

Princeton Charter School

January 15, 1997

chartered by

Leo Klagholz, Commissioner,
New Jersey State Department of Education,

under the
Charter School Program Act of 1995.

renewed by

David Hespe, Commissioner,
New Jersey State Department of Education,
February 1, 2001

renewed by

Lucille E. Davy, Acting Commissioner,
New Jersey State Department of Education,
December 30, 2005

575 Ewing Street, Princeton, New Jersey 08540
<http://www.pcs.k12.nj.us>

Princeton Charter School

Contents

1	Mission of the Charter School	4
2	Goals and Objectives of the Charter School	5
2.1	Education for Future Success	5
2.2	Excellence and Equity in Education	6
2.3	Choice in Education	6
2.4	Specific Objectives	7
3	Description of Founders	8
4	Governance Structure	9
4.1	The Board of Trustees	9
4.2	Involvement of Private Entities	9
4.3	Advisory Grievance Committee	9
4.4	Governance of the School	9
5	Education Program	11
5.1	Teaching Methods	11
5.2	Curriculum	13
5.3	English	14
5.4	Mathematics	16
5.5	History and Geography	17
5.6	Science	18
5.7	The Arts	20
5.8	World Languages	20
5.9	Health and Physical Education	21
5.10	School Calendar, Schedule, and Hours of Operation	22
5.11	Grade Range	23
5.12	Innovative Strategies for High Student Achievement	23
5.13	Partnerships	24
6	Student Assessment	26
6.1	Assessment Methods	26
6.2	Assessment Indicators	26
6.3	Ensuring High Academic Achievement	26
6.4	Addressing the Needs of Students	27

7	Admission Policy and Criteria	27
7.1	Admissions Policy	27
7.2	Selection Process	28
7.3	Criteria for Prospective Students	29
7.4	Nonresident Student Enrollment	29
7.5	Enrollment of a Cross-Section of the Community	30
7.6	Policies to Focus Admissions	30
8	Student Discipline Policy and Expulsion Criteria	30
8.1	Suspension and Expulsion	30
8.2	Codes of Conduct	31
8.3	Disciplinary Policy	31
9	At-Risk and Bilingual Students and Students with Disabilities	32
9.1	At-Risk Students	32
9.2	Limited-English Proficient Students	33
9.3	Students with Disabilities	33
10	Charter School Staff	34
10.1	Certification	34
10.2	Staff Responsibilities	34
10.3	Tenure Guidelines	36
10.4	Justification for Alternate Route Certification	36
10.5	Hiring Standards and Criteria	37
10.6	Employment Contracts	38
10.7	Professional Development Opportunities	38
10.8	Staff Evaluation	39
11	Parental and Community Involvement	39
11.1	Parental Involvement	39
11.2	Community Group Involvement	40
12	Charter School Facility	41
12.1	Designation of Facility	41
12.2	Acquisition of Facility	41
12.3	Address of Facility	41
12.4	Financing Plans	41
12.5	Renovation Needs	42
13	Financial Plan	42
13.1	Financial and Fund Development Plan	42
13.2	Accounting and Audit Plans	43
13.3	Enrollment Projections 1997-2001	43
13.4	Enrollment Projections 2001-2006	44
13.5	Nonresident Enrollment Projections	44

13.6 Districts of Residence	45
14 Transportation	45
15 Waivers of Regulations	45
16 Charter School Self-Evaluation and Accountability	46
16.1 Self-Evaluation	46
16.2 Annual Report	46
16.3 Records System	47
16.4 Staff Evaluation	47
17 Timetable	49
A Princeton Charter School Founder Biographies	50
B Princeton Charter School Education Program and New Jersey Core Curriculum Content Standards	55

This document does not include the sections of the original charter that were relevant only to the first year, such as the first-year budget.

Princeton Charter School

Princeton Charter School (PCS) is a public school, funded by public monies, and operated independently by a board of trustees under a charter granted by the Commissioner of Education of the State of New Jersey. It will begin operation in the 1997-98 school year as a 4-6 elementary school, and will expand yearly until a K-8 configuration is achieved.

1 Mission of the Charter School

Princeton Charter School's mission is to provide its diverse student body the best possible education by focusing on the fundamental academic disciplines in an atmosphere that affirms academic achievement, and in so doing, to offer the community true choice in public education. Princeton Charter School believes that a "thorough and efficient" education is best accomplished through a rigorous curriculum that requires mastery of core knowledge and skills.

In Kindergarten through eighth grade a solid foundation must be built for a lifetime of learning. Some schools sacrifice high expectations for fear of undermining student self-esteem. Princeton Charter School believes that knowledge must come first, and that children acquire genuine self-esteem through academic accomplishment. Many schools currently deprive learners of this experience by failing to set and celebrate milestones of achievement.

By fourth grade wide gaps in achievement emerge that cannot be explained by variations in ability alone. Disturbingly but not surprisingly, these gaps often correspond to children's socioeconomic differences and varying levels of parental support. Some are created by inconsistent or even ineffective treatment of core areas such as language arts and mathematics. Princeton Charter School cannot hope to close these gaps entirely, but it believes that a stronger education program will help to bridge them.

These problems are urgent and cannot await gradual reforms. The children in our schools today have only one chance at a good education. Princeton Charter School hopes to influence the course of public education by positive example for the benefit of our children and the society they will create.

To accomplish this mission, Princeton Charter School will have:

1. rigorous curricula, with well-defined grade-by-grade outcomes in line with state, national, and international standards, that focus on cumulative acquisition of knowledge and skills in academic areas;
2. teaching methods that provide children the support and challenges they need to master grade-appropriate skills, ideas, and facts in every subject area;

3. integrated formal assessments to confirm student progress, to promptly identify situations that require intervention or greater challenge, and to guarantee accountability of the school;
4. a school atmosphere that encourages academic achievement, recognizes the importance of hard work and personal responsibility, and holds out high expectations for every student and teacher – while fostering fairness, respect for others, and recognition of the rights and responsibilities of citizenship in a democratic society; and
5. timely and complete communication with parents about their child’s progress.

2 Goals and Objectives of the Charter School

The main goals of Princeton Charter School are to:

1. educate students for future success;
2. promote academic excellence and equity for a diverse population of students within the public education system;
3. provide a choice of educational opportunities within a public school system for parents, students, and educators.

2.1 Education for Future Success

The immediate goal of Princeton Charter School is to prepare students for academic success in their further education, to enable students to keep open a broad spectrum of options for their future endeavors, and to prepare them to be responsible and productive citizens.

Princeton Charter School (PCS) will give students an early and thorough grounding in reading, writing, mathematics, history, science, a modern world language, and the arts, so as not to foreclose any future career choice. The school will focus on core knowledge and essential skills so that children may achieve the mastery on which further learning will build. The PCS education program also includes comprehensive health and physical education. The core PCS grade-level outcomes meet New Jersey Core Curriculum Content Standards and are defined in part by referring to existing national and international standards.

In order to prepare students for the future, and to meet the New Jersey Core Curriculum Standard of Workplace Readiness, PCS will foster a range of attitudes and behaviors such as hard work, personal responsibility, constructive engagement in activities, self-discipline to tackle various assignments, a sense of fairness, and respect for others.

In the course of their studies, students in Princeton Charter School are expected to develop and hone the skills to formulate a question or define an issue. They will

find relevant information using appropriate tools and evaluate it through critical thinking and quantitative analysis. They will solve problems and make decisions based on available information and organize and present their work both orally and in written or graphic form.

PCS will strive to lead every student to these accomplishments, which are essential to future success in school and at work, to the responsibilities of citizenship, and to the satisfactions of a cultivated mind.

2.2 Excellence and Equity in Education

Interest in rigorous early education crosses all demographic boundaries. Princeton Charter School will seek a diverse student body and offer those students both excellence and equity in education. The school's strong academic program will reduce achievement gaps by eliminating an important cause – the insufficient mastery of basic knowledge and skills required for further academic achievement.

Princeton Charter School will use a variety of teaching methods to ensure mastery of appropriate skills, ideas, and knowledge for all students, regardless of race, gender, or socioeconomic and educational background. Since knowledge and skills are acquired cumulatively and systematically, it is essential to detect any learning difficulties early and to intervene before proceeding to the next level. Regular assessments integrated with the curriculum will help to determine how students are learning and to identify those areas that need more support or greater challenge.

Princeton Charter School will be responsible for meeting the educational needs of its students without parents resorting to outside tutoring, provided parents or guardians support the school's mission by ensuring home study sessions and homework completion. Beyond its core program, PCS is dedicated to challenging and stimulating every child. A modified program will be provided for those children with diagnosed disabilities that require adjusted teaching strategies or definitions of success, all within the general framework of PCS education goals.

