501,601	2,881,862	2,937,439	2,978,028	3,039,281	3,098,251	3,156,492
Change in Net Assets	702,241	365,721	(88,223)	336,009	864,755	882,338	916,737	932,347	952,162	974,675
Net Assets/(Deficit), Beginning of Year	-	702,241	1,067,962	979,739	1,315,748	2,180,503	3,062,841	3,979,577	4,911,924	5,864,086
Net Assets/(Deficit), End of Year	\$ 702,241	\$ 1,067,962	\$ 979,739	\$ 1,315,748	\$ 2,180,503	\$ 3,062,841	\$ 3,979,577	\$ 4,911,924	\$ 5,864,086	\$ 6,838,761

Thurgood Marshall Academy Public Charter School
FORECASTED SCHEDULE OF CASH FLOWS
EACH YEAR OF THE NINE YEARS IN THE PERIOD ENDING SEPTEMBER 2010

	Pre-Opening 2001	Current SY01-02	Projected SY02-03	Projected SY03-04	Projected SY04-05	Projected SY05-06	Projected SY06-07	Projected SY07-08	Projected SY08-09	Projected SY09-10
COLLECTIONS:										
DEBT										
Proceeds from Bonds	\$ -	\$ 4,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Proceeds from Line of Credit/Mortgage	-	-	-	-	-	-	-	-	-	-
Investment Redemption	-	-	-	-	-	-	-	-	-	-
TOTAL DEBT	-	4,500,000	-	-	-	-	-	-	-	-
Revenue Collections	826,500	1,341,564	1,953,804	2,837,610	3,746,617	3,819,776	3,894,765	3,971,628	4,050,413	4,131,167
TOTAL COLLECTIONS	\$ 826,500	\$ 5,841,564	\$ 1,953,804	\$ 2,837,610	\$ 3,746,617	\$ 3,819,776	\$ 3,894,765	\$ 3,971,628	\$ 4,050,413	\$ 4,131,167
DISBURSEMENTS:										
Furniture and Fixtures	\$ -	\$ 8,000	\$ 16,000	\$ 24,000	\$ 32,000	\$ 32,000	\$ 32,000	\$ 32,000	\$ 32,000	\$ 32,000
Equipment	-	7,500	15,000	22,500	22,500	22,500	22,500	22,500	22,500	22,500
Textbooks	-	24,000	48,000	72,000	96,000	96,000	96,000	96,000	96,000	96,000
Leasehold Improvements	15,000	-	-	-	-	-	-	-	-	-
Building	-	4,900,000	-	-	-	-	-	-	-	-
Vehicles	-	-	-	-	-	-	-	-	-	-
Operating Expenses (total from expenses page)	157,859	734,343	1,692,327	2,145,601	2,518,962	2,576,039	2,634,828	2,695,381	2,757,751	2,821,992
Closing Costs	-	250,000	-	-	-	-	-	-	-	-
Debt Service -Bonds	-	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000
Debt Service - Other	-	-	-	-	-	-	-	-	-	-
TOTAL DISBURSEMENTS	\$ 172,859	\$ 6,283,843	\$ 2,131,327	\$ 2,624,101	\$ 3,029,462	\$ 3,086,539	\$ 3,145,328	\$ 3,205,881	\$ 3,268,251	\$ 3,332,492
EXCESS/(DEFICIT)	653,641	(442,279)	(177,523)	213,509	717,155	733,238	749,437	765,747	782,162	798,675
BEGINNING CASH	-	653,641	211,362	33,839	247,348	964,503	1,697,741	2,447,177	3,212,924	3,995,086
Cash Balance Before Other Interest Income	\$ 653,641	\$ 211,362	\$ 33,839	\$ 247,348	\$ 964,503	\$ 1,697,741	\$ 2,447,177	\$ 3,212,924	\$ 3,995,086	\$ 4,793,761
Other Interest Income	-	-	-	-	-	-	-	-	-	-
ENDING CASH	\$ 653,641	\$ 211,362	\$ 33,839	\$ 247,348	\$ 964,503	\$ 1,697,741	\$ 2,447,177	\$ 3,212,924	\$ 3,995,086	\$ 4,793,761

**Thurgood Marshall Academy Public Charter School
Expenses**

	Pre-Opening	SY01-02	SY02-03	SY03-04	SY04-05	SY05-06	SY06-07	SY07-08	SY08-09	SY09-10
Student Count	0	80	160	240	320	320	320	320	320	320
Staff Count:										
Executive Director	0.5	1	1	1	1	1	1	1	1	1
Principal	0.5	1	1	1	1	1	1	1	1	1
Teachers - Master	0	0	3	4	5	5	5	5	5	5
Teachers - Mid Level	0.2	2	6	6	6	6	6	6	6	6
Teachers - First Level	0.1	1	3	4	5	5	5	5	5	5
Teachers - Special Ed.	0.1	-	1	2	2	2	2	2	2	2
Counselor / Social Worker	0	1	1	2	2	2	2	2	2	2
Clerical Positions	0.5	1	2	2	3	3	3	3	3	3
Custodian	0	0.5	1	1	1	1	1	1	1	1
Information Systems Coordinator	0.5	1	1	1	1	1	1	1	1	1
Security	0	1	2	2	2	2	2	2	2	2
Students per Teacher	0	20	12	15	18	18	18	18	18	18
Salaries (per Staff Member):										
Executive Director	65,000	65,000	75,000	77,250	79,568	81,955	84,413	86,946	89,554	92,241
Principal	65,000	65,000	75,000	77,250	79,568	81,955	84,413	86,946	89,554	92,241
Teachers - Master	50,000	50,000	51,500	53,045	54,636	56,275	57,964	59,703	61,494	63,339
Teachers - Mid Level	40,000	40,000	41,200	42,436	43,709	45,020	46,371	47,762	49,195	50,671
Teachers - First Level	35,000	35,000	36,050	37,132	38,245	39,393	40,575	41,792	43,046	44,337
Teachers - Special Ed.	40,000	40,000	41,200	42,436	43,709	45,020	46,371	47,762	49,195	50,671
Counselor / Social Worker	35,000	35,000	36,050	37,132	38,245	39,393	40,575	41,792	43,046	44,337
Clerical Positions	25,000	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747	31,669
Custodian	22,000	22,000	22,660	23,340	24,040	24,761	25,504	26,269	27,057	27,869
Information Systems Coordinator (Volunteer)	-	-	-	-	-	-	-	-	-	-
Security	25,000	25,000	25,750	26,523	27,318	28,138	28,982	29,851	30,747	31,669
Total Salaries & Benefits	123,690	453,530	1,147,471	1,407,654	1,609,750	1,658,043	1,707,784	1,759,017	1,811,788	1,866,141

Depreciation:

Operating Expenses:

General										
Janitorial Supplies	-	500	1,030	1,591	2,185	2,251	2,319	2,388	2,460	2,534
Electrical/Plumbing Maintenance	-	1,000	2,060	3,183	4,371	4,502	4,637	4,776	4,919	5,067
HVAC	-	1,000	2,060	3,183	4,371	4,502	4,637	4,776	4,919	5,067
Elevator	-	-	-	-	-	-	-	-	-	-
General Building / Leasehold Improvements	15,000	-	-	-	-	-	-	-	-	-
Energy/Utilities	-	12,000	24,720	38,192	52,451	54,024	55,645	57,315	59,034	60,805
Grounds Maintenance	-	-	5,000	5,150	5,305	5,464	5,628	5,796	5,970	6,149
Garbage Removal	-	2,000	4,120	6,365	8,742	9,004	9,274	9,552	9,839	10,134
Administrative Supplies / Office Expenses	-	30,000	40,000	41,200	42,436	43,709	45,020	46,371	47,762	49,195
<i>Office Supplies and Materials</i>										
<i>Office Furnishings and Equipment</i>										
<i>Office Rental Equipment</i>										
<i>Telephone/Telecommunications</i>										
<i>Legal, Accounting, Payroll Services</i>										
<i>Printing and Copying</i>										
<i>Postage and Shipping</i>										
<i>Other</i>										
Food Services (Kitchen Staff & Delivery)	-	15,000	45,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Food & Provisions	-	57,600	115,200	172,800	230,400	230,400	230,400	230,400	230,400	230,400
Marketing & Promotions	-	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Development (Fundraising)	-	-	-	-	-	-	-	-	-	-
Insurance (incl. D&O, G&L, Crime, Auto, etc.)	1,000	5,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total General Operating Expenses	16,000	127,100	252,190	344,665	423,260	426,856	430,560	434,375	438,304	442,351
Academic										
Textbooks	-	24,000	48,000	72,000	96,000	96,000	96,000	96,000	96,000	96,000
Classroom paper and supplies (student supplies)	-	8,000	16,000	24,000	32,000	32,000	32,000	32,000	32,000	32,000
Field trips	-	8,000	16,000	24,000	32,000	32,000	32,000	32,000	32,000	32,000
Student assessment materials	-	8,000	16,000	24,000	32,000	32,000	32,000	32,000	32,000	32,000
America's Choice	-	8,000	20,000	30,000	40,000	40,000	40,000	40,000	40,000	40,000
Curriculum development	-	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Total Academic Operating Expenses	-	76,000	136,000	194,000	252,000	252,000	252,000	252,000	252,000	252,000
Other Expenses (10%)	18,169	77,713	156,666	199,282	233,951	239,140	244,484	249,989	255,659	261,499
Total Expenses	157,859	734,343	1,692,327	2,145,601	2,518,962	2,576,039	2,634,828	2,695,381	2,757,751	2,821,992

**Thurgood Marshall Academy Public Charter School
Revenue Projections**

	2001 Pre-Opening	SY01-02 Projection	SY02-03 Projection	SY03-04 Projection	SY04-05 Projection	SY05-06 Projection	SY06-07 Projection	SY07-08 Projection	SY08-09 Projection	SY09-10 Projection
District Charter Funding										
<i>Per-Pupil Funding Allocations from DCPS</i>										
Seventh	-	-	-	-	-	-	-	-	-	-
Eighth	-	-	-	-	-	-	-	-	-	-
Ninth	-	614,432.00	629,792.80	645,537.62	661,676.06	678,217.96	695,173.41	712,552.75	730,366.56	748,625.73
Tenth	-	-	629,792.80	645,537.62	661,676.06	678,217.96	695,173.41	712,552.75	730,366.56	748,625.73
Eleventh	-	-	-	645,537.62	661,676.06	678,217.96	695,173.41	712,552.75	730,366.56	748,625.73
Twelfth	-	-	-	-	661,676.06	678,217.96	695,173.41	712,552.75	730,366.56	748,625.73
Adults	-	-	-	-	-	-	-	-	-	-
Adult Education (GED, ESL)	-	-	-	-	-	-	-	-	-	-
Total Per Pupil	-	614,432.00	1,259,585.60	1,936,612.86	2,646,704.24	2,712,871.85	2,780,693.64	2,850,210.99	2,921,466.26	2,994,502.92
Capital Enhancement	-	118,560.00	237,120.00	355,680.00	474,240.00	474,240.00	474,240.00	474,240.00	474,240.00	474,240.00
Total District Charter Funding	-	732,992.00	1,496,705.60	2,292,292.86	3,120,944.24	3,187,111.85	3,254,933.64	3,324,450.99	3,395,706.26	3,468,742.92
Federal Entitlements										
<i>Special Needs Supplemental Funding</i>										
Level 1	-	11,620.96	22,499.48	35,271.24	47,277.02	48,458.95	49,670.42	50,912.18	52,184.99	53,489.61
Level 2	-	23,481.47	48,137.01	74,010.65	101,147.89	103,676.59	106,298.51	108,925.22	111,848.35	114,439.56
Level 3	-	30,489.18	62,481.81	96,035.03	131,247.88	134,529.08	137,892.30	141,339.61	144,873.10	148,494.93
Level 4	-	-	-	-	-	-	-	-	-	-
LEP/NEP	-	-	-	-	-	-	-	-	-	-
Summer School	-	-	-	-	-	-	-	-	-	-
Total Special Needs Supplemental	-	65,571.61	133,098.30	205,318.92	279,872.80	286,664.62	293,831.23	301,177.01	308,706.44	316,424.10
<i>Federal Entitlements (non-Special Needs)</i>										
Title I	-	36,000.00	72,000.00	108,000.00	144,000.00	144,000.00	144,000.00	144,000.00	144,000.00	144,000.00
Title II	-	-	-	-	-	-	-	-	-	-
Title IV	-	-	-	-	-	-	-	-	-	-
Title VI	-	-	-	-	-	-	-	-	-	-
Title VII	-	-	-	-	-	-	-	-	-	-
Goals 2000	-	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-
Title X	55,000.00	55,000.00	50,000.00	30,000.00	-	-	-	-	-	-
Total Federal Entitlements (non-Special Needs)	55,000.00	91,000.00	122,000.00	138,000.00	144,000.00	144,000.00	144,000.00	144,000.00	144,000.00	144,000.00
Total Per Pupil & Entitlements Revenue	55,000.00	889,563.61	1,751,803.90	2,635,609.78	3,544,617.04	3,617,776.48	3,692,764.88	3,769,828.00	3,848,412.70	3,929,167.01
Grants and Donations										
Grants	169,500.00	250,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
Donations	600,000.00	200,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
Total Grants and Donations	769,500.00	450,000.00	200,000.00							
Grand Total	824,500.00	1,339,563.61	1,951,803.90	2,835,609.78	3,744,617.04	3,817,776.48	3,892,764.88	3,969,628.00	4,048,412.70	4,129,167.01

**PROPOSAL TO ACQUIRE
THE NICHOLS AVENUE SCHOOL PROPERTY
2427 Martin Luther King, Jr., Avenue, SE**

SUBMITTED TO:

**Chief, Development Finance Division
D.C. Department of Housing and Community Development
801 North Capitol Street, N.E.
Washington, DC 20002**

SUBMITTED BY:

**THURGOOD MARSHALL ACADEMY
PUBLIC CHARTER HIGH SCHOOL**

MARCH 12, 2001

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 - 2. Articles of Incorporation
 - 3. By-Laws
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 - 2. Developer Experience
 - 3. Development Program