2.3 Choice in Education

Princeton Charter School's third main goal is to provide a real choice among education opportunities for students, parents, and teachers. The availability of choices within public education, not just for those who can afford private schools, ensures a real option for all the residents of Princeton, regardless of the financial status of their families.

The availability of choice is an important element in educational accountability and promotes higher standards throughout the system. Those students whose families prefer a rigorous early education may choose PCS, while remaining free to return to the regular public schools in the district of their residence if they become dissatisfied. This mechanism puts emphasis on the needs of the students, and helps to ensure that these needs are met in either regular public schools or PCS. The

accountability that choice encourages will also help maintain strong public support for public education as a whole.

By meeting its objectives, Princeton Charter School will provide children with a positive educational and social experience in a structured, challenging yet nurturing environment. It will be a community in which students, teachers, and parents are jointly aware of and committed to the mission and goals of the school.

2.4 Specific Objectives

- Students will develop clear and effective written and oral communication skills using standard English.
- Students will acquire a strong foundation in mathematical reasoning and skills.
- Students will learn about the political, economic, cultural, geographic, and technological forces that have shaped the history of the world and of the United States.
- Students will acquire knowledge and skills in the sciences and will be able to conduct inquiries using the scientific method.
- Students will develop an informed appreciation of the arts and participate in their creation.
- Students will be able to speak, read, and write in a language other than English.
- Students will learn the essentials necessary for a healthy, safe, and physically fit life.
- Students will recognize the importance of hard work, personal responsibility, and respect for others.
- Students from all demographic groups will perform at comparably high achievement levels.

3 Description of Founders

Princeton Charter School (PCS) is established by the Princeton Charter School Founders (PCSF), which consists of parents of children currently attending the Princeton Regional School District and certified teachers. These individuals are listed below. Background information, certifications/licenses and corporate/business affiliations are given in an appendix of the full application which is available at the reference desk of the Princeton Public Library.

The Founders are individuals who are all committed to public education and who believe that this charter school will benefit public education in the state of New Jersey.

Name	Schools (1996-1997)
David Abraham	Littlebrook Elementary (5)
Fred Brodzinski	Princeton High (12); Certified Teacher
Bruce T. Draine	Littlebrook Elementary (5), Princeton High (9)
Jeremy Goodman	Riverside Elementary (5, K)
Dina Gutkowicz-Krusin*	Littlebrook Elementary (5), Princeton High (9)
Jane Hallett	Johnson Park Elementary (4, 3) John Witherspoon Middle (7)
Simon Hallett*	Johnson Park Elementary (4, 3) John Witherspoon Middle (7)
Lolita Buckner Inniss	Riverside Elementary (4, 4)
Molly Kulkarni	Riverside Elementary (4, K, + K in 1997)
Elena Leonova	Community Park Elementary (4), John Witherspoon Middle (6)
Sandra Milevski*	Littlebrook Elementary (4, 2)
Anca Niculin	Johnson Park (5)
Toby Peterson	Certified English Teacher
Maureen P. Quirk*	Riverside Elementary (5, K)
Lee Silver	Community Park Elementary (4, 1 + K in 1997)
Susan Remis Silver	Community Park Elementary (4, 1 + K in 1997)
Peter N. Yianilos*	Community Park Elementary (5) John Witherspoon Middle (7)

Founder's Steering Committee Members are indicated by *.

The Founders wish to acknowledge the efforts of all the community members who contributed to this application.

The Founders of the PCS have entered no partnerships with other entities to found this school.

4 Governance Structure

4.1 The Board of Trustees

The steering committee of the PCS Founders will elect the initial Board of Trustees. This initial Board will organize itself such that one-third of the members will serve through June 1997, one-third through June 1998, and the final third through June 1999.

4.2 Involvement of Private Entities

No private entities will be involved in the operation of PCS.

4.3 Advisory Grievance Committee

An advisory grievance committee hears complaints on the part of individuals or groups who allege a violation of the provisions of the school's Charter. This grievance committee is an ad hoc committee of the Board of Trustees, including trustees, parents, and teachers as members. The grievance and complaint review process includes: 1) written description of the grievance, along with any supporting documentation, to be presented by the aggrieved party to the grievance committee no later than one month after the fact; 2) committee review of the grievance and all supporting materials along with interview of the aggrieved and other relevant parties within one month's time; 3) committee decision within one week's time or a call for more information, in which case the process starts again with 2); 4) the advisory grievance committee makes its decision and nonbinding recommendations concerning the disposition of the complaint known to the school's Board of Trustees; 5) the Board of Trustees considers the recommendations of the grievance committee at its next regularly scheduled meeting and renders a decision; 6) if the Board decides wholly or partially for the aggrieved, any remedial action is to be taken as expeditiously as possible; 7) if the aggrieved is dissatisfied with the Board's decision, an appeal may be made to the Commissioner of Education.

4.4 Governance of the School

Princeton Charter School is governed by a Board of Trustees whose ultimate responsibility is to uphold the mission of Princeton Charter School by providing for the well-being of the institution in the present as well as the future. The Board protects the public interest and upholds the public trust by applying the highest standards of service in governing the school according to its Charter, by-laws, and relevant state and federal statutes. It is the duty of the Board of Trustees to make plans, establish policies, and assess the performance of the school as a whole. The Board also bears ultimate responsibility for the school's finances and physical plant. The Board must also identify, select, work with, support and evaluate the Head of

School, who is the professional educational leader of the school as well as its administrator. In order to successfully undertake all these responsibilities, the Board must organize, manage, and assess itself in an efficient, business-like manner.

First and foremost, Trustees are nominated and elected on the basis of a firm commitment to the mission, goals and objectives of PCS; they should unequivocally support the educational philosophy espoused in this document and confirmed by the granting of a charter to the school. In addition, Trustees are nominated and elected for the qualities of leadership, service, and expertise in a range of fields that they bring to the school. No Trustee represents a specific constituency. It is imperative that the Board of Trustees make its decisions for the present and future welfare of Princeton Charter School as a whole, rather than in response to personal priorities or the wishes of vocal factions. No Trustee may speak for the Board on any issue until the Board in its entirety has decided that issue. All Board meetings are held in compliance with the provisions of the "Open Public Meetings Act." For a detailed review of the role of the Board of Trustees, please refer to the by-laws available upon request.

The Board of Trustees will include at least five members, with the exact number to be specified in the by-laws. (The by-laws currently specify 9.) The Princeton Charter School Head sits on the Board *ex officio*. Members of the Board serve a term of three years, with approximately one-third replaced each year. Terms of office of outgoing trustees will expire on June 30, and incoming trustees will take office on July 1 annually. The by-laws provide for a majority of the Board members to be elected from among the parents and guardians of students enrolled in the school. Seats reserved for parent trustees are elected by the parents/guardians of enrolled students. Candidates are nominated by the nominating committee of the Board of Trustees, or by petition of the parents/guardians of students enrolled in the school. The number of signatures shall be no less than ten percent of the number of enrolled students. The non-reserved seats are filled by majority vote of the Board of Trustees and may provide desirable expertise or diversity.

Parents of PCS students participate directly in the governance of the school through the seats reserved for them on the Board of Trustees. Because the Board is empowered by its by-laws to create committees that include non-Trustees as committee members, it is expected that the Head of School, parents, and faculty members will be included in such committees as appropriate. The Board may choose to create a standing Teachers' Advisory Committee to serve as a permanent channel for teachers to make their concerns known directly to the Board, including the Head as a Trustee *ex officio*. Such a standing teachers' committee would also provide feedback to the Board in its self-evaluation exercises which serve as the basis for future planning. The students may influence issues of immediate concern to them in their daily school environment by forming a school government which may provide input to the formulation of in-school discipline, codes of conduct, etc.

5 Education Program

Princeton Charter School views a young learner's early years as a precious resource not to be squandered. These are the years in which a solid foundation must be built on which to base a lifetime of learning. The failure to challenge adequately this age group is a national problem identified in numerous reports over the last few decades.

We believe that only through meeting challenges arising from a sequential and cumulative curriculum, with a significant focus on skills and knowledge, do learners acquire genuine self-esteem. Students should celebrate concrete accomplishment and mastery of appropriately defined objectives.

Serious education must begin earlier than is fashionable today – before the learner is faced with the complexities of approaching adulthood. Princeton Charter School cannot hope to erase achievement differences entirely, but it believes that a stronger educational program will significantly ameliorate them. Today, many students never overcome these differences, and both the student and society pay a price.

The Princeton Charter School education program features a rigorous approach to the six basic academic disciplines: language arts, mathematics, science, history and geography, foreign languages, and the arts.

The heart of the program is a sequential and cumulative curriculum. In each area, our school emphasizes skills as well as knowledge and ideas. Our objective is not a program in which repetition and drilling are by any means the only tools, but we believe that current thinking in mainstream education has diminished their role to an unreasonable extent. In every field of human endeavor, the achievement of excellence involves experiences of this kind. To write well, one must write frequently and be exposed to the tools with which experienced writers construct polished prose. The same is true in the arts, in mathematics, and so on.