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I. IDENTIFICATION OF PROJECT DEVELOPER

Statement of Public Disclosure (HUD form 6004, Part I)

Statement of Qualifications and Financial Responsibility (HUD form 6004, Part II)

TMA Organizational Documents

- Certificate of Incorporation
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- By-Laws

Development Team Information

- Development Team Members
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- Development Program

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
PART I - REDEVELOPER'S STATEMENT FOR PUBLIC DISCLOSURE

(Redevelopment or rehabilitation for any use by an individual or two persons as joint owners when the reuse value is under \$30,000)

A. REDEVELOPER AND LAND

- 1. a. Name of Redeveloper: Thurgood Marshall Academy
- b. Address and ZIP Code of Redeveloper: 600 New Jersey Avenue, NW
Washington, DC 20001
- 2. The land on which the Redeveloper proposes to enter into a contract for, or understanding with respect to, the purchase or lease of land from
Redevelopment Land Agency
(Name of Local Public Agency)

Nichols Avenue School, 2427 Martin Luther King, Jr. Ave, SE
(Name of Urban Renewal or Redevelopment Project Area)

in the City of Washington, State of District of Columbia
is described as follows:²

Square: 5860, Lot: 1024

3. State the reuse value \$ TBD

B. RESIDENTIAL REDEVELOPMENT OR REHABILITATION

- 1. State the Redeveloper's estimates, exclusive of payment for the land, for: N/A
 - a. Total cost of the residential redevelopment \$
 - b. Cost per dwelling unit of the residential redevelopment \$
 - c. Total cost of the residential rehabilitation \$
 - d. Cost per dwelling unit of the residential rehabilitation \$
- 2. a. If the proposed redevelopment or rehabilitation is for more than one dwelling unit, state the Redeveloper's estimate of the monthly rental (if to be rented) or average sale price (if to be sold) of the dwelling units involved:

<u>TYPE AND SIZE OF DWELLING UNIT</u>	<u>ESTIMATED MONTHLY RENTAL</u>	<u>ESTIMATED SALE PRICE</u>
	\$	\$
<u>N/A</u>		

¹ If space on this form is inadequate for any requested information, it should be furnished on an attached page which is referred to under the appropriate numbered item on the form.

² Any convenient means of identifying the land (such as block and lot numbers of street boundaries) is sufficient. A description by metes and bounds or other technical description is acceptable, but not required.

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
PART I - REDEVELOPER'S STATEMENT FOR PUBLIC DISCLOSURE (Continued)

b. State the utilities and parking facilities, if any, included in the foregoing estimates of rentals:

N/A

c. State equipment, such as refrigerators, washing machines, air conditioners, if any, included in the foregoing estimates of sales prices:

CERTIFICATION

I (We)¹ Josh Kern

certify that this Redeveloper's Statement for Public Disclosure is true and correct to the best of my (our) knowledge and belief.²

Dated: 10-12-2001

Dated: _____

Josh Kern
Signature

Signature

Executive Director, Thurgood Marshall Academy
Title

Title

600 New Jersey Avenue, NW, 20001
Address and ZIP Code

Address and ZIP Code

¹ If the Redeveloper consists of two or more persons jointly (including tenants by the entirety), this statement must be signed by each of them.

² Penalty for False Certification: Section 1001, Title 18, of the U.S. Code, provides a fine of not more than \$10,000 or imprisonment of not more than five years, or both, for knowingly and willfully making or using any false writing or document, knowing the same to contain any false, fictitious or fraudulent statement, or entry in a matter within the jurisdiction of any Department of the United States.

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

PART II - REDEVELOPER'S STATEMENT OF QUALIFICATIONS AND FINANCIAL RESPONSIBILITY

(Redevelopment or rehabilitation for any use by an individual or two persons as joint owners when the reuse value is under \$30,000)

(For confidential official use of the Local Public Agency and the Department of Housing and Urban Development. Do Not Transmit to HUD Unless Requested.)

- 1. a. Name of Redeveloper: Thurgood Marshall Academy
- b. Address and ZIP Code of Redeveloper: 600 New Jersey Avenue, NW
Washington, DE 20001
- 2. The land on which the Redeveloper proposes to enter into a contract for, or understanding with respect to, the purchase or lease of land from

Redevelopment Land Agency
(Name of Local Public Agency)

in Nichols Avenue School, 2427 Martin Luther King, Jr. Avenue, SE
(Name of Urban Renewal or Redevelopment Project Area)

in the City of Washington, State of District of Columbia
is described as follows:

Square: 5860, Lot: 1024

- 3. If funds for the development of the land are to be obtained from sources other than the Redeveloper's own funds, a statement of the Redeveloper's plan for financing the acquisition and development of the land:

See attached documentation.

- 4. Sources and amount of cash available to the Redeveloper to meet equity requirements of the proposed undertaking, and creditors of the Redeveloper: See attached documentation.

a. In banks:

NAME, ADDRESS AND ZIP CODE OF BANK

AMOUNT

CityFirst Bank of DC
2400 B, 14th Street, NW
Washington, DC 20009

\$ 224,000

b. By loans from other:

NAME, ADDRESS AND ZIP CODE OF SOURCE

AMOUNT

\$

c. By sale of readily salable assets:

DESCRIPTION

MARKET VALUE

MORTGAGES OR LIENS

\$

\$

- d. List of creditors to whom \$100 or more is owed

AMOUNT OWED

\$

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

PART II - REDEVELOPER'S STATEMENT OF QUALIFICATIONS AND FINANCIAL RESPONSIBILITY (Continued)

5. Names, addresses and ZIP Codes of bank references:

Mr. Thomas Nida 2400 B 14th Street, NW
Senior Vice President Washington, DC 20009
City First Bank of DC (202) 939-7607

6. Has the Redeveloper been adjudged bankrupt, either voluntary or involuntary, within the past 10 years?

If Yes, give date, place, and under what name.

YES

NO

7. a. Does any member of the governing body of the Local Public Agency to which the accompanying bid or proposal is being made or any officer or employee of the Local Public Agency, who exercises any functions or responsibilities in connection with the carrying out of the project under which the land covered by the Redeveloper's proposal is being made available, have any direct or indirect personal interest in the Redeveloper or in the redevelopment or rehabilitation of the property upon the basis of such proposal?

YES

NO

If Yes, explain.

b. Does any member of the governing body of the locality in which the Urban Renewal Area is situated or any other public official of the locality, who exercises any functions or responsibilities in the review or approval of the carrying out of the project under which the land covered by the Redeveloper's proposal is being made available, have any direct or indirect personal interest in the Redeveloper or in the redevelopment or rehabilitation of the property upon the basis of such proposal?

YES

NO

If Yes, explain.

CERTIFICATION

I (We) Josh Kern

certify that this Redeveloper's Statement of Qualifications and Financial Responsibility and the attached evidence of Redeveloper's qualifications and financial responsibility, including financial statements, are true and correct to the best of my (our) knowledge and belief.²

Dated: 10-12-2001

Dated: _____

Josh Kern
Signature

Signature

Executive Director, Thurgood Marshall Academy
Title

Title

600 New Jersey Avenue, NW, 20001
Address and ZIP Code

Address and ZIP Code

¹ If the Redeveloper consists of two or more persons jointly (including tenants by the entirety), this statement must be signed by each of them.

² Penalty for False Certification: Section 1001, Title 18, of the U.S. Code, provides a fine of not more than \$10,000 or imprisonment of not more than five years, or both, for knowingly and willfully making or using any false writing or document, knowing the same to contain any false, fictitious or fraudulent statement, or entry in a matter within the jurisdiction of any Department of the United States.

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS



C E R T I F I C A T E

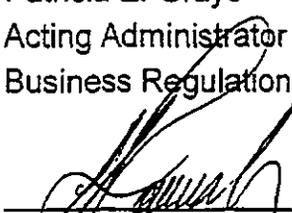
THIS IS TO CERTIFY that all applicable provisions of the District of Columbia NonProfit Corporation Act have been complied with and accordingly, this **CERTIFICATE OF INCORPORATION** is hereby issued to:

THURGOOD MARSHALL ACADEMY

IN WITNESS WHEREOF I have hereunto set my hand and caused the seal of this office to be affixed as of the **24th** day of **May, 2000**.

Lloyd J. Jordan
Director

Patricia E. Grays
Acting Administrator
Business Regulation Administration



Eldred E J Fornah
Act. Assistant Superintendent of Corporations
Corporations Division

Anthony A. Williams
Mayor

**ARTICLES OF INCORPORATION
OF
THURGOOD MARSHALL ACADEMY**

FILE
MAY 24 2006

TO:
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS
BUSINESS REGULATION ADMINISTRATION
CORPORATIONS DIVISION
941 NORTH CAPITAL STREET, N.E.
WASHINGTON, D.C. 20002

We, the undersigned natural persons of the age of twenty-one years or more, acting as incorporators of a corporation under the NON-PROFIT CORPORATION ACT (D.C. Code, 1981 edition, Title 29, Chapter 5), adopt the following Articles of Incorporation:

FIRST: The name of the corporation is Thurgood Marshall Academy.

SECOND: The period of duration is perpetual.

THIRD: The purpose for which the corporation is organized is to establish and operate a public charter school to educate the District of Columbia's youth.

Notwithstanding any other provisions of these Articles, the corporation shall not conduct or carry on any activities not permitted to be conducted or carried on by an organization exempt from tax under Section 501(c)(3) of the Internal Revenue Code of 1986, or by an organization contributions to which are to be deductible under Section 170 (c)(2) of such Code.

FOURTH: The corporation will have no members.

FIFTH: The corporation shall not be authorized to issue shares of stock.

SIXTH: The election of directors is provided in the bylaws.

SEVENTH: Conduct of the internal affairs of the corporation, including distribution of the assets on dissolution or final liquidation, is provided in the bylaws in accordance with the District of Columbia Nonprofit Corporation Act.

Upon the dissolution of the corporation or in the winding up of its affairs, the assets of the corporation shall be distributed exclusively for charitable or educational purposes or to organizations which are then exempt from federal tax under Section 501(c)(3) of the Internal Revenue Code of 1986, and to which contributions are then deductible under Section 170 (c)(2) of such Code.

EIGHTH: The address, including street and number of the initial registered office of the corporation is and the name of the initial registered agent at such address is

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

NINTH: The number of directors constituting the board of directors is 7, and the names and addresses, including street and number and zip code of the persons who are to serve as directors until the first annual meeting or until their successors are elected and shall qualify are:

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

Mr. John J. Commisso
26 Sunset Drive, Apartment 4
Alexandria, Virginia 22301

Mr. Thomas E.M. Hutton
6 Sunset Drive, Apartment. 2
Alexandria, Virginia 22301

Ms. Megan E. Blamble
1855 Calvert St., N.W., #102
Washington, D.C. 20009

Ms. Lillemor McGoldrick
2129 Florida Avenue, NW Apt. 303
Washington, DC 20008

Ms. Jacquelyn Davis
1745 Q. Street, N.W. Apt. A
Washington, DC 20009

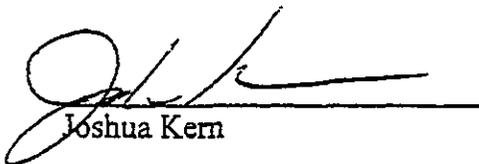
Ms. Joy Moses
2400 16th Street, N.W. Apt. #625
Washington, D.C. 20009

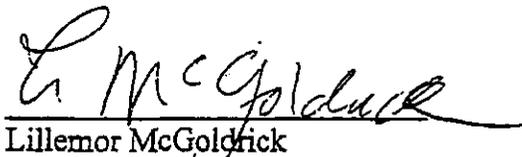
TENTH: The name and address, including street and number and zip code, of each incorporator is:

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

Ms. Lillemor McGoldrick
2129 Florida Avenue, NW Apt. 303
Washington, DC 20008

Mr. Richard Roe
600 New Jersey Avenue, NW
Room 128
Washington, DC 20001


Joshua Kern


Lillemor McGoldrick


Richard Roe

Incorporators

DATE 5/24/00

I, Teruko R. Sciven, a Notary Public, hereby certify that on the day of May 24, 2000, Joshua Kern, Lillemor McGoldrick, and Richard Roe appeared before me and signed the foregoing document as incorporators, and have averred that the statements therein contained are true.



My Commission Expires
April 14, 2001

BYLAWS
OF
THURGOOD MARSHALL ACADEMY
a District of Columbia nonprofit corporation
(as Approved by the Board of Trustees in September 2000)

ARTICLE I

NAME AND OFFICES

Section 1.01. Name. This corporation shall be known as Thurgood Marshall Academy (hereinafter the "Corporation").

Section 1.02. Registered Office. The registered office of the Corporation in the District of Columbia shall be located at 600 New Jersey Avenue, N.W., Washington, D.C. 20001. The registered agent of the Corporation shall be Mr. Joshua Kern. The address of the registered agent is 3133 Connecticut Avenue, N.W. #410A, Washington, D.C. 20008.

Section 1.03. Other Offices. The Corporation may also have offices at such other places both within and without the District of Columbia as the Board of Trustees may from time to time determine or the business of the Corporation may require.

ARTICLE II

BOARD OF TRUSTEES

Section 2.01. General Authority. The business and affairs of the Corporation shall be managed by or under the direction of a governing body of persons (designated individually as

"Trustees" and collectively as the "Board of Trustees" or "Board"), which may exercise all powers of the Corporation.

Section 2.02. Composition of Board. The Corporation shall be governed by a self-perpetuating Board of Trustees consisting of an odd number of Trustees, at least five and no more than fifteen, as may be fixed from time to time by resolution of the Board of Trustees.

At the first meeting of the Board of Trustees held after the filing of the Corporation's Articles of Incorporation, the seven Trustees named therein shall elect such Trustees as they deem necessary for the proper management of the Corporation. Alternatively, the Trustees named in the Articles of Incorporation may elect new Trustees by unanimous written consent.