Leadership and service are part of the PCS student experience. Within the school, students are encouraged to participate in school improvement projects, and may propose projects of their own, such as leading a reading circle or a discussion group. The school will cultivate a limited number of meaningful community service relationships, so that students may experience the satisfaction of contributing beyond the school walls.

The program is an integrated whole, but we now present three more detailed perspectives: teaching, curriculum, and assessment (in Section 6).

5.1 Teaching Methods

The PCS faculty have the opportunity to meet creatively the challenge of achieving timely mastery of the knowledge and skills specified in the curriculum. To help meet this challenge, assessment is integrated with the curriculum in order to confirm student progress and ensure accountability of the school. In a sequential and cumulative curriculum such as ours this is particularly important. Partly through

assessment, PCS teachers identify students for whom additional tutoring or challenges may be appropriate. Assessment is also used to evaluate the effectiveness of different teaching methods and curriculum materials.

The majority of instruction time is spent teaching the standard PCS curriculum to the entire class. However, a feature of the PCS program that distinguishes it from most public schools, is that early intervention is provided if needed, even in the absence of a diagnosed disability. This happens in several ways:

1. Tutoring: During reading period (half hour), students may from time to time receive tutoring from the faculty. This is perhaps the most important PCS instructional innovation. Its use is not limited to remediation. Even students with a strong achievement record sometimes need this kind of one-on-one instruction.
2. Program adjustments: The school views all subject areas as important, but success in reading, writing, and basic mathematics are seen as crucial for K-4 students. During these years, special steps are taken to support any student who appears to be at risk in these areas. If the daily tutoring period proves insufficient, the PCS teacher, in consultation with the Head of School and parents, may consider adjusting the student's academic weekly schedule, so that some additional time is made available for faculty tutoring. Other situations may warrant schedule changes as well. An appropriately modified program is provided for any student with an individual educational plan which requires it.
3. Flexible and highly mobile groupings: When appropriate the teacher may use either achievement-level or special-interest groupings as a tool to ensure that all students receive appropriate and stimulating instruction.

It is PCS policy that homework should complement and supplement, but never replace the teacher's obligation to cover material in the classroom. Classwork allows sufficient practice to acquire proficiency, with homework providing reinforcement and enrichment. Through classwork and homework the teacher helps students to develop effective learning and work habits.

Common public milestones are established by the school to punctuate a student's progress in a highly visible way, and to give students and the rest of the PCS community an opportunity to celebrate academic achievement. Milestones might, for example, consist of an essay to be published (with the student's permission) on the school's Web site, or a piece of artwork for display at a school exhibition.

Parents and students will support the teachers' efforts towards maintaining an appropriate atmosphere and level of safety and authority in the classroom.

The PCS faculty and community will openly value and recognize academic success.

5.2 Curriculum

The PCS curriculum reflects the belief that knowledge and skills are best acquired in an incremental and cumulative manner. Continuity and coherence of the curriculum from grade to grade are emphasized. The lack of curricular coherence is the most fundamental distinction between most U.S. public schools and the best private schools or public school systems of many other nations. The curriculum minimizes fragmentation of an academic discipline into independent and unrelated units; the emphasis is on using previously acquired knowledge and skills for further learning.

The PCS curriculum is designed to encourage critical thinking and applications of acquired knowledge and skills. However we avoid integration of different academic disciplines as an end in itself. Integration is used when it promotes understanding and accomplishment. For example, mathematical skills and concepts are used extensively in the science curriculum, and reading and writing skills are an integral part of the curriculum in all academic disciplines. Learning about string instruments in music might, for example, be integrated with the study of acoustics in science, and lead to understanding of the relationship between the length of a string under tension and the pitch of the sound the string produces when plucked.

Instructional materials, including textbooks, reading lists, and enrichment materials, are an essential element of the PCS curriculum. The PCS process of selection is based on the following criteria: 1) correspondence with the school's achievement targets for each grade, 2) subject accuracy, 3) clarity of exposition, and 4) vocabulary and ideas that build from grade to grade. Materials used for class and homework are selected to provide the practice needed to master a subject. Faculty and members of the extended PCS community may contribute supplemental curriculum materials. These are subjected to the same review and approval process used for other instructional materials. The school builds its curricular equity rather than losing it when an author leaves.

The core PCS grade-by-grade outcomes meet New Jersey Core Curriculum Content Standards as described in Appendix B; Appendix B also provides an overview of the appropriate progress indicators for grades 4 and 8. The grade-level outcomes are defined in part by referring to existing national and international efforts. In language arts the focus is on reading, comprehension, writing, grammar, and speech. A second language is taught beginning in first grade. The mathematics curriculum includes numerical operations, measurement, probability and statistics, algebra, geometry, and selected topics in discrete mathematics. A special emphasis is placed on problem solving, including age appropriate challenge problems. Quantitative reasoning combined with observation and experimentation are stressed in the physical sciences, life sciences, earth sciences, and astronomy. The students study the political, economic, geographic, cultural, and technological forces that have shaped the history of the world and of the United States. Both performing and survey components in the visual arts, music, drama, and dance are included. The development of self-discipline along with effective study, organization, and work habits is a stated outcome at PCS.

The PCS approach to technology also includes specific skills to be acquired and concepts to be mastered. Computers connected to the Internet are used as tools where appropriate, but not as ends in themselves. Beyond working with specific computer programs, the students come to understand the algorithmic paradigms on which they are based – ideas which will outlive the programs or machines themselves.

The curriculum also includes physical and health education with a focus on healthy everyday living. Physical education overlaps the arts in the areas of dance and movement.

Princeton Charter School curricular objectives in specific areas are described in the sections below. Before classes begin in the Fall of 1997, our Head, together with advisory committees to the Board of Trustees, will finalize the PCS educational program for the school year 1997-98. The Board of Trustees shall have the authority to adjust the PCS education program within the stated goals and objectives of the school.

5.3 English

English language skills are the most essential part of a child's early education. Students must learn to read so that they can read to learn. They must have a fluent written and oral command of standard English. They must read the literature that forms the knowledge base of a literate citizen. The Princeton Charter School English curriculum is a carefully sequenced, comprehensive program for teaching children to read, write, and speak standard English. It is based on the 1988 United States Department of Education report, *James Madison Elementary School: A Curriculum for American Students*. The main elements of the curriculum are: the use of literature to enliven reading, to inform, and as a model for writing; reading for comprehension, vocabulary, and entertainment; writing for communication and for creative expression, with emphasis on organization, syntax, spelling, and penmanship. These elements are briefly sketched below. As described in Appendix B, the curriculum complies with the New Jersey Core Curriculum Content Standards in Language Arts.

The English program uses a core list of imaginative, challenging literature selected to expand students' vocabulary and knowledge of the world. The students read poetry, folk tales, fables, legends, plays, classic and modern novels, speeches, essays and other works of nonfiction. At every level the reading list is from multiple cultures, moving from children's literature to serious literature by the eighth grade. Literature is studied not only for content but also for style, and appropriate literary prose is presented as a model for the student's own writing.

Since good reading skills are the gateway to education, the PCS uses the most effective method for teaching reading: systematic phonics instruction integrated with reading and writing. In the 1990 report sponsored by the U.S. Department of Education [*Beginning to Read*, p. 49], psychologist Marilyn Adams concludes that "the vast majority of program comparison studies indicate that approaches including systematic phonics instruction result in comprehension skills that are at

least comparable to, and word recognition and spelling skills that are significantly better than, those that do not.” By learning the phonetic keys to language, children become fluent readers, able to focus on meaning as word recognition becomes automatic.

In Kindergarten and first grade, children learn to read by developing both a sight vocabulary and knowledge of phonics. In the early grades, teachers read poetry, folk tales, fables, and legends out loud to give students experience with a variety of literature and to inspire their interest in reading. Class discussions, guided by the teacher’s thoughtful questions, promote analytical thought, comprehension, and listening skills. By third or fourth grade the children read individually then the class discusses themes, plots, and character motivations; they make inferences, form generalizations, and distinguish fact from fiction. Students read and summarize biographies. As they advance in school, the students read, discuss, interpret, analyze and compare literature of all forms, including plays, fiction, poetry, and nonfiction. By the end of eighth grade students are careful readers, able to analyze the structure and style of a work of fiction, and to understand and summarize a written argument.