Section 2.03. Term of Office. The term of office of each Trustee ordinarily shall be three (3) years. To provide for staggered expiration of Trustees' terms, the seven Trustees elected initially shall have the following terms: three shall serve a one-year term, two shall serve a two-year term, and two shall serve a three-year term. The period applicable to each Trustee shall be specified in the resolution electing the initial Trustees. Each Trustee shall hold office for the term for which he or she is elected and until his or her successor shall have been elected and qualified. A Trustee whose term of office is expiring may vote with the other Trustees in the election of his or her successor. A Trustee whose term is expiring shall be eligible to be reelected.

Section 2.04. Chairperson/Co-Chairpersons. The Board may appoint a Chairperson and/or Co-Chairpersons of the Board as it may deem appropriate to hold such office for such period, to have such powers, and to perform such duties as the Board may from time to time establish by resolution.

Section 2.05. Removal of Trustees. Any Trustee may be removed at any time, with or without cause, by the unanimous affirmative vote of all other members of the Board of Trustees.

Section 2.06. Resignation. Any Trustee may resign at any time by giving written notice to the Chairperson, the President, the Secretary or the Board. Such notice shall take effect at the time specified therein, and the acceptance of such resignation shall not be necessary to make it effective. If any Trustee should tender his or her resignation to take effect at a future time, then the Board of Trustees shall have the power to elect a successor to take office at such time as the resignation shall become effective.

Section 2.07. Vacancies. Any vacancy occurring on the Board of Trustees may be filled by the affirmative vote of a majority of the remaining Trustees present at a meeting at which a quorum is present. A Trustee elected to fill a vacancy shall be elected for the unexpired term of his or her predecessor in office.

Section 2.08. Meetings of the Board of Trustees. The Board may hold meetings, including annual, regular and special meetings, either within or without the District of Columbia.

Section 2.09. Annual Meeting. The annual meeting of the Board for the election of Trustees and for the transaction of such other business as may properly come before the meeting generally shall be held in August of each year (or on such other date as the Board may designate by resolution) at the time and place designated by the President. Notice of the annual meeting, stating the place, date and time of the meeting, shall conform to the requirements for notice and waiver of notice set forth in Article III of these Bylaws. The notice of the annual meeting need not specifically state the business to be transacted thereat.

Section 2.10. Regular Meetings. Regular meetings of the Board or any committee thereof may be held without notice at such times and at such places as shall from time to time be determined by the Board or committee, as the case may be. The notice of regular meetings, if any, need not specifically state the business to be transacted thereat.

Section 2.11. Special Meetings. Special meetings of the Board or any committee thereof may be called by the President, by the Secretary at the request of one or more Trustees, or by a majority of Trustees. Notice of such special meeting, stating the place, date and time of the meeting, shall conform to the requirements for notice and waiver of notice set forth in Article III of these Bylaws.

Section 2.12. Quorum and Voting. A quorum of the Board shall be a majority of the Trustees then in office, but in no event shall a quorum consist of less than one-third of the number of Trustees fixed under Section 2.02 above. The affirmative vote of a majority of the Trustees present at a meeting at which a quorum is present shall be the act of the Board, except where the act of a greater number is required by these Bylaws, the Corporation's Articles of Incorporation or provisions of statute. If a meeting cannot be organized because a quorum has not attended, the Trustees present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum shall be present.

Section 2.13. Majority. In the event that the Board or any committee thereof or its members present at any meeting consists of an even number of persons, a majority means one-half of the number of such persons plus one.

Section 2.14. Action Without Meetings: Telephone Meeting. Any action required or permitted to be taken at any meeting of the Board of Trustees or of any committee thereof may be taken without a meeting if all members of the Board or committee, as the case may be, consent thereto in writing and the writing or writings are filed with the minutes of proceedings of the Board or committee. Members of the Board of Trustees, or any committee designated by such Board, may participate in a meeting of such Board or committee by means of conference telephone or similar communications equipment by which all persons participating in the meeting can hear each other, and

participation in a meeting pursuant to this Section 2.14 shall constitute presence in person at such meeting.

Section 2.15. Committees. The Board may, by resolution passed by a majority of the Trustees in office, designate one or more committees, each committee to consist of two (2) or more Trustees, which committees, to the extent provided in said resolution, shall have and exercise the authority of the Board in the management of the Corporation. Other committees not having and exercising the authority of the Board in the management of the Corporation may be designated and appointed by a resolution adopted by a majority of the Trustees present at a meeting at which a quorum is present. The designation of any such committee and the delegation thereto of authority shall not operate to relieve the Board, or any individual Trustee, of any responsibility imposed upon the Corporation or the Trustee by law.

Unless otherwise specified in a resolution of the Board, at all meetings of each committee a majority of the total number of members of the committee shall constitute a quorum for the transaction of business, each member of the committee shall have one vote, and the affirmative vote of a majority of the members of the committee present at any meeting at which there is a quorum shall be an act of the committee. Each committee shall keep regular minutes of its meetings and report the same to the Board when requested to do so by the Board.

Section 2.16. Compensation of Trustees. The Trustees of the Corporation shall serve in their capacity as Trustees or committee members without compensation but may be reimbursed for reasonable expenses, if any, incurred in carrying out the purposes of the Corporation.

ARTICLE III

NOTICES

Section 3.01. Notices. Whenever the Articles of Incorporation, Bylaws, Board resolutions or provisions of statute require that notice of a meeting be given, such notice shall state the place, date and time of the meeting, and shall be served on each Trustee by mail addressed to the person to be notified at his or her address as it appears on the records of the Corporation, with postage thereon prepaid, at least seven (7) days prior to such meeting. Such notice shall be deemed to have been given at the time when the same shall have been deposited in the United States mail. Notice may also be given by personal delivery, telephone, telefax, facsimile, overnight delivery service, telegram or other form of transmission, generally available to the public and reasonably designed to timely convey such information, at least two (2) days prior to such meeting. Notice shall be deemed to have been given when sent.

Section 3.02. Waiver of Notice. Whenever any notice is required to be given under the Articles of Incorporation, the Bylaws, Board resolutions or provisions of statute, a waiver of notice in writing that is signed by the person(s) entitled to such notice before or after the time of the event for which notice is required shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Trustees or members of a committee of Trustees need be specified in any written waiver of notice unless so required by the Articles of Incorporation or these Bylaws.

ARTICLE IV

OFFICERS

Section 4.01. Positions. The Board shall appoint the officers of the Corporation. The officers of the Corporation shall be a President, a Vice-President, a Secretary, a Treasurer and such other officers as the Board from time to time may appoint. Any two or more offices may be held simultaneously by the same person, except that no one shall at the same time occupy the offices of President and Secretary. No officer shall execute, acknowledge or verify any instrument in more than one capacity.

Section 4.02. Term of Office. The officers of the Corporation shall hold office for a term of one (1) year (or, if shorter, until the annual meeting that falls within one (1) year of the commencement of such term) or until their successors are chosen and qualified or until their earlier resignation or death. No officer may serve for a period exceeding three (3) years without receiving formal reappointment by the Board.

Section 4.03. Removal. Any officer may be removed, with or without cause, at any time by an affirmative vote of two-thirds (2/3) of the Board.

Section 4.04. President. The President is expected to attend all meetings of the Board and any committee meeting thereof as needed, ensure that all orders and resolutions of the Board are carried into effect, and in general perform all duties normally incident to the office of President and such other duties as may be prescribed by the Board from time to time. In furtherance, but not in limitation, of the duties and responsibilities hereinbefore described, the President, any Vice-President and such officer or officers as may be authorized by the Board may sign and execute any deeds, mortgages, bonds, contracts or other instruments that the Trustees have authorized to be executed or have delegated to an authorized person the discretion to execute on behalf of the Corporation, except in cases where the signing and execution thereof shall be expressly delegated by the Trustees or by

these Bylaws to some other officer or agent of the Corporation or shall be required by law to be otherwise signed or executed.

Section 4.05. Vice-President. In the absence of the President or in the event of the President's inability to act, the Vice-President shall perform the duties of the President and when so acting shall have all the powers of, and be subject to all the restrictions upon, the President. The Vice-President shall perform such other duties and have such other powers as the Board or, if authorized by the Board to do so, the President may from time to time prescribe.

Section 4.06. Secretary. The Secretary is expected to attend all meetings of the Board, shall record all the proceedings of the meetings of the Board in a book to be kept for that purpose, and shall perform like duties for the committees of the Board, when so requested. When unable to perform such duties, the Secretary may delegate the taking of minutes to another Board member. The Secretary shall ensure that all notices are duly provided in accordance with the provisions of these Bylaws, as required by law or as directed by the Board or the President. The Secretary shall ensure that the books, reports, statements, certificates and all other documents and records required by law are properly kept and filed and shall perform such other duties as may be prescribed by the Board or by the President, under whose supervision the Secretary shall function. The Secretary shall have custody of the corporate seal, and the Secretary shall have authority to affix the same to any instrument requiring it. When so affixed, it may be attested by the signature of the Secretary. The Board may give general authority or specific authority to any other officer to affix the corporate seal and to attest the affixing by such officer's signature. The Secretary may also attest all instruments signed on behalf of the Corporation by the President or the Vice-President. The Secretary shall in general perform all duties incident to the office of Secretary.

Section 4.07. Treasurer. The Treasurer shall be responsible for all corporate funds of the Corporation, shall keep full and accurate accounts of receipts and disbursements in books belonging to the Corporation, and shall be expected to deposit all moneys and other valuable effects in the name and to the credit of the Corporation in such depositories as may be designated by the Board. The Treasurer or his or her designee(s) shall disburse funds of the Corporation as ordered by the Board, taking proper vouchers for such disbursements. The Treasurer shall render to the Board, at its regular meetings or when the Board so requires, an account of all financial transactions of the Corporation and of the financial condition of the Corporation. The Treasurer shall perform all other duties incident to the office of Treasurer and such other duties as from time to time may be assigned by the Board.

Section 4.08. Vacancies. A vacancy in any office of the Corporation because of death, resignation, removal, disqualification or other reason may be filled for the unexpired portion of the term of that office by the Board.

Section 4.09. Fidelity Bonds. The Corporation may secure the fidelity of any or all of its officers or agents by bond or otherwise.

ARTICLE V

INDEMNIFICATION AND RELATED MATTERS

Section 5.01. Authority to Indemnify. The Corporation shall indemnify, to the fullest extent allowed by the laws of the District of Columbia as those laws presently exist or hereafter may be amended, any person who was or is a party, or is threatened to be made a party, to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative, by reason of the fact that he or she is or was a Trustee, officer, employee or agent of the Corporation, against expenses, including attorney's fees, judgments, fines and amounts paid in

settlement, actually and reasonably incurred in connection with such action, suit or proceeding if he or she acted in good faith, and believed his or her conduct to be in the best interests of the Corporation, or at least not opposed to the best interests of the Corporation and, with respect to any criminal action or proceedings, had no reasonable cause to believe his or her conduct was unlawful. However, such Trustee, officer, employee or agent of the Corporation shall not be indemnified when, in connection with any proceeding charging improper personal benefit to him or her, whether or not involving action in his or her official capacity, he or she was adjudged liable to the Corporation. Unless the Articles of Incorporation provide otherwise, an employee, Trustee, officer or agent of the Corporation who entirely prevails in the defense of any proceeding to which he or she was a party because he or she was a Trustee, officer, employee or agent of the Corporation shall be indemnified against reasonable expenses (including attorneys' fees) actually incurred by him or her in connection with the proceeding.

5.02. Determination of Indemnification. Any indemnification under Section 5.01 (unless ordered by a court) shall be made by the Corporation only as authorized in the specific case upon a determination that indemnification of the Trustee, officer, employee or agent is permissible because such Trustee, officer, employee or agent has met the applicable standard of conduct set forth in Section 5.01 of these Bylaws. Such determination shall be made by (a) the Board of Trustees by a majority vote of a quorum consisting of Trustees who at the time were not parties to such proceeding, or, (b) if a quorum cannot be obtained, a majority vote of a committee duly designated by the Board of Trustees consisting solely of two (2) or more Trustees not at the time parties to the proceeding, or (c) a special counsel selected by the Board of Trustees by a majority vote of a quorum consisting of Trustees who are not a party to the proceeding.

5.03. Application of Article 5. The indemnification provided by, or granted pursuant to, Sections 5.01 and 5.02 shall not be deemed exclusive of any other rights to which those seeking

indemnification may be entitled to under any bylaw, agreement, vote of disinterested Trustees or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding such office. The indemnification provided by, or granted pursuant to, this Article shall, unless otherwise provided when authorized or ratified, continue as to a person who has ceased to be a Trustee, officer, employee or agent of the Corporation and shall inure to the benefit of the heirs, executors and administrators of such person.

5.04. Liability Insurance. The Corporation shall as soon as practicable maintain liability insurance with a limit of coverage not less than that specified in Section 29-599.15 of the District of Columbia Nonprofit Corporation Act, as amended from time to time. The Corporation may purchase and maintain insurance on behalf of any Trustee or officer against any liability asserted against him or her or incurred by him or her because of service to the Corporation.

ARTICLE VI

GENERAL PROVISIONS

Section 6.01. Calendar Year. The Corporation shall operate on a calendar year unless otherwise determined by the Board.

Section 6.02. Contracts, Checks, Notes, Etc. All contracts and agreements authorized by the Board and all notes, drafts, checks, acceptances, orders for the payment of money and negotiable instruments obligating the Corporation for the payment of money shall be signed by at least one officer of the Corporation or by such other number of officers or employees as the Board may from time to time direct.

Section 6.03. Corporate Seal. The corporate seal, if any, shall have inscribed thereon the name of the Corporation, the year of its organization and the state of incorporation. The corporate seal may be used by causing it or a facsimile thereof to be impressed, affixed or otherwise reproduced.

Section 6.04. Deposits. All funds of the Corporation not otherwise employed shall be deposited promptly to the credit of the Corporation in such banks, trust companies or other depositories as the Board or, if authorized by the Board to do so, the President or Treasurer may direct. For the purpose of making such deposits, any checks, drafts and other orders for the payment of money that are payable to the Corporation may be endorsed, assigned and delivered by any officer of the Corporation or in such manner as may from time to time be determined by resolution of the Board.