The acquisition of writing skills progresses in conjunction with reading. Students in Kindergarten and first grade write simple sentences. In second and third grade, they write stories, poems, letters, and book reports, and begin to learn the formal writing process of outlining, drafting, revising, and editing. Students in fourth grade refine composition skills such as paragraphing, dialogue, and more complex sentence structure. Emphasis is on expository and expressive writing that is well organized with introductions, conclusions, and a coherent flow of ideas. Students write every day, and assignments are selected to encourage writings of all types, imaginative and expressive as well as expository and analytical. Grammatical instruction begins in first grade. As their knowledge of sentence and paragraph structure, grammar, spelling, and vocabulary progresses, students are expected to apply these skills to their writings in all subject areas. By the end of eighth grade, students’ writing should exhibit coherent thought, appropriate vocabulary, correct syntax, and style. Teachers stress the connections between precise thinking and correct syntax.

The development of oral speaking skills is an integral part of the school’s program. Informal practice during class discussions is enhanced by students reading out loud, giving simple oral reports, and giving formal presentations as their skills mature. Memorizing and reciting poems and pieces of literature is often enjoyed by children and it enhances their grasp of the sounds and rhythms of speech.

The program specifies milestones for reading, composition, and speaking to allow students to demonstrate their proficiency and celebrate their achievements. A milestone familiar to many educators is the Kindergarten or first grader who reads his or her first book and is added to the ‘official list of readers.’ A sequence of milestones is specified by the staff along with guidelines for judging successful completion.

5.4 Mathematics

Like English language skills, a strong foundation in mathematics is a prerequisite for success in our increasingly analytical world. Just as PCS is dedicated to early achievement in reading, early mastery of arithmetic skills and basic mathematical problem solving are viewed as essential first steps.

The core PCS mathematics curriculum is based on the 1963 report of the Cambridge Conference on School Mathematics, *Goals for School Mathematics*, and the curricula employed in other high-achieving nations. The curriculum complies with the New Jersey Core Curriculum Content Standards for Mathematics as described in Appendix B, and is sufficiently rigorous to challenge all students. It covers a broad range of mathematics and includes applications to motivate students and reveal the utility of mathematics to problems encountered in all fields. A feature of the PCS program is that essential areas such as algebra and geometry are integrated throughout the curriculum, so that students accumulate geometric notions and learn the language of algebra by starting with very simple intuitive concepts and progressing to more formal deductive reasoning. This approach has been carefully researched and developed by an international community of teachers, mathematicians, and pedagogical researchers. As an example, a complete geometry curriculum, including student problems, is available in the book *Geometry in Grades 1-4: Problems in the Formulation of Geometric Conception in Primary Children*, translated from the Russian by the University of Chicago Mathematics Project. This is also the approach adopted in the *New Jersey Mathematics Curriculum Framework*.

The concepts are reinforced by problems and practice materials. The students and teachers have the opportunity to use a variety of appropriate text sequences to accommodate different learning styles and rates of progress. Sufficiently advanced students have the opportunity to study axiomatic geometry by the time they leave eighth grade.

PCS students master the basic mathematical skills identified by the 1977 National Council of Supervisors of Mathematics *Position Paper on Basic Mathematical Skills*, including problem solving; applying mathematics to everyday situations; alertness to the reasonableness of results; estimation and approximation; appropriate computational skills; geometry; measurement; reading, interpreting, and constructing tables, charts, and graphs; using mathematics to predict; and computer literacy. PCS adds to this list a knowledge of probability and statistics, risk, and orders of magnitude. Our students will need these to confront many of the complex social and technical issues facing society.

The hour spent on mathematics each day includes a balance between discovery directed by the exchange of ideas between the teacher and the class, and direct presentation of material by the teacher. In addition, several hours each month are used for mathematical games, special topics, and experiments. The program is rich in the use of concrete materials and applications to develop concepts and to connect children's intuition to abstract mathematics. Instruction cycles between using problems to motivate knowledge and using the knowledge base to solve prob-

lems. The problem-solving activities are carefully selected to challenge children to think creatively and to extend their knowledge. Applications for problem solving are to science, other aspects of the real world, and internal applications to mathematics itself. “Both the internal applications and the external applications must be taught, so that the student understands both the power of mathematics as a scientific method and the unity and beauty of mathematics as a science in its own right” (*Goals for School Mathematics*, p. 21).

The fundamental elements of computer science that underlie all of today’s machines and software are incorporated into the mathematics curriculum. These supplement the discrete mathematics in the main curriculum and include modular arithmetic, data representation, boolean logic, the stored program computer, and most importantly, the concept of an algorithm. The student who understands these will adapt easily to changes in computer hardware, languages, and application software. In later grades (6-8) students write computer programs to make concrete the abstract concepts covered and to build their ability to think algorithmically.

The study of mathematics offers many opportunities for the definition of concrete public milestones. In early grades these consist mainly of arithmetic mastery. Older students might be asked to submit an essay analyzing the numbers and graphs presented in a current news story, or write their first rigorous proof of a mathematical theorem.

5.5 History and Geography

Princeton Charter School teaches history, geography, and social studies, from Kindergarten through the eighth grade. Children are introduced to history through stories and by fifth grade embark upon more serious study. The emphasis is on political, economic, geographic, cultural, and technological forces which have shaped the history of the world and of the United States. As demonstrated by the progress indicators in Appendix B, the curriculum follows the guidelines of the New Jersey Core Curriculum Content Standards for Social Studies.

The PCS history curriculum was developed by the Washington World History Project with funding from the National Endowment for the Humanities. It is used in the Washington International School (D.C.), the Oyster School (D.C. Public Schools), the United Nations School (N.Y.), and the Nishimachi International School (Tokyo).

History and geography are taught from Kindergarten to grade 3 through good stories: folk tales, legends, myths, accounts of historical events, and biographies. These form an introduction to the beliefs and traditions of many cultures. The stories are read aloud to the youngest classes and introduce children to dramatic expression and public speaking. Reading and listening to these stories builds a child’s sense of the world as a community, and introduces new vocabulary and basic cultural knowledge. Each year there are stories from all around the world and the United States, and in grade 1 to 3 there are also specific regions of concentration. These regions are the Americas and Europe in first grade, Africa and the Middle

East in second grade, and Asia and the Americas in third grade. The third or fourth grade history program includes a unit on Princeton history. Activities and discussions promote understanding of the history, government, daily life, culture, economy and geography of the various regions.

The transition from stories to a more detailed and factual study of history occurs during fourth grade. Here students read biographies, study Native Americans, and study the history and geography of the United States and the role of New Jersey in its formation and heritage. Because of our area's rich history, this is a wonderful opportunity for PCS students to study history in a context that is familiar and tangible.

Starting with fifth grade, the students pursue a chronological study of world history and geography. The fifth grade studies civilizations up to approximately 500 B.C., including Mesopotamia, North Africa, China, India, and Mediterranean civilizations; the sixth grade does a chronological survey from 500 B.C. to 500 A.D., again on a world-wide basis, including classical Greece, Rome, China, and India; the seventh grade begins circa 500 A.D. and carries the narrative through the explorations of the fifteenth century; and the eighth grade completes the narrative up to the modern age. A unit on civics is part of the seventh- or eighth-grade history program. As they study the history of each region, the students analyze the interdependency between political and cultural developments and the physical environment. As part of the history curriculum, and at all grade levels, students are introduced to our system of government, along with others in the world.

PCS students learn geography in conjunction with their study of history. The geographic concepts and learning outcomes are from the *Guidelines for Geographic Education* prepared by the Joint Committee on Geographic Education of the National Council for Geographic Education and The Association of American Geographers. Map skills start with simple location and advance to interpretation of coordinates, elevations, economic and climatic data, etc. These mapping skills promote geometric concepts such as scale, coordinate systems, and two-dimensional projections of three-dimensional objects.

5.6 Science

Numerous studies and reports decry the inadequacy of science education in the United States. For example, in 1991 the Carnegie Commission on Science, Technology, and Government described the current scientific illiteracy as "a chronic and serious threat to our nation's future." Science education at the primary and secondary levels in most schools today is chaotic and ineffective. It ranges from rote memorization of isolated facts and vocabulary, to vague, "hands-on" explorations that do not lead anywhere.

Princeton Charter School adopts a "minds-on, hands-on" approach to science education; it stresses quantitative reasoning as well as experimentation and observation. Students are encouraged to be curious about the natural world surrounding them and come to understand the importance of science in many different careers.

The PCS experience will be for some students a good first step towards a career in science, but every student will learn through practice the “scientific method” – which is really a disciplined approach to discovery that applies to almost all walks of life.

Our approach uses three essential components of science education, identified in the *Iowa Guide to Curriculum Development in Science*: “knowledge, skills, and application of scientific information in resolving problems. Knowledge refers to the facts, theories, and principles of science. The skills or processes of science include activities embodied in the scientific method, which encompasses the ability to formulate and state hypotheses and to evaluate them by experimentation or observation. Application is the use of science content and processes not only in work but also in personal, social, and political decision making.” The PCS science curriculum complies with the New Jersey Core Curriculum Content Standards for Science as described in Appendix B.