Section 6.05. Compensation. The Board shall determine the compensation of counsel, officers, employees and agents of the Corporation. No compensation or reimbursement of expenses will be made that in any way would adversely affect the Corporation's qualification under section 501(c)(3) of the Internal Revenue Code of 1986, as amended (or the corresponding provision of any subsequent tax law).

Section 6.06. Loans. No loans shall be contracted for or on behalf of the Corporation and no evidence of indebtedness shall be issued in the name of the Corporation unless authorized by a resolution of the Board. Such authority may be general or may be confined to specific instances. No loans shall be made by the Corporation to its Trustees or officers.

Section 6.07. Voting Securities of Other Corporations. The President shall have the authority to vote on behalf of the Corporation those securities of any other corporation that are owned or held by the Corporation and may attend meetings of stockholders or execute and deliver proxies for such purpose.

Section 6.08. Form of Records. Any records maintained by the Corporation in the regular course of its business, including its books of account and minutes books, may be kept on, or be in the form of, punch cards, magnetic tape, photographs, microphotographs or any other information

storage device, provided that the records so kept can be converted into clearly legible written form within a reasonable time. The Corporation shall so convert any records so kept upon the request of any person entitled to inspect the same.

Section 6.09. Amendments. The Articles of Incorporation and the Bylaws may be altered, amended or repealed and new Bylaws may be adopted by the affirmative vote of two-thirds (2/3) of the entire Board, provided that prior notice has been given to all members of the Board in accordance with the notice provisions set out in Article III herein.

ARTICLE VII

PROHIBITION AND LIMITATIONS

Section 7.01. Prohibition Against Sharing in Corporate Earnings.

(a) No part of the earnings of the Corporation shall inure to the benefit of or be distributable to its incorporators, Trustees, officers or other private persons, except that the Corporation shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in the Articles of Incorporation.

(b) All Trustees and officers of the Corporation shall be deemed to have expressly consented and agreed that, upon the dissolution or winding up of the affairs of the Corporation, the Board shall, after paying or making provision for the payment of all the liabilities of the Corporation, dispose of the remaining assets of the Corporation exclusively for the purposes and in the manner set out in the Articles of Incorporation.

Section 7.02. Exempt Activities. In all events and under all circumstances, and notwithstanding merger, consolidation, reorganization, termination, dissolution or winding up of the Corporation, whether voluntary or involuntary or by operation of law:

Development Team

The **Thurgood Marshall Academy**, proposed and developed by a group of Georgetown University law students and faculty members, is founded upon the belief articulated by U.S. Supreme Court Justice Thurgood Marshall that all children have the right to a first-class education and the opportunity to reach their full potential. All children must be afforded equal educational opportunities in order for our democracy to live up to its promise, and Thurgood Marshall Academy is committed to providing public high school students in the District of Columbia with an outstanding educational opportunity. Thurgood Marshall Academy will be a law-related charter school focusing not only on teaching substantive law and human rights, but also on incorporating a due process model of instruction that promotes democratic awareness and critical thinking.

Thurgood Marshall Academy's Executive Director has managing control of the organization and can be reached at the following location:

Mr. Josh Kern
Executive Director
Thurgood Marshall Academy
600 New Jersey Avenue, NW
Washington, DC 20001

The Thurgood Marshall Academy has hired a team of consultants, to manage the development project.

Development Consultant. Jair Lynch Consulting, LLC provides technical expertise and counsel to public, private, and non-profit clients pursuing real estate development and construction ventures. Working with the client, JLC helps to establish clear objectives, assesses the viability of the project, identifies the risks, and devises the right strategy to manage those risks to achieve the client's goals. JLC's energetic staff works closely with the client early in the process, allowing the client to concentrate its efforts on the overall vision and success of the project, while JLC focuses on the day-to-day management of the development and construction processes.

JLC offers clients comprehensive real estate economic analysis and development services. Pre-construction services include completing market and feasibility studies, developing targeted economic development and revitalization strategies, managing community involvement in the planning process, obtaining financing, and securing necessary entitlements. With an effective development strategy in place, JLC can then protect the client's interests by serving as a project/construction manager, thereby reducing the client's financial risk and providing the comprehensive project control necessary to complete a project on time and on budget.

Legal Counsel. Graves and Horton, LLC is a Washington, DC-based law firm whose practice focuses on real estate and commercial transactions utilizing public finance. The firm is representing the Thurgood Marshall Academy in its proposed purchase of the

Nichols Avenue School property. Graves and Horton is currently working with four DC charter schools on their financing and facilities needs and has a thorough understanding of the Charter School Reform Act in the District of Columbia.

Accountant. Walker & Company, LLP is a multi-service accounting and consulting firm serving clientele throughout the United States. Based in Washington, DC, the firm provides quality professional services in accounting and auditing, information technology, management consulting and taxation. The firm emphasizes use of state-of-the-art systems in the development of operations and management control. Walker & Company has established an excellent reputation for its work in serving the public and private sectors for a variety of governmental, non-profit and business organizations.

Description of Developer's Previous Experience in Real Estate Development

Jair Lynch Consulting, LLC has been contracted to manage over \$180 million of construction in Washington, DC. JLC has pursued this growth with the use of strategic partnerships with some the nation's leading firms in this sector. JLC personnel have also provided economic development consulting services in support of over \$400 million of real estate activity – completing economic impact studies, market and feasibility analyses, and strategic development plans for both stand alone projects and large scale development initiatives.

Recently, JLC has been responsible for managing the successful completion of the Southeast Tennis & Learning Center (STLC), a public-private partnership between the Department of Parks and Recreation and the Recreation Wish List Committee that will likely serve as a model for future City development. JLC is proud of its role in bringing this project in under budget and ahead of schedule – a result due largely to early planning with the client and development team.

JLC has also served as development manager on renovations of multi-use facilities involving classrooms, recreation space, and offices. In this role, JLC played a key role in providing turnkey solutions to the owners of the Thurgood Marshall Center – a National Historic Landmark – and various properties used by the Community Academy Public Charter School. Each of these projects has contributed to the company's expertise in working to meet community needs and obtaining local contractors for projects in the District.

Statement of Proposed Development Program

As part of its expansion plans, the Thurgood Marshall Academy Public Charter School (TMA) will expand from its initial student population of 80 students in its first year of operation (starting in September 2001) to over 200 students in its second year (starting in September 2002) and over 300 students in its third year. Although the temporary site secured by TMA for its first year of operation provides enough space for the first year, it

is inadequate for the expanded student body. The Nichols Avenue School building, with over 35,000 square feet of space, will allow TMA to meet its academic and enrollment goals according to the development program outlined below.

Number of buildings:	1
Building Use:	Charter school
Building footprint:	11,986
Number of floors:	3
Gross building area:	35,900
Height of Building:	45 feet
Number of units:	N/A
Number of parking spaces:	N/A

The facilities which the school must provide for its students, faculty, and staff include the following:

- Approximately 16 classrooms and science labs.
- Mock Trial room.
- Computer lab.
- Kitchen.
- Cafeteria/Auditorium.
- Library.
- Storage space for textbooks and A/V equipment.
- Student bathrooms.
- Faculty and staff bathrooms.
- Reception/Greeter area.
- Administrative offices.
- After-school program space.
- Counselor/Social worker offices.
- Faculty lounge and conference room.
- Custodial/Maintenance office and storage space.
- Student club space.

II. STATEMENT OF INTENT TO PURCHASE

It is the understanding of the Thurgood Marshall Academy that the District of Columbia or an affiliated entity ("Seller") is the legal and beneficial owner of the Property. This letter of intent (the "Letter of Intent") sets forth certain of the essential terms and conditions upon which Thurgood Marshall Academy Public Charter School or its assignee or designee ("Purchaser") would be willing to buy the Property from Seller. It is understood that, except as specifically set forth below, this Letter of Intent shall be non-binding, and that the final terms and conditions for the purchase and sale of the Property shall be set forth in a mutually acceptable agreement of sale ("Purchase Contract").

The parties acknowledge that Purchaser is submitting this Proposal for the Property in accordance with Mayor's Order 2000-150 dated October 5, 2000 (the "Mayor's Order") and the Property is categorized in Section 2(a)(i) of the Mayor's Order.

The proposed terms for this transaction are as follows:

1. Purchase Price. The purchase price ("Purchase Price") for the Property shall be \$[_____], subject to typical closing adjustments and pro-rations and the provisions set forth in Paragraph 5 below, if any. The parties acknowledge that Purchaser is a District of Columbia Public Charter School and the Purchase Price will include Section 2209(b)(1) of the Charter School Reform Act of 1995 which shall give the Purchaser a bid preference of 25% on contracts less than \$1,000,000 or 15% on contracts equal to or in excess of \$1,000,000. The parties acknowledge that the Savoy Elementary School, a District of Columbia Public School, has an illegal encroachment on the Property that is not reflected in the Title as an easement or legal encroachment. This illegal encroachment will be reflected in the Purchase Price by a further discount of 10% on the Purchase Price.

2. Earnest Money Deposit. Within three (3) business days following the date of execution of the Purchase Contract (the "Effective Date"), Purchaser shall tender to Commonwealth Land Title Insurance Company or another national or regional title insurance company reasonably acceptable to the parties, as escrow agent ("Escrow Agent"), an earnest money deposit of \$[20,000] (the "Deposit"). The Deposit shall be placed in one or more segregated interest-bearing money-market accounts and/or invested in government-backed repurchase obligations, and all interest or income earned thereon shall become a part of the Deposit and shall be disbursed to the party entitled thereto. Following execution of the Purchase Contract, the Deposit shall be "at risk", except that the Deposit shall be refunded to Purchaser in the event closing fails to occur due to any breach or default by Seller under the Purchase Contract, due to any condemnation or casualty affecting the Property or due to the failure of any condition precedent to closing to be timely satisfied.

3. Execution of Purchase Contract and Settlement. The Purchase Contract shall be executed within sixty (60) days of the date upon which this Letter of Intent is fully executed and delivered to Purchaser, time being of the essence. Settlement shall occur on a date selected by Purchaser with at least five (5) business days' advance notice to Seller, which in no event shall be later than one hundred and twenty (120) days from the Effective Date (herein, the "Closing Date"); provided, however, that Purchaser shall be entitled to extend the Closing Date for up to thirty (30) days in order to facilitate closing on the Bond Financing, as described in Paragraph 4 below. Possession of the Property shall be granted to Purchaser at closing.

4. Bond Financing Contingency. Purchaser's obligations to proceed to closing under the Purchase Contract shall be expressly subject to and conditioned upon Purchaser's ability to procure funds to acquire the Property and make the improvements to the Property contemplated under this Proposal, it being acknowledged that such funding is to come from the sale of the Bonds, as contemplated in this Proposal (herein, "Bond Financing"). In this regard, Purchaser has letters of interest from several Banks to underwrite the bond financing, copies of which are attached hereto. Following execution of the Purchase Agreement, Purchaser shall diligently attempt to satisfy all of the conditions set forth in such letters. In the event Bond Financing does not occur on or before the Closing Date (as extended), Purchaser may terminate this Agreement, whereupon the Deposit shall be disbursed in the manner specified in Paragraph 2 above or purchase the Property with other financing.

5. Title. At closing Seller shall convey good and marketable fee simple title to the Property to Purchaser by special warranty deed, free and clear of all liens and encumbrances, other than those approved by Purchaser.

6. Settlement Charges and Adjustments. Pursuant to applicable law, there shall be no transfer or recordation taxes due in connection with the sale of the Property. The Purchase Price shall be subject to any and all other customary closing pro-rations (to the extent any of such items are not the responsibility of Purchaser under the Lease).

7. Representations, Warranties and Conditions. The Purchase Contract shall contain such representations and warranties as are typical in transaction of this type. Closing shall also be subject to such conditions precedent as are typical in a transaction of this type.

8. Brokers. Both Purchaser and Seller represent and warrant that neither has retained nor dealt with a broker in connection with the sale/purchase of the Property. Each party shall indemnify and hold the other harmless from any other claims for a brokerage commission arising on account of its acts or omissions.

9. Exclusivity. In consideration of Purchaser's offer to purchase the Property, Seller agrees (i) to negotiate exclusively and in good faith with Purchaser until the earlier to occur of (a) the full execution of the Purchase Contract, or (b) the date upon which Purchaser abandons its attempt to purchase the Property (the "Negotiation Period") and (ii) not to market the Property or entertain or negotiate proposals for the sale of the same

during such Negotiation Period. In the event a Purchase Contract is executed, the Negotiation Period shall be extended through the closing date under the Purchase Contract.

10. No Significant Loss of Revenue. Purchaser and Seller acknowledge and agree that the sale of the Property to the Purchaser is not and will not result in a significant loss of revenue that might be obtained from other dispositions or uses of the Property by the Seller.

11. Purchase Contract; Non-Binding Interest. As noted above, this Letter of Intent sets forth certain major business terms and conditions of the proposed transaction, and shall be non-binding (except with respect to the provisions of Paragraphs 9 and 10 above) pending execution of a Purchase Contract. The Purchase Contract shall contain such further terms and conditions as may be mutually acceptable to the parties.