In science as in any other subject, children learn in an incremental manner. In early grades (K-3), science should be fun and stimulating, designed to make children explore and wonder about the world; to learn to ask questions, and seek answers. Backyard birds, magnets, the solar system, simple machines, and dinosaurs are topics which have intrigued children for years. In grades 4-8 the approach becomes more rigorous. Students start to ask quantitative questions and develop the ability to determine if they have enough information to answer them. As student’s mathematical skills increase, they are applied more extensively in the science program.

Four major areas are covered: physical sciences, life sciences, earth sciences, and astronomy. Some topics from each area are included each year. Emphasis is placed on understanding how facts are interrelated through natural laws and mathematical relationships. For example, the concept of energy is first used to discuss the conservation law in physical and chemical transformations, and then in the metabolism of living organisms, and finally in the food web. Other examples include the use of probability in genetic studies, or the application of conservation of momentum to understand rocket propulsion. The process skills emphasized are: observing, measuring, classifying, recording, predicting, hypothesizing, inferring, and experimenting. Knowledge and skills mastered are used to discuss issues of social concern, such as burning of fossil fuels.

During selected science periods, students are introduced to computers and their underlying software and hardware concepts. More science period class time is devoted to computer study in the early years, since it is “hands-on,” and because students are capable of mastering many computer-usage concepts and skills. In K-1, students are familiarized with the operation of a computer, exposed to basic related vocabulary, and become comfortable with a small number of application programs including a drawing package. In grades 2-3, additional skills and vocabulary are taught, and students begin to use word processing software to prepare reports. During third grade, keyboard skills are emphasized. By the end of fourth grade, all students are proficient at word processing, capable of creating and manipulating

a database and spreadsheet, and use its graphing component. Current strategies for navigation and search on the Web are presented to students beginning in third grade. However, the speed of change in this area requires a dynamic approach to establishing curriculum content.

5.7 The Arts

The arts are a fundamental component of the educational program at PCS. The curriculum includes visual arts, music, theater/drama, and dance. Creative writing as well as some elements of drama are integrated into the language arts curriculum. Following the New Jersey Core Curriculum Content Standards for the Visual and Performing Arts, our goal is to achieve art literacy for all students, i.e., to educate not only providers, but also recipients of the arts [*Literacy in the Arts: An Imperative for New Jersey Schools*, October 1989].

Arts education is best accomplished through participatory experiences. All PCS students actively “make art” from the earliest years. For example, in music students are provided with choral singing experience, as well as age-appropriate instrumental instruction. All students learn to read music and the rudiments of music theory. They learn composed music and also explore the principles of combining sounds through their own improvisation and composition activities. In visual arts, students learn the elements of drawing, painting, and sculpture. A variety of techniques for creating two or three-dimensional art are taught; creative explorations coexist with instruction in specific techniques.

In addition to the “art making” component, students learn the elements of each art form’s language – the vocabulary, the grammar, and the syntax of music, visual art, drama, and dance. Differences and similarities among examples of the arts from around the world are analyzed. Uses of the arts, and conventions and fashions in the arts are discussed in conjunction with the study of art history. Students learn how to use the acquired knowledge, art vocabulary, and analytical skills to develop an aesthetic appreciation of the arts.

Princeton is fortunate to have McCarter Theater, the Princeton University Art Museum, the Westminster Conservatory of Music, the Princeton Ballet School, the Arts Council of Princeton, and world-class artists. Whenever possible and appropriate, these resources are used in the Arts curriculum.

5.8 World Languages

Following the New Jersey Core Curriculum Content Standards for World Languages, Princeton Charter School teaches a modern foreign language to every student in grades 1-8. Students who begin study of a second language in elementary school and continue its study for a number of years have a much better chance of achieving full proficiency. Classes meet each day to maximize exposure to the sounds of the new language and to provide as much immersion experience as possible.

In grades 1-3, to take full advantage of the young child's special ability to imitate sounds and absorb linguistic concepts, students are taught through games, songs and dramatizations. Teachers use manipulatives and visual aids, stressing oral expression and listening comprehension. Cultural elements and basic vocabulary are introduced through stories describing pictures. Students are encouraged to play and sing, to name pictures, and exchange simple sentences among themselves. By grade 4, students are introduced to the written language, and begin to learn specific vocabulary and verb conjugations. Teachers continue to use visuals and dramatization, supplemented with newspapers, Web documents, magazine articles, product labels, and so on. By 6th grade, formal grammar and syntax are studied. Short stories, poetry, and later novels are used to focus class discussion and build reading comprehension, while studying written expression. Milestones of achievement range from mastering a small set of phrases and vocabulary words in 1st grade, through genuine literary expression in 8th.

The language program is integrated in a meaningful way with other subjects. For example, when 1st grade students learn addition and subtraction in mathematics, language class might practice these operations in the new language. When 6th grade students analyze style and content of English texts, they might perform the same exercises in language class using short stories or poems. Throughout the program, classroom learning is supplemented by audio tapes, films, and computer software programs that allow students to build vocabulary and understand sentence structure.

In grades 7 and 8, instruction in Latin may replace instruction in the selected second language either once or twice per week. Etymological and syntactic parallels and differences are explored, giving students a new perspective on the way the English language functions, as well as a deeper understanding of its roots.

5.9 Health and Physical Education

PCS provides a comprehensive health and physical education program in accordance with the New Jersey Core Curriculum Content Standards in Appendix B. Most health topics are covered in the science curriculum; certain topics such as substance abuse prevention and family-life education may be scheduled during science or physical education class time. Students learn about health promotion and disease prevention, human growth and development, nutritional science (to develop healthy eating habits), accident and fire prevention, and physical activity concepts (to develop physical fitness). Part of the program focuses on nonviolent strategies for conflict resolution. Students learn about the purposes and proper uses of medicines, and also about deleterious effects of alcohol, tobacco, and other mood-altering drugs. Special topics such as prevention of drug and alcohol abuse, prevention of cigarette use, safety training, and information about Lyme disease, AIDS, and HIV transmission are enhanced with presentations by some of the many community services available in the Princeton area. A list of the health and outreach organizations contacted is supplied in Section 5.13.

Students learn about age-appropriate aspects of human sexuality and family life as part of the health program, provided parents/legal guardians agree to their participation in this part of the program.

Princeton Charter School encourages physical activity every day. The school's daily schedule promotes physical activity throughout the day, through free play between classes as well as organized programs. During the midday recess, as well as during one of the 15-minute breaks, students exercise or participate in fitness activities, sports, or free play. In addition, one 45-minute period per week will be devoted to elements of dance, rhythmic and creative movement, martial arts, team sports, or personal fitness programs that develop cardiorespiratory endurance, muscular strength and endurance, and flexibility. For example, the students receive instruction in basic skills such as throwing, catching, and running that are common to a range of physical activities. The importance of safety is stressed.

5.10 School Calendar, Schedule, and Hours of Operation

School Calendar 1997-1998

August 25	Mon	Faculty In-Service begins
September 8	Mon	First day of school
October 2	Thu	Rosh Hoshanah Holiday
November 27-28	Thu, Fri	Thanksgiving Recess Holiday
December 20-January 4		Winter Recess Holiday
January 19	Mon	Martin Luther King Day Holiday
February 16	Mon	President's Day Holiday
April 4-12		Spring Recess Holiday
May 25	Mon	Memorial Day Holiday
June 19	Fri	Classes End*
June 22-26	Mon-Fri	Make-up Days*

**Tentative: based on emergency closings*

The school day will run from 8:00 A.M. to 3:15 P.M. Among the special features of the schedule for the lower grades are activity breaks separating major blocks of instructional time to allow children to release energy, socialize, and exercise. Tutoring or individual reading time is built into the schedule so that students may be tutored without missing valuable classroom learning. English and mathematics are studied for at least an hour a day. Studio art and science experiments are accommodated in longer blocks of time as needed.

Although it will vary according to grade level, the following schedule illustrates the time spent in each subject area. The time blocks are not rigid; especially in the lower grades, teachers modify them as needed.

A Typical Schedule

8:00 - 8:15	Administration/warmup lessons
8:15 - 9:15	Mathematics
9:15 - 9:30	Break/Snack
9:30 - 10:30	English, discussion, grammar, spelling, writing, speaking
10:30 - 10:45	Break/Games
10:45 - 11:30	History/Geography
11:30 - 12:15	Lunch/Recess/Games
12:15 - 1:00	Science (Health class once every two weeks)
1:00 - 1:45	Individual Reading and Tutoring
1:45 - 2:30	World Languages
2:30 - 3:15	Music/Art/Fitness & Dance/Drama

The expected hours of operation are 7:30 A.M. to 4:00 P.M. These hours may need to be adjusted based on facilities limitations.

5.11 Grade Range

PCS will begin operation in the 1997-98 school year as a 4-6 elementary school, and will expand yearly until a K-8 configuration is achieved.

5.12 Innovative Strategies for High Student Achievement

Princeton Charter School is committed to teaching methods that provide students the support and challenges they need to master grade-appropriate skills, ideas, and facts in every subject area. The school atmosphere encourages academic achievement, recognizes the importance of hard work and personal responsibility, and holds out high expectations for every student and teacher. Princeton Charter School cannot hope to erase achievement differences entirely, but it believes that a strong education program will significantly ameliorate them.

A feature of the PCS program that distinguishes it from most public schools is that early intervention is provided so that children do not fall irremediably behind. Several strategies are used to promote high achievement for all students:

1. Tutoring: During daily reading period (half hour), students may receive tutoring from the faculty. This is perhaps the most important PCS instructional innovation. Its use is not limited to remediation. Even students with a strong achievement record sometimes need this kind of one-on-one instruction.
2. Program adjustments: The school views all subject areas as important, but success in reading, writing, and basic mathematics is seen as crucial for K-4 students. During these years, special steps are taken to support any student who appears to be at risk in these areas. If the daily tutoring period proves insufficient, the PCS teacher, in consultation with the Head of School and

parents, may consider adjusting the student's weekly academic schedule, so that some additional time is made available for tutoring. Other situations may warrant schedule changes as well. An appropriately modified program is provided for any student with an individual educational plan which requires it.

3. Flexible and highly mobile groupings: When appropriate the teacher may use either achievement-level or special-interest groupings as a tool to ensure that all students receive appropriate and stimulating instruction.
4. The faculty establishes public milestones to punctuate a student's progress and to give students and the whole PCS community an opportunity to celebrate academic achievement. Milestones are not competitive; they are goals that students, with the help of teachers, set for themselves and meet successfully. A well-presented report showing proper use of data analysis, a grammatically correct tall-tale showing proper use of the elements of a story, or an instrumental musical performance, are examples of such milestones.
5. Active breaks are incorporated into the schedule to allow students to release energy, socialize, and exercise so that they may be more attentive during instruction time.

Other strategies PCS uses to promote timely mastery of the knowledge and skills specified in the curriculum are discussed more fully in the appropriate sections. Briefly, these are:

1. The PCS curriculum minimizes fragmentation of an academic discipline into independent and unrelated units; the emphasis is on using previously acquired knowledge and skills for further learning.
2. Assessment is integrated with the curriculum to identify students for whom additional tutoring or challenges may be appropriate in a timely fashion. Assessment is also used to evaluate the effectiveness of different teaching methods and curriculum materials.
3. Instructional materials, including textbooks, reading lists, enrichment materials, and faculty or community-contributed supplements are reviewed carefully.

5.13 Partnerships

The Princeton Charter School Founders have identified and contacted a range of local social service and health care providers, all of whom have indicated that their services would be available to the students of Princeton Charter School. These groups are listed below.

- Adopt-a-Cop: Princeton police officers visit schools with a series of lessons/talks about various personal safety topics.

- Carrier Center for Counseling: a private provider of mental and social health services in Skillman which also provides free community outreach programs such as workshops on eating disorders, addiction, anxiety, and depression; it maintains a speakers bureau which provides speakers to community groups.
- CONTACT: a United Way agency serving Mercer County and offering a helpline for adolescents who need referrals or are in need of counseling.
- Corner House: provides preventive and educational training for teachers, youths, and their families, including substance abuse treatments when necessary. Corner House may help schools develop curricula in its area of expertise and trains teachers to identify, access, and use available resources.
- DARE: a substance abuse prevention and education program administered by the Mercer County Sheriff's Department; DARE officers travel to schools to speak with youngsters about the dangers of substance abuse.
- HiTops Teen Health Center: a clinical service provider in Princeton which offers confidential reproductive health care, counseling and referrals for young men and women.
- Lift Inc.: a Mercer County agency which offers counseling services, pregnancy prevention, young family parenting services, tutoring, and other support for teenagers; it also provides referrals.
- Lyme Disease Network provides information on Lyme disease.
- MECHA: an organization which provides generalized counseling for Spanish-speaking persons in the Princeton community as well as translations and interpreting services for Spanish-speakers needing to interact with English-speaking service providers.
- Princeton Medical Center: has outreach services which include information on nutrition, diseases, and health issues. The Community Education Department provides free lectures and screenings to the community and the Public Relations Department provides a speakers bureau.
- YMCA and YWCA: both of these Princeton organizations, which run established after-school day care programs at the local elementary schools, are willing to provide the same to the Princeton Charter School students, as well as expand the scope from simple child care to an enriched component.

6 Student Assessment

6.1 Assessment Methods

Assessment is an essential component of Princeton Charter School's educational plan. Assessment confirms student progress, identifies areas of low and high achievement, and improves the accountability of the school. It begins with the teacher's evaluation of student progress based on written class work, oral contributions, and homework. Such evaluations are important, but may be insufficient to assess long-term subject mastery. Formal assessments, integrated with the curriculum, will indicate overall achievement levels. Assessment results allow teachers to determine which students would benefit from additional help or additional challenge.

The teaching staff establishes a sequence of tests and portfolio assessments designed to measure explicit content and skill requirements for each grade level. Test types include a range of instruments including multiple choice tests, whole sentence answers, problem solutions, and essays that encourage constructive or discursive thinking. In higher grades, final exam questions from previous years are published, so that the students may understand the degree of mastery expected of them. It is PCS policy that teachers give constructive feedback for improvement and return student tests and work.

Where appropriate, portfolio assessment is used: expressive and analytical writing, artwork, performances, science projects, and other student work demonstrate student progress. To facilitate consistent portfolio evaluation, a set of uniform general analysis criteria are used, specialized for each grade. These include logical reasoning, grammar, proficiency in art techniques, problem solving skills, quantitative reasoning, computational skills, and so on. The criteria are made public so that students and parents know what is expected.

6.2 Assessment Indicators

Princeton Charter School students will meet the same testing and academic performance standards as established by law and regulation for public school students in New Jersey. This includes demonstrating sufficient proficiency on the statewide assessments given to students in grades four and eight. The school will also choose a set of nationally-normed tests for use in the other grades to allow local, state, and national comparison. Princeton Charter School expects high achievement as assessed through these instruments because its standards are high and its program supports student achievement.

6.3 Ensuring High Academic Achievement

When assessment results indicate a need for remediation, the standard method will be to diagnose the knowledge and skills that each child lacks according to the detailed grade-by-grade standards adopted by the School. Teachers then use appropriate instruction strategies, as discussed in the previous section. By detecting and

addressing learning difficulties immediately, the PCS hopes to enable virtually every child to learn at grade level. (Note, there may be children with individual educational plans that require a modified definition of grade-level outcomes.) Sufficient communication and record-keeping provide continuity from year to year.

6.4 Addressing the Needs of Students

The needs of students who do not perform at acceptable levels on the statewide proficiency tests, despite the ongoing remediation available in the school, will be addressed in a uniform manner: 1) determine whether the student is doing his/her job in terms of attendance, attention in the classroom, and completion of class work and homework; 2) determine whether the teacher doing his/her job of teaching and consistently requiring a given level of student performance. If the required work is not being done by one or both parties, then appropriate steps are taken to ensure that the work is done. If these steps do not solve the problem, or if the required work is being performed by both parties then an effort is made to 3) identify the factors hindering the student from meeting the necessary proficiency level; 4) isolate those factors which may be ameliorated in the school environment from those which may not; 5) develop, in concert with the teacher and parents, an individual plan to address factors which the school may ameliorate. Problems external to or beyond the control of the school will be discussed with the parents, and documented. The school encourages the supportive efforts of parents and works with them to identify options outside the school that might benefit their child.

Assessments constitute the basis for regular and frequent communication with parents. Teachers provide written report cards at regularly scheduled intervals. Parent conferences may be supplemented by informal parent-teacher meetings.

Student assessments in the aggregate will serve as an indicator of the overall quality of the Princeton Charter School academic program.

7 Admission Policy and Criteria

Princeton Charter School is a taxpayer-funded school serving students residing in Princeton Borough and Princeton Township. In 1997-98, it will offer grades 4-6, and expand yearly to reach a K-8 configuration. It is open to all eligible students on a space available basis and does not discriminate in its admissions policies or practices on the basis of intellectual or athletic ability, measures of achievement or aptitude, status as a handicapped person, or proficiency in English.

7.1 Admissions Policy

As required by law, admissions preference is granted students who are residents of Princeton Borough and Princeton Township. Younger siblings of students already enrolled in the school are also granted preference provided the parents choose

Princeton Charter School for that sibling. Enrolled students are guaranteed admission the following year provided the appropriate grade is available. As part of the application process Princeton Charter School requests that parents/guardians of new students participate in a half-hour information session with the Head of School or designated delegate to discuss the educational goals of the family and the school. The purpose of the session is to help parents make an informed choice for their child. Transportation, a translator, or other services will be provided to parents who make such requests in order to participate in an information session. Attendance at an information session is recommended, but is not mandatory. Admissions will seek to enroll, to the greatest degree possible, a cross-section of the local school-age population by promoting the school heavily in the entire community.