III. STATEMENT OF FINANCIAL STRUCTURE

Thurgood Marshall Academy Public Charter School
FORECASTED SCHEDULE OF CASH FLOWS
EACH YEAR OF THE NINE YEARS IN THE PERIOD ENDING SEPTEMBER 2010

	Pre-Opening 2001	Current SY01-02	Projected SY02-03	Projected SY03-04	Projected SY04-05	Projected SY05-06	Projected SY06-07	Projected SY07-08	Projected SY08-09	Projected SY09-10
COLLECTIONS:										
DEBT										
Proceeds from Bonds	\$ -	\$ 4,500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Proceeds from Line of Credit/Mortgage	-	-	-	-	-	-	-	-	-	-
Investment Redemption	-	-	-	-	-	-	-	-	-	-
TOTAL DEBT	-	4,500,000	-	-	-	-	-	-	-	-
Revenue Collections	1,226,500	1,889,344	2,457,672	3,072,533	3,655,175	3,698,564	3,653,685	3,612,010	3,858,868	3,937,092
TOTAL COLLECTIONS	\$ 1,226,500	\$ 6,389,344	\$ 2,457,672	\$ 3,072,533	\$ 3,655,175	\$ 3,698,564	\$ 3,653,685	\$ 3,612,010	\$ 3,858,868	\$ 3,937,092
DISBURSEMENTS:										
Furniture and Fixtures	\$ -	\$ 8,000	\$ 23,000	\$ 28,000	\$ 33,000	\$ 33,000	\$ 32,000	\$ 31,000	\$ 32,500	\$ 32,500
Equipment	-	7,500	15,000	22,500	22,500	22,500	22,500	22,500	22,500	22,500
Textbooks	-	-	-	-	-	-	-	-	-	-
Leasehold Improvements	-	-	-	-	-	-	-	-	-	-
Building	-	5,928,898	-	-	-	-	-	-	-	-
Vehicles	-	-	-	-	-	-	-	-	-	-
Operating Expenses	157,859	734,343	1,811,025	2,213,709	2,536,061	2,593,212	2,634,828	2,678,052	2,766,456	2,830,739
Closing Costs	-	250,000	-	-	-	-	-	-	-	-
Debt Service -Bonds	-	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000	360,000
Debt Service - Other	-	-	-	-	-	-	-	-	-	-
TOTAL DISBURSEMENTS	\$ 157,859	\$ 7,288,741	\$ 2,209,025	\$ 2,624,209	\$ 2,951,561	\$ 3,008,712	\$ 3,049,328	\$ 3,091,552	\$ 3,181,456	\$ 3,245,739
EXCESS/(DEFICIT)	1,068,641	(899,397)	248,647	448,324	703,614	689,852	604,357	520,458	677,412	691,354
BEGINNING CASH	-	1,068,641	169,244	417,891	866,215	1,569,829	2,259,681	2,864,038	3,384,495	4,061,908
Cash Balance Before Other Interest Income	\$ 1,068,641	\$ 169,244	\$ 417,891	\$ 866,215	\$ 1,569,829	\$ 2,259,681	\$ 2,864,038	\$ 3,384,495	\$ 4,061,908	\$ 4,753,261
Other Interest Income	-	-	-	-	-	-	-	-	-	-
ENDING CASH	\$ 1,068,641	\$ 169,244	\$ 417,891	\$ 866,215	\$ 1,569,829	\$ 2,259,681	\$ 2,864,038	\$ 3,384,495	\$ 4,061,908	\$ 4,753,261

Thurgood Marshall Academy Public Charter School
 FORECASTED STATEMENT OF ACTIVITIES
 EACH YEAR OF THE NINE YEARS IN THE PERIOD ENDING SEPTEMBER 2010

	Pre-Opening 2001	PROJECTED SY01-02	PROJECTED SY02-03	PROJECTED SY03-04	PROJECTED SY04-05	PROJECTED SY05-06	PROJECTED SY06-07	PROJECTED SY07-08	PROJECTED SY08-09	PROJECTED SY09-10
Revenue										
District Charter Funding	\$ -	\$ 730,772	\$ 2,008,000	\$ 2,572,580	\$ 3,112,674	\$ 3,148,764	\$ 3,113,854	\$ 3,076,277	\$ 3,300,377	\$ 3,370,845
Federal Entitlements	55,000	156,572	347,672	397,952	440,501	447,801	437,831	433,733	456,491	464,247
Grants & Donations	1,169,500	1,000,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Donated Assets	42,000	105,000								
Interest Income	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Total Revenue	1,268,500	1,994,344	2,457,672	3,072,533	3,655,175	3,698,564	3,653,685	3,612,010	3,858,868	3,937,092
Expenses										
Operating Expenses										
Salaries and Fringe Benefits	123,690	453,330	1,147,471	1,407,654	1,609,750	1,658,043	1,707,784	1,759,017	1,811,788	1,866,141
General Expenses	16,000	127,100	317,461	382,217	432,714	436,378	430,560	424,712	443,172	447,258
Academic Expenses	-	76,000	178,000	218,000	258,000	258,000	252,000	246,000	255,000	255,000
Other Expenses	18,169	77,713	168,093	205,837	235,596	240,792	244,484	248,323	256,496	262,340
Total Operating Expenses	157,859	734,343	1,811,025	2,213,709	2,536,061	2,593,212	2,634,828	2,678,052	2,766,456	2,830,739
Change in Net Assets from Operations	1,110,641	1,260,001	646,647	858,824	1,119,114	1,105,352	1,018,857	933,958	1,092,412	1,106,354
Other Expenses										
New Construction	-	-	-	-	-	-	-	-	-	-
Depreciation & Amortization	8,400	32,500	40,100	50,200	61,300	64,000	50,800	53,900	54,800	54,700
Bond Interest	-	314,000	311,000	308,000	304,000	300,000	293,000	291,000	286,000	280,000
Interest Expense	-	-	-	-	-	-	-	-	-	-
Total Other Expenses	8,400	346,500	351,100	358,200	365,300	364,000	345,800	344,900	340,800	334,700
Total Expenses	166,259	1,080,843	2,162,125	2,571,909	2,901,361	2,957,212	2,980,628	3,022,952	3,107,256	3,165,439
Change in Net Assets	1,102,241	913,501	295,547	500,624	753,814	741,352	673,057	589,058	751,612	771,654
Net Assets/(Deficit), Beginning of Year	-	1,102,241	2,015,742	2,311,289	2,811,913	3,565,727	4,307,079	4,980,136	5,569,193	6,320,806
Net Assets/(Deficit), End of Year	\$ 1,102,241	\$ 2,015,742	\$ 2,311,289	\$ 2,811,913	\$ 3,565,727	\$ 4,307,079	\$ 4,980,136	\$ 5,569,193	\$ 6,320,806	\$ 7,092,459

IV. STATEMENT OF PROJECT BENEFITS

The proposed renovation of the Nichols Avenue School for use by the Thurgood Marshall Academy as a charter school will provide the following benefits:

Number of construction jobs:	54 FTE, but approximately 200 construction workers over the course of project.
Number of permanent jobs:	8 full-time staff 2001, growing to 28 full-time staff at full capacity, plus additional part-time service jobs related to food services, grounds and building maintenance, and after-school programs.
Projected tax revenues:	N/A

Providing new educational offerings in Ward 8

The founders of Thurgood Marshall Academy recognize the significant educational needs of the students TMA plans to serve. In 1999, approximately 93% of students in Southeast DC scored below basic proficiency on the Stanford 9 in math and 70% scored below basic in reading. Additionally, 40% of these students drop out of school before obtaining a high school diploma, and roughly 17% of students are in special education. Furthermore, an average of 83% of Southeast students qualify by their family income for free or reduced-price lunch. It is because of the challenges implied by these statistics that the founders of Thurgood Marshall Academy are committed to developing a school which will implement a rigorous, standards-based curriculum, maintain a low pupil-teacher ratio, and use innovative teaching strategies to ensure that all students reach their full potential. In the end, the mission of Thurgood Marshall Academy is simple: to create a community of young people who are academically able, confident, and empowered to engage in our democratic society.

Returning the Nichols Avenue School to full-capacity educational use

In its report, *A Community Guide to Saving Older Schools*, the National Trust for Historic Preservation cites several reasons why returning abandoned or underused local schools to full-capacity educational use directly benefits the community. The benefits to students are the most apparent. Returned to its academic use, the Nichols Avenue School will provide students with a place to take part in activities that interest them and to interact one-on-one with teachers and other concerned adults. Often, a school is its students' only source for vital services such as health care, psychological counseling, or regular meals. Through daily interactions with peers and professionals, students can develop a sense of

belonging to the community, and gain the knowledge that people and resources exist to help them deal with problems.

For parents and community members, the Nichols Avenue School will provide a place to attend public meetings and to vote. Currently, the Ward 8 ANC meets at the school and TMA is eager to continue providing space for this valuable community political activity. Schools also offer the community a place to gather to organize and attend PTA activities, blood drives, community theater performances, athletic tournaments, and fund-raising holiday fairs.

A local school, readily accessible by public transportation, like the Nichols Avenue School, also makes attending classes and extracurricular events easy for students, family members, faculty, staff and others. Students with easy access to public transportation do not need to race for the bus each afternoon and have better opportunities to participate in the extracurricular activities and informal interactions with classmates that cement social bonds. For children able to travel to school on foot or via public transportation, the interaction with other commuters can provide both comfort and a measure of safety.

As Anacostia continues to revitalize the commercial and residential components of its community, the current condition of the Nichols Avenue School is a blight on the community that inhibits the positive progress for which so many are working so hard. TMA's commitment to renovating the property will enhance the appearance of this prominent gateway to historic Anacostia, thereby encouraging retail development in the area. As new housing is developed in Ward 8, current and potential residents will see the Thurgood Marshall Academy as a highly desirable amenity, helping to stabilize and enhance their property value.

Finally, historic neighborhood schools can enrich their students' learning experience, allowing children to walk to school, to attend a smaller, more intimate school with friends from their neighborhood, and to grow up immersed in the historic school's traditions and surrounded by its distinguished and often unique architecture.

Providing economic opportunities to local residents

The Thurgood Marshall Academy recognizes that schools located in Washington, DC are an important source of local employment and their success is a key element in the city's revitalization efforts. With this in mind, we will work to ensure that a significant portion of the economic opportunities created by the Thurgood Marshall Academy project – beyond the minimum requirements set by the District – are available to DC residents and businesses.

Academic and Staff Employment. Working with the Department of Employment Services (DOES), the DC Public Schools (DCPS), and with local community development organizations (including East of the River CDC's Community Education and Training (CET) Program), TMA will utilize existing job training and placement programs to identify local residents capable of joining the school's staff and faculty.

Specifically, Thurgood Marshall Academy will seek out District residents to serve as teachers.

Construction Employment. The Thurgood Marshall Academy is also eager to partner with local construction industry job training programs immediately upon being awarded the exclusive rights agreement to develop the Nichols Avenue School site. By starting to work with such programs as Labor Ready, YouthBuild, and ARCH Development months before soliciting contractors for the project, the TMA development team will be able to identify specific construction employment opportunities expected to become available once construction begins. When we begin soliciting bids from construction contractors and sub-contractors, along with the bid documents we can also provide them with a list of job-ready, local graduates of these programs. Job opportunities are likely to include positions as carpenters, electricians, and plumbers.

LSDBE Contracting. The Thurgood Marshall Academy development team – which already includes Jair Lynch Consulting, LLC, a District-based LSDBE certified company – is firmly committed to exceeding the District's goal of 35 percent participation in the project by certified local, small or disadvantaged businesses. Jair Lynch Consulting (JLC) will be responsible for coordinating this effort, building on the firm's existing relationship with the Office of Local Business Development and with the DC community. JLC is also an active participant in forums regarding LSDBE issues. Recently this participation has included the East of the River CDC's workshop on LSDBE and HUBZone contracting opportunities for local businesses and the Office of Local Business Development's ongoing forums on procurement opportunities. JLC is also a member of the DC Building Industry Association's East of River committee.

Building on these contacts and on JLC's experience overseeing the LSDBE participation component of the Southeast Tennis & Learning Center and the Thurgood Marshall Center projects, our team will actively target and contact businesses on the District's list of LSDBE-certified businesses. We will also work with the Washington Minorities Contracting Association to identify qualified contractors. This recruitment effort will involve pre-soliciting interest from these businesses, contacting them again during the solicitation process, and then following up these contacts in writing and via telephone. To ensure that bid documents are available in locations easily accessible by local businesses, particularly those East of the River, we will provide them to local CDCs for review by contractors in their offices. The team will also hold a pre-bid conference to provide potential contractors with an open forum to discuss the project and the bid requirements.

The Thurgood Marshall Academy will work closely with the general contractor it selects for the project to ensure that the contractor will also strive to exceed the District's requirements for subcontracting work to LSDBE certified businesses. This initiative will include requiring the general contractor to reorganize traditional bid packages into smaller components on which small, local businesses can be competitive.

To help ensure that eligible companies are aware of the LSDBE program and apply for certification by the Office of Local Business Development, we will help conduct a training session to assist project vendors and contractors in applying for certification. We will also take steps to introduce vendors and contractors to the relevant bonding and insurance companies, making them more competitive on this, and future, projects.

Community Involvement. The Thurgood Marshall Academy is committed to being an active a supportive member of the community and will actively encourage community involvement in the development of the Nichols Avenue School. This involvement will include both providing community members with information about the project and asking them to participate in guiding the development process.

The TMA development team recognizes the importance of working with community residents and businesses to develop a project at Nichols School that meets their needs. TMA has already met with several representatives of the community related to the launch of its first year at a temporary site in Ward 8. Our team will institutionalize this community participation process once a development agreement is in place. Our goal is to provide community members with open access to our team in several forums to discuss plans, opportunities and issues surrounding the project.

To provide this access, we will utilize multiple channels of communication, including community meetings, a project website providing email access to our team, and a regular presence in the community. Our team will continue to be involved in local neighborhood events and will strive to support community initiatives. We will also issue a regular project newsletter to local residents outlining our progress and providing information on opportunities to share their views about the project.

We will hold public partnering meetings at milestone points in the development process to give the community an opportunity to voice its preferences and concerns related to the development. To gather this input efficiently, we will also work with ANC commissioners and local community groups like the Anacostia Economic Development Corporation to create an advisory panel reflective of the community.

As a vital partner in the process, the community will also play an integral role in the success of the project. The advisory panel will contribute thoughts and ideas for the public milestone events during the project process – including the groundbreaking, grand opening ceremonies, and other community days.

V. ADDITIONAL INFORMATION

Fundraising History and Projections

Bank Letters of Interest

- City First Bank of DC
- Bank of America

Letter of Support with Enrollment Efforts

- SouthEast Academy of Scholastic Excellence PCS

THURGOOD MARSHALL ACADEMY PUBLIC CHARTER SCHOOL
600 New Jersey Avenue, NW
Washington, DC 20001

Fund-Raising History and Projections

After having its charter application approved in August 2001, Thurgood Marshall Academy ("TMA") began securing funding to support the start-up phase of the organization and augment future public resources. To date, TMA has received \$110,000 in federal Title X funds, \$169,500 from the Walton Family Foundation, and \$30,000 from private donations. Additional funding from the Spring Creek Foundation will support after-school programs.

Thurgood Marshall Academy is launching a comprehensive capital campaign to fund the acquisition and restoration of a future, permanent site in Ward 8 that TMA will move into in its second year of operation. This site will allow TMA to grow to near its planned capacity of four hundred high school students. The total cost of the project, which will include the capital needs of the purchase price and renovation of the Nichols Avenue School building is approximately \$6.5 million. TMA will raise an initial \$1.5 million prior to the school's opening in September 2001 in order to cover the equity component required to finance the renovation of the new TMA campus.

TMA began the leadership phase of the school's comprehensive capital campaign March 1, 2001 with the intent of securing an industrial revenue bond to secure necessary funding to purchase and rehabilitate the permanent site. Initial responses from individuals and foundations are encouraging and fundraising meetings, phone calls, and events will continue into the fall to raise the initial leadership gifts.

The campaign objectives include:

- Raising the funds to cover the capital needs of the purchase price, renovation, and future expansion for growth to capacity;
- Establishing a presence for TMA within the educational and philanthropic communities in Washington, DC; and
- Creating a base for on-going annual giving and endowment campaigns to supplement the public outlays to Thurgood Marshall Academy.

Thurgood Marshall Academy strives to continue building strong public-private partnerships throughout the Greater Washington, DC area in an effort to support the school, its programs, and the larger Ward 8 community where the school is located. Thurgood Marshall Academy is particularly proud of the support it has received thus far from DC City Council Members Kevin Chavous and Sandy Allen, community leaders, and parents.

2001-2003 Campaign Overview

Campaign Mission

The mission of Thurgood Marshall Academy's comprehensive campaign is to secure the Nichols school as a permanent facility and develop the property to meet TMA's long-term growth goals.

Campaign Objectives

- Raise the funds to cover the capital needs of the purchase price, renovation, and future expansion for growth to capacity.
- Establish a presence for TMA within the educational and philanthropic communities in Washington, DC; and
- Create a base for on-going annual giving and endowment campaigns to supplement the public outlays to Thurgood Marshall Academy.

Campaign Strategy

Thurgood Marshall Academy launched its year-one Leadership Phase on March 1, 2001 to raise the necessary capital funds for the purchase and renovation of the Nichols facility. In 2002, TMA will move into its second funding phase to raise the additional \$1 million needed for capital expansion to grow TMA to its full capacity.

The primary targets of the Leadership Phase are the following:

- Individual gifts of \$100,000 and above
- Large foundation gifts of \$50,000 and above
- Corporate gifts of \$50,000 and above
- Law firm gifts of \$25,000 and above
- Smaller individual gifts aggregated at events raising \$50,000 and above.

Thurgood Marshall has several upcoming fundraising events, including an April 21, 2001 gala and an evening aboard the Presidential Yacht Sequoia. Meetings are scheduled with prospective donors weekly and our working campaign committee is introducing TMA to the Washington, DC philanthropic community.

Working Campaign Committee (as of 3/1/01)

- James Cheng
President, Computer & Hi-tech Management, Inc.
- Jody Trapasso
Partner, Patton Boggs

- Jeff Ross
Vice President, Time Domain
- Gary Silversmith
President, P & L Investments
- Dr. Gail Furman
Child Psychologist
- Jacquelyn Davis
Executive Director, Full Potential Foundation of TMA
- Josh Kern
Executive Director, TMA

Campaign Timeline

March-April 2001

- Enlist campaign committees and chairs
- Kick-Off Campaign Committee meeting
- Prepare Campaign materials
- Hire development associate
- Build database and input data
- Organize events
- Begin newsletter to all prospective donors
- Identify lead gift prospects & assign contact person for each
- Begin meeting with and soliciting lead gift prospects
- General mailing to legal community
- Mailing to Georgetown Law Community (Professors)
- Mailing to former Thurgood Marshall Judicial Clerks
- Continue applying for large foundation grants
- Ongoing individual, foundation & corporate research
- Gala Event (4/21/01)
- Identify "founding law firm partners"
- Secure 1 "founding law firm partner"

May-June 2001

- Continue to enlist campaign volunteers
- Continue meeting with and soliciting lead gift prospects
- Continue applying for large foundation grants
- Send out newsletter
- Secure at least one major foundation grant for facilities
- Secure ten major individual contributions
- Identify "founding corporate partners" prospects
- Secure 2 "founding corporate partners"
- Secure additional "founding law firm partners"
- Sequoia Presidential Yacht event

- Mailing to philanthropists interested in children and youth and education community
- Campaign Committee meeting

July-August 2001

- Continue to enlist campaign volunteers
- Send out newsletter
- Continue meeting with and soliciting lead gift prospects
- Identify mid-level donors
- Begin meeting with mid-level donors
- Continue applying for large foundation grants
- Begin applying for secondary foundation grants
- Secure five mid-level individual contributions
- Secure additional "founding corporate partners"
- Secure additional "founding law firm partners"
- Glosserman Event
- Campaign Committee meeting

September-December 2001

- Continue meeting with and soliciting lead and mid-level gift prospects
- Continue applying for foundation grants
- Continue securing corporate and law firm partners
- Organize and execute additional events
- Continue mailings
- Campaign Committee meeting
- Send out newsletter



2400 B 14th Street, NW, Washington, DC 20009
Phone: 202-939-7607 Fax: 202-332-8240 E-mail: nida@city-first.com

March 9, 2001

Josh Kern, Executive Director
Thurgood Marshall Academy PCS
600 New Jersey Avenue, NW
Washington, DC 20001

RE: Facilities Financing

Dear Josh,

This letter will confirm our interest in working with the Thurgood Marshall Academy in creating a financing package to acquire and renovate facilities to accommodate the school's long term needs. We have been active in working with many of the District's public charter schools, providing financing for facilities, leasehold improvements and equipment, and working capital. We are also working with the Charter School Development Corporation and Fannie Mae to develop credit enhancements, to reduce the overall costs of financing public charter school facilities. As guidelines are developed for these credit enhancement programs, we would expect to use these guidelines to ensure access to the broadest range of permanent financing options.

Please keep me advised of your progress in identifying potential sites, so we can start working on the financing that will be required. If you have any questions as we proceed, please feel free to contact me at 202-939-7607.

Sincerely,

A handwritten signature in black ink that reads "Thomas A. Nida". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Thomas A. Nida
Senior Vice President

Bank of America

Bank of America
Community Development Banking
730 15th Street, N.W., 8th Floor
Washington, DC 20005-1099

Tel 202.624.5159
Fax 202.624.5166

March 9, 2001

Mr. Josh Kern
Executive Director
Thurgood Marshall Public Charter School
600 New Jersey Avenue, N.W.
Washington, D.C. 20001

Dear Mr. Kern:

I am writing regarding the financing you are seeking for the Thurgood Marshall Public Charter School's new school building and property. Based on a recent discussion I had with Jonathan Weinstein of Jair Lynch Consulting, LLC, I would like to express Bank of America's interest in pursuing discussions with you concerning this financing project. The Bank's interest in financing this proposed project is subject to its complete due diligence. Bank of America has financed several charter schools within the District of Columbia and is committed to the community renewal such institutions provide for the District.

I look forward to the possibility of working with Thurgood Marshall Public Charter School on this project. Please do not hesitate to contact me at 202-624-4018 with any further questions. I look forward to meeting again with you in the near future.

Sincerely,

Matt Hogan Bruen
Vice President

SouthEast Academy of Scholastic Excellence PCS621 Alabama Avenue, SE
Washington, DC 20032Tel: 202-561-5601
Fax: 202-561-5602**Board of Trustees:**
R. Vincent Palmer II
Chairman
Shirley Cooley
Cynthia Felton
Jackielee Jones
Yvette Green
Kenneth Greene
Samuel Williams

March 12, 2001

TO WHOM IT MAY CONCERN:

The Thurgood Marshall Academy Public Charter School, proposed and developed by a group of Georgetown University law students and faculty members, is founded upon the belief articulated by United States Supreme Court Justice Thurgood Marshall that all children have the right to a first-class education and the opportunity to reach their full potential. Thurgood Marshall Academy will strive to prepare its students for civic participation through education about law, democracy and human rights in addition to providing students with a high school curriculum.

The Thurgood Marshall Academy Public Charter School will be located in Ward 8 at 421 Alabama Avenue, SE, in the Congress Heights United Methodist Church. Thurgood Marshall Academy will open with approximately eighty students. Additional grades will be added in subsequent years and ultimately, we will educate children through 12th grade. An extensive marketing campaign is planned for this month in the community to make members aware of their existence and to spur enrollment.

Many members of the community, including our charter school, SouthEast Academy for Academic Excellence Public Charter School are very supportive of the Thurgood Marshall Academy's efforts and are confident that they will meet their enrollment objectives. SouthEast Academy for Academic Excellence has been offering school choice to parents and students in Ward 8 for two years and educates children in grades Kindergarten through 7th grade. We are in full operations and welcome additional charter school programs into the community to help service an ever-growing demand for alternative educational choices for its children and parents. We are ready and willing to support them in any way possible to help with their enrollment efforts and will encourage our students to attend Thurgood Marshall Academy for the secondary education.

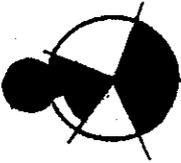
The mission of Thurgood Marshall Academy is to create a community of young people who are academically able, confident, and empowered to engage in our democratic society. I look forward to working with Thurgood Marshall in Ward 8 to provide an opportunity for students in this community to have an elementary and high school education in a charter school environment.

Thank you for your consideration and please feel free to contact me if you have any questions or concerns.

Sincerely,



Elizabeth S. Smith, Ed.D.
Executive Director



JAIR LYNCH CONSULTING. LLC
REAL ESTATE DEVELOPMENT SERVICES

March 9, 2001

Mr. Josh Kern
Executive Director
Thurgood Marshall Academy
600 New Jersey Avenue, NW
Washington, DC 20001

Re: The Nichols School

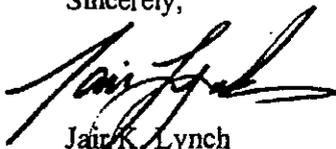
Dear Mr. Kern,

This letter summarizes our firm's recent estimate of construction/renovation costs pertaining to the Nichols School building at 2427 Martin Luther King, Jr. Avenue, SE. We visited the site on multiple occasions and it is clear that the structure is in poor condition. It appears likely that the roof will need to be totally replaced, windows and frames will need to be replaced, the building must be made ADA compliant – including installation of an elevator, and asbestos removal will be required. It is also visibly apparent that alterations have been made to the building that have hidden the much needed repairs over the years. The current tenants informed us that the boiler is not functioning and must be replaced. Based on the Thurgood Marshall Academy's proposed program for the building, extensive plumbing work will be required.

As quoted to you earlier, we believe that the cost to renovate the building would be approximately \$150.00 per square foot, or \$5.4 million. This estimate is based, in part, on our firm's experience managing the renovation of a building of the same size and in approximately the same condition, the former Anthony Bowen YMCA on 12th Street, NW, and the recent environmental clean up of a larger facility on Harvard Street, NW. Construction costs also take into account our recent work on projects in Ward 8.

Please contact us with any questions.

Sincerely,



Jair K. Lynch
President & CEO

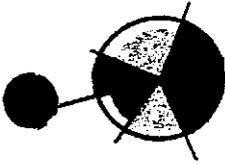
VI. PROJECT DEVELOPMENT SCHEDULE

Phase I: Pre-development
March 2001 – September 2001

Phase II: Construction
September 2001 – August 2002

Phase III: Management & Operation
September 2002 –

Letter from developer.



JAIR LYNCH CONSULTING, LLC
REAL ESTATE DEVELOPMENT SERVICES

March 9, 2001

Mr. Josh Kern
Executive Director
Thurgood Marshall Academy
600 New Jersey Avenue, NW
Washington, DC 20001

Re: The Nichols School

Dear Mr. Kern,

This letter summarizes our firm's recent estimate of construction/renovation costs pertaining to the Nichols School building at 2427 Martin Luther King, Jr. Avenue, SE. We visited the site on multiple occasions and it is clear that the structure is in poor condition. It appears likely that the roof will need to be totally replaced, windows and frames will need to be replaced, the building must be made ADA compliant – including installation of an elevator, and asbestos removal will be required. It is also visibly apparent that alterations have been made to the building that have hidden the much needed repairs over the years. The current tenants informed us that the boiler is not functioning and must be replaced. Based on the Thurgood Marshall Academy's proposed program for the building, extensive plumbing work will be required.

As quoted to you earlier, we believe that the cost to renovate the building would be approximately \$150.00 per square foot, or \$5.4 million. This estimate is based, in part, on our firm's experience managing the renovation of a building of the same size and in approximately the same condition, the former Anthony Bowen YMCA on 12th Street, NW, and the recent environmental clean up of a larger facility on Harvard Street, NW. Construction costs also take into account our recent work on projects in Ward 8.

Please contact us with any questions.