To be eligible for admission, the student must provide 1) proof of residence in Princeton Borough or Township; 2) proof of eligible non-resident status elsewhere for space available consideration; 3) proof of minimum age of five years as of the date established by law or by regulation for Kindergartners; 4) completed application form. Application forms request: student's name; date of birth; grade level; address; names, addresses, and telephone numbers of parents/guardians; names of siblings also applying; and a signature verifying that the information is correct and that the parents/guardians are choosing education at Princeton Charter School for their child. Application forms must be submitted to the school by the annual deadline determined by the Board of Trustees. An Admissions Committee, initially consisting of the PCSF, will make all decisions concerning the status of student eligibility.

7.2 Selection Process

If the number of applicants exceeds the school's enrollment cap, a random lottery process will be instituted for applicant selection: 1) the pool of applicants will be sorted according to admissions preferences provided for by statute and listed above (younger sibling, district resident) and by grade level; 2) within each grade level, applications will be sorted according to these categories, arranged in order of admissions preference: a) returning resident student; b) returning non-resident student; c) sibling of returning resident student; d) new resident applicant; e) sibling of returning non-resident student; f) new non-resident applicant for space-available admission; 3) the Admissions Committee will reserve spaces for students in categories a) and b). Any remaining spaces will be allocated by holding a drawing of names by category in admissions preference order starting with category c) in the oldest grade level and working down; 4) after all grade levels have been completed, names that remain will be placed by preference category, in drawing order, on the school's waiting list. Names are drawn one by one; as each student is drawn, that student and applicant siblings are immediately placed in their respective grade levels. In the first year of Princeton Charter School's operation, categories 2 a), b), c) and d) do not apply and the eligibility pool will consist solely of categories e) and f).

To avoid splitting up families in this initial year, the oldest child will be entered

in the lottery, and if that child is selected for admission, any younger siblings who may also be applying will be automatically admitted to their respective grade levels on a first priority basis. If the oldest child is not selected, the next younger sibling may still be entered in the lottery for his/her grade level. If that second sibling is selected, he/she and all subsequent younger siblings are accepted to the school on a priority basis. If the second child is not selected, each subsequent younger child may still enter the lottery independently. When the lottery process is completed, wait-listed sibling applicants of admitted students will be placed in category 2 c) on the waiting list. Twins and members of other multiple births applying together will be entered separately in the lottery. If one twin or multiple-birth sibling is admitted, the other sibling(s) will also be admitted provided there is still space available. If no space is available, they will be placed in category 2 c) on the waiting list. Should attrition reduce the number of enrolled students after completion of the admissions process, Princeton Charter School will fill openings from the waiting list, in order by category, or if no names remain on the list, it will hold a secondary admissions process to fill available spaces after a suitable period of full public notice.

Admission decisions will be made by the process described above on the date set by the Board of Trustees. Parents/guardians will be notified by mail of each child's admission status, and will have fourteen calendar days after the postmarked date on the notification to return a signed enrollment registration card for each child offered enrollment, or signed waiting-list applicant card for wait-listed children. If no form is returned within ten days, PCS will make three attempts to contact the family before the fourteen day deadline. If no form has been returned by the two-week deadline, the child's admission space or waiting-list order will be given to the next eligible candidate. Parents who will not be available at the home address listed on the application form during the notification period should contact PCS to make alternate arrangements.

7.3 Criteria for Prospective Students

Princeton Charter School practices open admissions. Criteria for prospective students include those provided for by statute, *i.e.*, continuing students, siblings, and Princeton Township and Borough residents. Beyond that, by submitting an application form, parents/guardians indicate their philosophical support of the academic goals of the school.

7.4 Nonresident Student Enrollment

Students from other localities may apply to the school as non-residents on a space available basis. Non-resident tuition will be determined as prescribed by statute and regulation. Non-resident students are subject to the same admissions criteria as resident students.

7.5 Enrollment of a Cross-Section of the Community

As provided in the Charter School Law, all parents who choose to enroll their children in Princeton Charter School may do so, subject to admissions priorities established in statute and spaces available. To inform these parents' decision-making process, the Princeton Charter School Founders intend to publicize widely the nature and mission of the school, a process which has already begun through early reports about the charter application which have appeared in the local press. The PCSF have also established a special telephone line, 609-924-3597, whose number is on all PCS literature, to receive incoming calls which will be returned by a member of the PCSF. This information campaign will include frequent press releases as developments warrant; paid advertisements; and depositing copies of the charter application at the reference desk of the public library for public access. To promote a diverse applicant pool, PCS posts notices on church and neighborhood bulletin boards, and arranges informational meetings through church and community leaders. The publicity efforts include Spanish-language literature, and meetings when they can be arranged, explaining the nature and purpose of the school, and the admissions process. This application period will last four weeks (January 20-February 14, 1997) and Founders as well as other involved individuals will be available during this time period for personal consultations and to answer any questions which parents of potential applicants may have. The PCSF will clearly define the school, its mission, and its programs – but it is ultimately up to the parents to decide whether this school will be the best choice for their child.

7.6 Policies to Focus Admissions

Subject to the procedures described above, admissions are open to all grade levels to be offered at PCS.

8 Student Discipline Policy and Expulsion Criteria

Princeton Charter School stresses respect for others and for the rights of others, among them the right to a school and classroom environment which facilitates learning. Students who by their disruptive behavior consistently deprive others of this right will be subject to disciplinary action, including suspension and expulsion from the school.

8.1 Suspension and Expulsion

The PCS Board of Trustees has the right to suspend or expel a student pursuant to the following criteria, as approved by the Commissioner of Education in chartering this school, and upon the recommendation of the Head of School in consultation with the student's teachers: 1) physical assault upon another student, member of the staff, or board member; 2) carrying a weapon; 3) possession or consumption of

alcohol, a controlled dangerous substance, or drug paraphernalia on school premises, or being under the influence of such substances on school premises; 4) conduct constituting a danger to the physical well-being of other students; 5) continued and willful disobedience or open defiance of any authority figure employed by the school; 6) expropriation of another student's or a staff member's personal property, whether by theft, through force, or by intimidation; 7) habitual use of profanity or obscenities; and 8) willfully causing damage to school property. No student shall be suspended or expelled unless the conduct for which he/she is to be disciplined is related to school activities and/or attendance and occurred on school property, including school buses. Disciplinary actions will have no bearing on the student's academic standing, except in cases of academic dishonesty.

These general guidelines for suspension and expulsion will be reviewed and modified, as appropriate, by the Princeton Charter School Trustees together with the school administration.

8.2 Codes of Conduct

Princeton Charter School intends to provide an orderly environment conducive to learning and based on principles of student involvement and participation, personal responsibility, respect for others, and good citizenship. Ongoing disruptive behavior on the part of one student is an infringement on the rights of other students.

8.3 Disciplinary Policy

Clear communication and clearly defined limits promote acceptable behavior. To this end, the administration, staff, and student representatives of Princeton Charter School will develop guidelines for student conduct on school property with the attendant regulations and procedures which constitute the school's disciplinary policy. In all cases these guidelines will be appropriate to the age level and maturity of the child, will be commensurate with the nature of the violation, will respect all children's rights, and will hold them accountable for their behavior. Treatment of students will be consistent without regard to race, color, creed, religion, sex, ancestry, national origin, socioeconomic status, or status as classified. A parent committee will review these guidelines, whereupon the board may ratify them and the school will publish them in a special student conduct handbook, with which parents and students will be asked to acquaint themselves. (Provisions shall be made for informing parents/guardians whose primary language is not English.) It will be the responsibility of each classroom teacher to make sure that students know, from the beginning of school, what the particular rules and regulations of that classroom are and to interact with pupils in a manner that encourages self-discipline.

9 At-Risk and Bilingual Students and Students with Disabilities

9.1 At-Risk Students

Princeton Charter School will develop and apply consistently a procedure to identify and educate at-risk students. In all instances this procedure will adhere to all the student protection, parent consent and notification requirements, and due process provisions of the relevant statutes and applicable regulations.

At-risk students may exhibit one or more of the following characteristics: failure to perform at the specified grade-level in one or more subject areas; poor school attendance; limited English proficiency; disruptive or disaffected behavior; history of behavioral problems; or pregnancy and parenthood.

Students will be identified as potentially at-risk by the teachers, in the course of daily classroom observations and assessments of pupil performance and behavior, or by their parents/guardians, who communicate their concerns to the PCS staff.