Sincerely,

Jair K. Lynch
President & CEO

FACILITY

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
1	Do facility walk through	Executive Director	Done	
2	Analyze and assess the space at 421 Alabama Avenue	Executive Director	Done	
3	Determine the site(s) to be utilized by school next year	Executive Director	Done	
4	Develop plan for space utilization at 421 Alabama Avenue	Executive Director	Done	
5	Sign contract to lease/purchase the 421 Alabama Avenue	Executive Director	5/01	
6	Design sign for school site	Executive Director	5/01	
7	Contract sign to production	Executive Director	5/01	
8	Erect sign on school site	Executive Director	5/01	
9	Occupy building		5/01	

BUILDING MAINTENANCE

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
1	Hire building maintenance team	Executive Director	6/01	
2	Meet with the Head Maintenance Person (HMP)	Executive Director	6/01	
3	Develop plan to clean the facility and dispose of trash daily	Executive Director HMP	6/01	
4	Implement the plan	Maintenance Personnel	Ongoing	
5	Monitor plan	Executive Director HMP		
6	Inspect the building daily for safety hazards	Principal HMP	Daily	
7.	Repair immediately hazards that can be repaired in-house	Maintenance Personnel	Ongoing	
8	Report to the principal all repairs that cannot be done in-house	HMP	Ongoing	
9	Requisition outside assistance for safety hazards that cannot be fixed in-house	Executive Director HMP	Ongoing	

FOOD SERVICES

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
1	Discuss w/a prospective Food Service Mgr Sch Prog	Executive Director	5/01	
2	Survey the facility (421 Alabama Avenue)	Executive Director	Done	
3	Determine the space to use for Food Service Program	Executive Director Principal FSM	Done	
4	Develop plan of action to prepare 80 student breakfasts and lunches	Executive Director Principal FSM	5/01	
5	Implement plan	Principal FSM	Ongoing	
6	Monitor plan	Principal	Monthly	
7	Meet with classroom teachers	Principal	8/01	
8	Plan the logistics of serving 80 students breakfast and lunch	Principal Staff	8/01	
9	Implement plan	Staff	Ongoing	
10	Monitor plan	Executive Director	Monthly	
11	Meet with Maintenance Service Workers	Principal	8/01	
12	Plan logistics of collection and disposal of trash and cleaning Food Service area after breakfast and lunch	Principal HMP	8/01	
13	Implement Plan	Maintenance Service Workers	Ongoing	
14	Monitor Plan	Executive Director Principal	Monthly	
15	Agree on a plan and formula for payment for Food Services rendered	Executive Director Principal Food Service Director	5/01	

FOOD SERVICES

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
16	Submit plan and formula to the Board for approval	Executive Director	5/01	
17	Monitor plan	Executive Director Principal	Ongoing	
18	Plan the logistics of collection and disposal of trash and the cleaning the food service area after breakfast and lunch	Executive Director Principal Head Custodian	5/01	
19	Implement plan	Custodians	Ongoing	
20	Monitor plan	Executive Director Principal Head Teacher	Monthly	

PERSONNEL

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
1	Participate in PCSR's recruitment fair	Principal	3/01	
2	Form team to recruit teachers and an administrator	Principal	Done	
3	Set up duties and responsibilities for team for recruitment fair	Principal	Done	
4	Purchase supplies and materials for recruitment fair	Principal	Done	
5	Set up recruitment table at the fair	Principal	3/01	
6	Interview prospective candidates	Principal	3/01	
7	Obtain resume from each candidate	Principal	3/01	
8	Review resumes	Principal	3/01	
9	Classify resumes by strengths and weaknesses	Principal	3/01	
10	Establish date for interviews	Principal	4/01	
11	Select interview panel	Principal	3/01	
12	Set up interview schedule	Principal	3/01	
13	Contact interviewees re: time & date	Administrative Assistant	3/01	
14	Reserve interview room	Administrative Assistant	4/01	
15	Conduct interviews	Interview Panel	4/01	
16	Evaluate each candidate	Interview Panel	4/01	
17	Select best candidate for each position	Interview Panel	4/01	
18	Submit names of candidates selected to the Board of Trustees	Principal	4/01	

PERSONNEL

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
19	Obtain Board approval	Principal	4/01	
20	Conduct background checks on each selected candidate	Principal	4/01	
21	Inform candidates by phone that they have been selected	Principal	4/01	
22	Inform candidates not selected in writing	Principal	4/01	
23	Schedule appointments to hire selected candidates	Principal	4/01	
24	Inform candidates of appointments	Administrative Assistance	4/01	
25	Meet with candidates	Principal	4/01	
26	Complete Human Resource Forms	Individual Candidate	4/01	
27	Submit official college transcripts to Executive Director	Candidates	4/01	
28	Set up personnel folder on each candidate	Administrative Assistant	5/01	
29	Sign contract	Candidates	5/01	
30	Draft Welcome letter	Principal	5/01	
31	Send letter to each candidate	Administrative Assistant	5/01	

ADMINISTRATION

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
1	Secure position description for all staff	Executive Director	5/01	
2	Send position descriptions to prospective candidates	Executive Director Principal Administration Assistant	5/01	
3	Obtain performance review forms for staff	Executive Director	5/01	
4	Review Resumes	Principal Executive Director	5/01	
5	Formulate Panel	Principal Executive Director	5/01	
6	Schedule interviews	Principal	5/01	
7	Inform selected candidates	Principal Executive Director Administrative Assistant	5/01	
8	Obtain required student health	Principal	5/01	
9	Require all staff to verify TB inoculation	Executive Director Principal	6/01	
10	Develop fire evacuation plan for both sites	Executive Director Principal	6/01	
11	Purchase a Student Information System	Executive Director Principal	5/01	
12	Develop and send student enrollment forms to parents	Principal Administrative Assistant	5/01	
13	Develop Student, Parent and Staff Handbooks	Executive Director Principal	5/01	
14	Schedule students	Principal	6/01	
15	Develop teacher schedules	Principal	6/01	
16	Schedule Teacher orientation training	Executive Director	5/01	
17	Inform teachers of training dates	Principal	6/01	
18	Conduct training	TBD	7/01	

ADMINISTRATION

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
19	Distribute student class lists To appropriate teachers	Principal	7/01	
20	Develop resource teacher schedules	Principal	7/01	
21	Resolve any conflicts	Principal Teachers	7/01	
22	Distribute schedules to teachers	Principal	7/01	
23	Meet with staff	Principal	7/01	
24	Develop plan to register students and to work out the logistics of getting previously registered students to their appropriate classroom	Executive Director Principal Staff	7/01	

ADMISSIONS

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
1	Apply for admissions in person or by mailing application	Parents	Ongoing	
2	Develop student registration packet	Executive Director Principal	4/01	
3	Duplicate registration packet	Administrative Assistant	4/01	
4	Send registration packet to the parent/guardian OD each child who has applied	Administrative Assistant	3/01	
5	Schedule an appointed time for each parent/guardian to return completed forms	Principal	Ongoing	
6	Validate and certify completed registration forms	Principal Administrative Assistant	Ongoing	
7	Return incomplete forms	Principal Administrative Assistant	As Needed	
8	Give deadline for the resubmission of incomplete forms	Principal	6/01	
9	Monitor the submission of registration forms	Principal Administrative Assistant	Ongoing	
10	Monitor and check each student's health records	Principal Administrative Assistant	7/01	
11	Inform parent/guardian of each student not in compliance	Principal Administrative Assistant	6/01	
12	Give parents/guardians dead-line when all students must be in compliance	Principal	6/01	
13	Monitor the deadline	Principal	6/01	

ADMISSIONS

NO	ACTIVITIES	RESPONSIBLE PERSON	DATE	COMMENTS
14	Notify parent/guardian in writing that his/her child is not compliant and will be sent home until compliance is attained	Executive Director Principal Administrative Assistant	6/01	
15	Send home students who fail to comply until they do comply	Principal	9/01	
16	Input registration, school history, background data, health information and personal information in the Student Information System	Administrative Assistant Data Entry Person	Ongoing	
17	Monitor that process	Principal	Monthly	
18	Direct teachers to input attendance data daily	Principal Administrative Assistant	Daily	
19	Monitor attendance daily	Principal Administrative Assistant	Daily	

STUDENT RECRUITMENT

NO	ACTIVITY	RESPONSIBLE PERSON	DATE	COMMENTS
1	Determine the number of students to be served	Board and Tesseract	Done	
2	Develop enrollment guidelines	Executive Director Principal	4/01	
3	Develop recruitment flyers	Executive Director	4/01	
4	Obtain Board approval	Executive Director	4/01	
5	Disseminate flyers to Churches in SE and Far NE	Principal	4/01	
6	Develop plan to disseminate recruitment/enrollment information in SE community	Executive Director Principal	4/01	
7	Submit flyers for printing	Executive Director Principal	4/01	
8	Print flyers		4/01	
9	Purchase recruitment bags for flyers	Administrative Assistant	4/01	
10	Order engraved pencils for recruitment bags	Administrative Assistant	4/01	
11	Pack recruitment bags	Executive Director Principal Administrative Assistant	4/01	
12	Disseminate recruitment bags in community	Boy and Girl Scouts	5/01	
13	Develop recruitment banner for school site (421 Alabama Avenue)	Executive Director Principal	5/01	

STUDENT RECRUITMENT

NO	ACTIVITY	RESPONSIBLE PERSON	DATE	COMMENTS
14	Select company to make banner	Executive Director	5/01	
15	Send draft to company for printing	Executive Director	5/01	
16	Hang banner	Executive Director	5/01	
17	Submit bill for pencils, bags, and flyers to Board for payment	Executive Director	5/01	
18	Type mailing labels	Administrative Assistant	5/01	
19	Pick up mail boxes from post office	Administrative Assistant	5/01	
20	Prepare mailings according to post office guidelines	Administrative Assistant	5/01	
21	Request funds from the Board for bulk mailing account	Executive Director	5/01	
22	Place funds in bulk mailing postal account	Administrative Assistant	5/01	
23	Mail flyers	Administrative Assistant	5/01	
24	Develop a public service announcement for the school	Executive Director Principal	6/01	
25	Develop a press release for the school	Executive Director Principal	6/01	
26	Plan on-site student registration at Admissions Office	Executive Director Principal	5/01	
27	Plan on-site student registration at school (421 Alabama Avenue)	Executive Director Principal	5/01	
28	Order tent	Principal	5/01	
29	Develop a flyer for on-site registration	Executive Director Principal	5/01	
30	Contact Printer	Executive Director Principal	5/01	



**AMERICA'S
CHOICE™**

*Changing Standards,
Changing Lives*

March 16, 2001

Joey Feldman, Principal
Thurgood Marshall Academy
Washington, DC

Dear Joey:

It was a pleasure to meet with you yesterday and review the services that Thurgood Marshall can expect from America's Choice School Design next year. I am really pleased to welcome you back into our network as a founding principal, and I look forward to meeting with you and your staff on a regular basis.

As we discussed yesterday, this is the time of year during which we send out letters of commitment to the schools in our network with formal contracts to follow shortly thereafter. At this point in time none of the 300 schools in our network have completed contracts for the 2001-02 school year. That process is a number of weeks away.

In regard to program, we have made a real effort to provide a sequence of high-quality services that focus on the most pressing challenge we find in urban, rural and suburban high schools and districts across the country — **students' lack of core literacy and math skills**. We all know that reading, writing and mathematics skills are critical for students to perform effectively in high school and beyond. To help your students master the core literacy and math skills they'll need to stay in school — and get motivated and engaged in learning — we have developed **new strategies and materials**.

We will support your teachers and administrators in using these new strategies and materials with national and regional America's Choice **professional development services and seminars**. We will introduce you and your school to the America's Choice School Design and prepare you to implement the America's Choice School Design for the ninth grade students in your school.

Your contract for the America's Choice design will cover **professional services** for you and your staff, including:

One Thomas Circle, NW

Suite 700

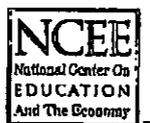
Washington, DC 20005

{phone} 202 783 3668

{fax} 202 783 3672

{email} info@ncee.org

{web} www.nccc.org



March 16, 2001
Joey Feldman
Page Two

A three-day High School Leadership Academy this summer. Your Leadership Team will leave the Academy prepared to introduce the design to their schools and establish a new structure focused around getting students to earn the AFC (Academic Foundation Certificate) by the end of the Lower Division. These efforts will be supported by study groups, the Lower Division Handbook, regional principals meetings, on-site technical assistance, and leadership seminars.

Following the Leadership Academy, your Literacy and Math Coaches and Science Lead Teacher will spend a day exploring the America's Choice School Design from the perspective of their disciplines and learn how to lead their departments through the planning process to implement the ninth grade program of the Lower Division.

Regional Principals Network. Facilitated by the Regional Director and/or High School Cluster Leader, these meetings will focus on discussing the reading materials, planning issues regarding the implementation of the design, and professional development. In addition, there will be a two-day **High School Leadership follow-up seminar** in the spring focused on Planning for Results and other leadership services.

A four-day ELA and Literacy Institute: Introduction to the High School ELA Program. The Literacy Coach and up to two English teachers (ninth grade) will participate in a four-day Literacy Institute designed to introduce them to the High School ELA Program. Participants will be introduced to "Ramping Up" writing exercises to assist students in developing their writing skills in order to successfully participate in their regular standards-based classrooms and handle demanding curriculum at their grade level. In addition, participants will plan to implement a genre study in their classrooms, collect student work, and reflect on their findings.

In the Spring, the Literacy Coach will participate in a one day **Literacy Institute: Preparing for Secondary Literacy Workshop**. The Math Coach will participate in a one-day **Math Institute: Planning for Foundations of Advanced Mathematics (FAM)**. The FAM workshop will focus on conceptual mathematics and teaching mathematics for conceptual understanding.

Finally, we will provide seven days of **on-site technical assistance** focusing on services needed by your individual school. These may include: Using Standards, 25 Book Campaign assistance, setting up the Lower Division, planning for the Academic Foundation Certificate, or other planning and implementation issues identified by the School Leadership Team.

An outline of the professional services that you can expect for the coming school year to assist you in the implementation of the design is enclosed with this letter. We are

March 16, 2001
Joey Feldman
Page Three

confident that you will find we are offering a complete program that will move your school – and your staff – on track towards full implementation of the America’s Choice School Design.

If you are interested in participating in the design for the 2001-02 school year, please sign in the space provided below and fax back to our offices. We will then contact your business office to arrange for a contract for the upcoming year.

And, of course, if you have questions, please feel free to contact me.

Sincerely,



Walter Gibson
Senior Associate
NCEE

*We would like to participate in the America’s Choice School Design:
High School model for the 2001-2002 school year.*

Name of School City, State

Signature/Title Date

Thurgood Marshall Academy
600 New Jersey Ave., NW
Washington, D.C. 20001

March 9, 2001

Mr. Joseph C. Feldman
301 East 21st Street, #15-C
New York, New York 10010

Dear Joey:

We are pleased to offer you this employment agreement (the "Agreement") with Thurgood Marshall Academy ("TMA"). The opportunities and challenges facing TMA are enormous and exciting. Both as a new organization and as a dynamic and innovative educational environment, TMA needs—and the students and community it will serve deserve—extraordinarily talented and committed leaders. This Agreement and the level of compensation we are providing you reflect our view that you meet this high standard.

The terms and conditions of this Agreement are set forth below.

For purposes of this agreement we have defined certain terms:

(1) **Start-up period:** The time period commencing approximately March 15, 2001 and ending on June 30, 2001. During this time, TMA will be, among other things: (1) finalizing its charter application and tax exempt status; (2) finalizing its operating policies and curriculum; (3) marketing and publicizing the mission of TMA within the community; (4) recruiting students to enroll for the anticipated opening of school in Fall 2001; and (5) recruiting and selecting staff;

(2) **First year of operation:** The first year of operation will commence on or about July 1 of the calendar year in which TMA receives its charter from the D.C. Public Charter School Board and attains sufficient student enrollment to be financially viable and will end on June 30 of the next calendar year.

1. Purpose – This agreement is a contract of employment between Joseph Feldman and TMA.

2. General – Under this Agreement, you shall become Principal of TMA. As Principal, you will share day-to-day management responsibilities for TMA with the Executive Director and you will have primary responsibility for curricular and instructional matters. You will report to the TMA Board of Trustees ("the Board").

3. Term of Employment - The term of employment under this Agreement is approximately one (1) year and fourteen (14) weeks, which will progress in two distinct segments. The first segment, "start-up period," shall commence on or about March 15, 2001, and end on June 30, 2001; the second segment, "first year of operation," may commence on July 1, 2001, and end on June 30, 2002.

4. Duties And Responsibilities – You shall serve as the Principal of TMA in such capacities, with such titles and authorities, as the Board or its successor may from time to time prescribe, and you shall perform all duties incidental to the position of Principal, shall cooperate fully with the Board or its successor, and shall work cooperatively with the Board and with all other staff of TMA.

5. Location - During the Term of Employment, you shall perform services for TMA in Washington, D.C.

6. Base Salary – During TMA's start-up period, your annualized base salary shall be equal to \$65,000 per year. During TMA's first year of operation you will receive an annual salary of \$65,000, provided, however, that if TMA fails to achieve and maintain full enrollment of at least 80 students until January 1, 2002 (or the end of the first semester, whichever time period is later) and/or fails to maintain an enrollment of at least 75 students until the end of TMA's first year of operation, the Board may, at its discretion, reduce this salary for the duration of such under-enrollment if the under-enrollment results in TMA receiving less funding than it would receive with 80 students. The reduction in salary will be roughly proportional to the under-enrollment, insofar as the school continues to operate.

7. Benefits and Perquisites – (a) Start-up period – During TMA's start-up period, you shall–

- (1) receive reimbursement for documented tax-qualified moving expenses and mileage on your personal vehicle (if any) up to a maximum reimbursement of \$3000 related to your relocation from New York to Washington, D.C.;
- (2) receive a one-time signing bonus of \$5000 on April 2, 2001;
- (3) receive payments of up to \$150 for each of the months of April, May and June to offset 50% of your cost for

documented health insurance premiums. Such payments will be included with your regular salary; and,

(4) be entitled to take Memorial Day as a paid holiday.

(b) First year of operation – During TMA's entire first year of operation, you shall–

(1) receive the following paid holidays: New Year's Day, Martin Luther King Day, President's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Christmas Day;

(2) receive four paid personal days at the beginning of each year of operation, all of which must be used during the year of operation in which they are earned;

(3) begin to accrue paid vacation time at the rate of one (1) day per month (12 days per year), which may be carried forward for the length of employment. Vacation days may be "borrowed" within an operational year in advance of their accrual. If this contract is terminated before borrowed vacation days are actually earned, their cash equivalent will be deducted from your final pay check. Conversely, upon termination you will receive payment for the value of unused accrued vacation days;

(4) begin to accrue sick leave at the rate of .666 days per month of service (8 days per year), which may be carried forward for the length of employment. Sick days may be "borrowed" within an operational year in advance of their accrual. If this contract is terminated before borrowed sick days are actually earned, their cash equivalent will be deducted from your final pay check;

(5) be eligible to participate in TMA's group health insurance plan;

(6) be eligible to participate in TMA's retirement plan.

Notwithstanding the foregoing, TMA retains the right to add, amend or terminate any benefit plan, policy, program, or perquisite in the normal course of business.

8. Termination And Suspension Of Employment – (a) Voluntary

Termination By You – You may terminate your employment under this Agreement for any reason at any time by giving the Board written notice of intent to terminate, delivered at least 90 days before the effective date of such (such period not to include vacation). The termination shall automatically become effective upon the expiration of the notice period, or earlier at the discretion of the Board, provided, however, that the Board will provide you with written notice of least one week before such an earlier termination. Upon the effective date of such termination, your base salary and any other benefits and perquisites shall cease to accrue and you shall forfeit all rights under this Agreement which as of the relevant date have not yet been earned. A termination of employment in accordance with this subparagraph (a) shall be deemed a "Voluntary Termination." Because the Board will incur substantial recruiting expenses as the result of your Voluntary Termination, you will be required to compensate the Board for those costs by paying liquidated damages for all actual expenses incurred as a result of such termination up to \$10,000.

(b) Involuntary Termination For Cause – (1) In the event of your termination for cause, TMA shall pay you your full accrued salary and accrued vacation time through the date of your termination and TMA shall have no further obligations under this Agreement. Except as provided in (3) below, nothing in this Agreement prevents TMA from terminating your employment immediately and without notice.

(2) For purposes of this Agreement, "Cause" is defined as (i) unsatisfactory performance of your duties as defined by the Board; (ii) serious misconduct of any kind.

(3) Prior to terminating you for unsatisfactory performance, the Board will grant you a fifteen (15) day period to improve your performance to a satisfactory level.

(4) For Cause, the Board may substitute for termination any other appropriate disciplinary action, including but not limited to Suspension, with or without pay.

(5) If TMA terminates your employment for Cause, TMA shall provide you with a written statement of the grounds for such termination within 10 business days after the date of termination.

(c) Failure to Obtain Charter, Late Opening or Cessation of Operations – The Board will terminate your employment under this Agreement if TMA fails to obtain its final Charter from the D.C. Public Charter School Board, to open for its first year of operation for the 2001-2002 school year and/or ceases to operate during its first year. Upon the effective date of such termination, your base salary and any other benefits and perquisites shall cease to accrue and you will forfeit all rights under this Agreement for the remainder of the start-up period and for the first year of operation.

9. Contract Negotiations – If the parties to this contract wish to enter contract negotiations for future years of TMA's operation, such negotiations will begin no later than 60 days before the expiration of this contract. Such negotiations should be completed within 30 days.

10. No Deemed Waiver – Failure to insist upon strict compliance with any of the terms, covenants, or conditions of this Agreement shall not be deemed a waiver of such term, covenant, or condition, nor shall any waiver or relinquishment of any right or power hereunder at any one or more times be deemed a waiver or relinquishment of such right or power at any other time or times.

11. Taxes – TMA may withhold from any benefits payable under this Agreement all taxes that it reasonably determines to be required pursuant to any law, regulation, or ruling. However, it is your obligation to pay all required taxes on any amounts and benefits provided under this Agreement, regardless of whether withholding is required.

12. Governing Law – To the extent not preempted by federal law, the provisions of this Agreement shall be construed and enforced in accordance with the laws of the District of Columbia, excluding any conflicts or choice of law rule or principle that might otherwise refer construction or interpretation of this provision to the substantive law of another jurisdiction.

13. Assignment – You may not assign your rights and obligations under this Agreement.

14. Severability – The provisions of this contract are severable. Should any provision of this contract be found to be unenforceable and invalid, that finding affects only the subject provision and does not invalidate the entire contract.

March 1, 2001
Page 6

15. Entire Agreement – Except for the terms of the benefit plans in which you participate, this Agreement, sets forth the entire understanding of you and TMA, and supersedes all prior agreements and communications, whether oral or written, between TMA and you regarding the subject matter of this Agreement. This Agreement shall not be modified except by written agreement of you and TMA.

Joey, we believe that this Agreement provides you with both financial security and great opportunity as TMA evolves. We recognize that the challenges facing us are formidable and that you will be assuming very substantial responsibilities in meeting those challenges. It is our hope that this Agreement provides you with opportunities commensurate with the commitment that we expect from you. Please indicate your acceptance by signing below.

Sincerely yours,

Lillemor McGoldrick
Employment and Compensation Committee
For the Board of Trustees, Thurgood Marshall Academy

I agree to the terms described above.

Joseph C. Feldman

GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS



CERTIFICATE

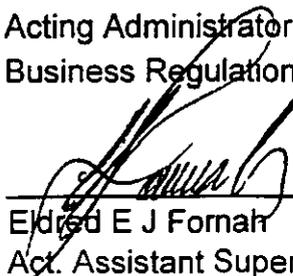
THIS IS TO CERTIFY that all applicable provisions of the District of Columbia NonProfit Corporation Act have been complied with and accordingly, this **CERTIFICATE OF INCORPORATION** is hereby issued to:

THURGOOD MARSHALL ACADEMY

IN WITNESS WHEREOF I have hereunto set my hand and caused the seal of this office to be affixed as of the **24th** day of **May, 2000**.

Lloyd J. Jordan
Director

Patricia E. Grays
Acting Administrator
Business Regulation Administration



Eldred E J Fornah
Act. Assistant Superintendent of Corporations
Corporations Division

Anthony A. Williams
Mayor

**ARTICLES OF INCORPORATION
OF
THURGOOD MARSHALL ACADEMY**

FILE
MAY 24 2006

TO:
DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS
BUSINESS REGULATION ADMINISTRATION
CORPORATIONS DIVISION
941 NORTH CAPITAL STREET, N.E.
WASHINGTON, D.C. 20002

We, the undersigned natural persons of the age of twenty-one years or more, acting as incorporators of a corporation under the NON-PROFIT CORPORATION ACT (D.C. Code, 1981 edition, Title 29, Chapter 5), adopt the following Articles of Incorporation:

FIRST: The name of the corporation is Thurgood Marshall Academy.

SECOND: The period of duration is perpetual.

THIRD: The purpose for which the corporation is organized is to establish and operate a public charter school to educate the District of Columbia's youth.

Notwithstanding any other provisions of these Articles, the corporation shall not conduct or carry on any activities not permitted to be conducted or carried on by an organization exempt from tax under Section 501(c)(3) of the Internal Revenue Code of 1986, or by an organization contributions to which are to be deductible under Section 170 (c)(2) of such Code.

FOURTH: The corporation will have no members.

FIFTH: The corporation shall not be authorized to issue shares of stock.

SIXTH: The election of directors is provided in the bylaws.

SEVENTH: Conduct of the internal affairs of the corporation, including distribution of the assets on dissolution or final liquidation, is provided in the bylaws in accordance with the District of Columbia Nonprofit Corporation Act.

Upon the dissolution of the corporation or in the winding up of its affairs, the assets of the corporation shall be distributed exclusively for charitable or educational purposes or to organizations which are then exempt from federal tax under Section 501(c)(3) of the Internal Revenue Code of 1986, and to which contributions are then deductible under Section 170 (c)(2) of such Code.

EIGHTH: The address, including street and number of the initial registered office of the corporation is and the name of the initial registered agent at such address is

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

NINTH: The number of directors constituting the board of directors is 7, and the names and addresses, including street and number and zip code of the persons who are to serve as directors until the first annual meeting or until their successors are elected and shall qualify are:

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

Mr. John J. Commisso
26 Sunset Drive, Apartment 4
Alexandria, Virginia 22301

Mr. Thomas E.M. Hutton
6 Sunset Drive, Apartment. 2
Alexandria, Virginia 22301

Ms. Megan E. Blamble
1855 Calvert St., N.W., #102
Washington, D.C. 20009

Ms. Lillemor McGoldrick
2129 Florida Avenue, NW Apt. 303
Washington, DC 20008

Ms. Jacquelyn Davis
1745 Q. Street, N.W. Apt. A
Washington, DC 20009

Ms. Joy Moses
2400 16th Street, N.W. Apt. #625
Washington, D.C. 20009

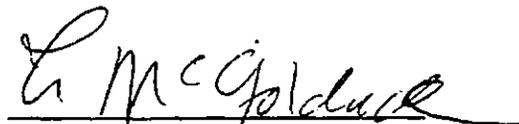
TENTH: The name and address, including street and number and zip code, of each incorporator is:

Mr. Joshua Kern
3133 Connecticut Avenue, N.W. #410A
Washington, DC 20008

Ms. Lillemor McGoldrick
2129 Florida Avenue, NW Apt. 303
Washington, DC 20008

Mr. Richard Roe
600 New Jersey Avenue, NW
Room 128
Washington, DC 20001


Joshua Kern


Lillemor McGoldrick


Richard Roe

Incorporators

DATE 5/24/00

I, Teruko R. Scaven, a Notary Public, hereby certify that on the day of May 24, 2000, Joshua Kern, Lillemor McGoldrick, and Richard Roe appeared before me and signed the foregoing document as incorporators, and have averred that the statements therein contained are true.



My Commission Expires
April 14, 2001

SECTION NOTE

THURGOOD MARSHALL ACADEMY IS CURRENTLY SPENDING MONEY OUT OF THE MORE RESTRICTIVE WALTON FOUNDATION GRANT AND WILL BEGIN SPENDING TITLE X MONEY WHEN NEEDED.