PCS support for at-risk students follows the prevention, intervention, and improved learning environment approach outlined in NJAC 6:8-6.2. Many features of the regular school environment and curriculum promote an atmosphere which minimizes the need for interventions. These include general approaches such as recognition of a variety of learning and teaching styles and encouragement of active parental involvement for improved home-school communication as well as specific curriculum items such as conflict resolution or substance abuse in health. PCS maintains a safe, disciplined school atmosphere conducive to learning.

Although the emphasis of the PCS education program is prevention of academic problems, integrated assessments allow for immediate intervention in the case of insufficient achievement. Students thus identified receive individual tutoring during the daily reading period. If this proves to be insufficient, additional time will be scheduled for tutoring in reading, writing and basic mathematics, or in other subjects as needed.

PCS recognizes that some of the at-risk student's difficulties may be due to health or emotional problems and/or to the family's circumstances. PCS will maintain an up-to-date list of social and health service agencies and organizations at the local and state level; will refer students and/or their families to such agencies or organizations when appropriate; and will follow up each case and act as an advocate for the student and family. Some relevant community organizations already contacted by PCS are listed in Section 5.13.

Although every effort will be made to mitigate factors causing a pupil to be academically at risk, in some cases this may not be possible. In case of such continuing difficulties, a Pupil Assistance Committee constituted per state guidelines and with the consent of parents/guardians, will conduct an evaluation of the student. In a joint meeting, parents, the classroom teacher, and the PAC will develop a written plan of action for the at-risk student. For students who fail to benefit from this plan, a child study team will determine the eligibility of the child for special educa-

tion and determine his/her classification. Within no more than 30 days, the child study team will work out an individualized education program (IEP), and within another 30 days that program will begin to be implemented. The student will be reevaluated upon recommendations from either the teachers, child study team, or parents/guardians, but no later than within three years.

9.2 Limited-English Proficient Students

Since the systematic separation of limited-English proficient (LEP) students from the mainstream in bilingual programs has the ultimate effect of isolating such students, the school will consistently place as many LEP students as possible in the regular classes. This approach practices inclusion. It also recognizes the immersion method of language acquisition as the fastest, most complete, and most effective; it is a method which is eminently suitable for children, who may learn as much language from interaction with playmates as from formal instruction. For students whose English language proficiency is so limited as to prevent them from following most of the activities in a regular classroom, the school will provide instruction in English as a second language for a certain period of time every school day. Because the objective is transition to fully English classes, the LEP student will also be expected to participate in part of the regular classroom schedule, where all students have the opportunity to hear and use English. Evaluation of such children for English language proficiency will occur at least annually, but more frequently if the child's progress warrants. Provision will be made to communicate with these students' parents. If 20 or more LEP students who speak the same language and would qualify for a bilingual program are enrolled at PCS, the school will provide a high intensity ESL program developed in conjunction with the State Department of Education per state guidelines and pursuant to N.J.A.C. 6:31-1.5. Princeton Charter School has requested a waiver of the requirement for a bilingual program based on the improbability of sufficient enrollment of such students; please refer to Section 15 Waivers of Regulations.

9.3 Students with Disabilities

Princeton Charter School will develop and apply a single basic procedure to identify and educate students with disabilities. In all instances this procedure will adhere to all the student protections, parent consent and notification requirements, and due process provisions of the relevant statutes and applicable regulations. Parents/guardians of students admitted to PCS complete and sign a registration form. Among the information which this form requests is relevant previous academic history, including any existing classifications, individualized education programs, etc. Students whom teachers, in the course of classroom observations, identify as potentially at-risk, will be referred to the child study team. Based upon such initial identification and recommendations, and with the consent of parents, the child study team will conduct a comprehensive evaluation of the student. In a joint meeting,

parents, the classroom teacher, and the child study team will determine the eligibility of the child for special education and his/her classification. Within no more than 30 days, the child study team will work out an individualized education program (IEP), and within another 30 days that program will begin to be implemented. In concert with the IEP, the team will consider the need to obtain related services such as occupational therapy, physical therapy, etc. Finally, no later than within three years, but sooner upon the teacher's and/or child study team's recommendation, the pupil will be reevaluated.

As a new school with an unknown enrollment, it is premature to define the exact services which will be needed and offered to students. Among the options which the school may offer are: curriculum or instructional modifications within a regular classroom; support programs and supplementary instruction; special class programs; resource rooms; child study team services; speech-language services; counseling; family support and involvement sessions; assistive technology; and structural modifications to buildings per ADA specifications. It is likely that many of these services, including the child study team, would be provided on a contractual basis, rather than by permanent staff, at least during the school's initial years of operation.

10 Charter School Staff

10.1 Certification

Princeton Charter School teachers, supervisors, and professional support staff will hold appropriate New Jersey certification. The Head of School will hold a New Jersey Supervisor certificate. The school may request the Commissioner of Education to expedite through the alternate route program the certification of persons qualified to teach by education and experience. Beyond the guarantee of professional preparation offered by certification, Princeton Charter School will seek professional staff who are in agreement with and committed to the mission, goals, and educational approach of the school, as outlined in this document. After receipt of its charter and completion of the hiring process, the Princeton Charter School will submit certificates of newly hired teachers, administrators, and professional support staff as an addendum to this application.

10.2 Staff Responsibilities

It is the responsibility of the faculty of Princeton Charter School to teach the school curriculum and support the goals and objectives of the school. The teachers are expected to meet the curriculum goals, to provide a challenging yet supportive learning environment in the classroom, and to be sensitive to the individual learning needs and styles of the children. It is the teachers' responsibility to communicate with parents about any relevant classroom matter.

The classroom teacher is responsible for maintaining in the classroom a pleasant and disciplined climate that is conducive to learning and stimulates students' cu-

riosity and enthusiasm for learning. The teacher is expected to exhibit the highest level of professional and social behavior in the classroom.

Specific staff responsibilities include but are not limited to those listed below. The responsibilities of the PCS teachers are to:

1. support the mission and goals of Princeton Charter School;
2. teach the PCS curriculum;
3. ensure mastery of grade-level knowledge, content, and skills for all students through consistent teaching practices and individual tutoring when appropriate;
4. provide appropriate enrichment materials and individual tutoring when appropriate;
5. create a challenging yet supportive school atmosphere that encourages academic achievement by all students;
6. maintain classroom discipline;
7. communicate in a timely fashion with parents and/or PCS Head about any relevant classroom matters and students' performance;
8. provide collegial support to other PCS staff members;
9. participate in staff development programs; and
10. serve on ad hoc advisory committees to the PCS Board of Trustees.

The responsibilities of the PCS aides are to:

1. support the mission and goals of Princeton Charter School;
2. assist classroom teachers and the Head of School;
3. help maintain classroom discipline;
4. support an atmosphere conducive to learning; and
5. monitor students during non-instructional activities.

The responsibilities of the PCS Head of School are to:

1. support the mission and goals of Princeton Charter School;
2. create a challenging yet supportive school atmosphere that encourages academic achievement by all students;
3. participate in evaluating students' progress and in assessing needs for special programs;
4. supervise teachers and other staff;
5. serve as a mentor to the teachers and other staff.
6. provide recommendations to the Board of Trustees on hiring or promoting teachers and other staff;

7. provide administrative services;
8. supervise school budget;
9. evaluate the adherence of the PCS program to its charter;
10. serve as an ex officio member of the Board of Trustees; and
11. communicate in a timely fashion with parents and teachers about any relevant classroom matters and students' performance.

The responsibilities of the PCS administrative/clerical staff are to:

1. support the mission and goals of Princeton Charter School;
2. assist the PCS Head of School;
3. perform standard administrative and clerical tasks; and
4. maintain records and assist with reporting.

10.3 Tenure Guidelines

PCS will follow the legal requirements for employee tenure as specified in the Charter Law. Within the first three years of employment, the Board has the right to decide not to renew an employee.

Decisions for renewal or nonrenewal will be based on the level of performance of the employee, assessed partially on the basis of observations and evaluations conducted by supervisors, but also on the basis of other indicators such as student progress, professional competence and responsibility, sensitivity to students' needs, ability to work harmoniously with other members of the teaching staff, and relationship with parents.

PCS has an obligation to employ the educational staff best trained and equipped to meet the educational needs of the children. It shall meet this obligation by retaining only those non-tenured individuals who meet the highest standards of performance. PCS employees, once tenured, are expected to continue to perform their duties in a consistently superior manner.

All teaching staff members as well as non-professional staff, who are either newly employed in the school or who are employed in the school while on leave from the Princeton Regional School District, shall acquire streamlined tenure as described in Appendix A of the New Jersey Department of Education Charter Schools Application.

Dismissals of tenured employees, if required, will be according to the arbitration procedures described in Appendix A, "Streamline Tenure", of the Charter Schools Application.

10.4 Justification for Alternate Route Certification

Each teacher's professional competence is essential to the academic success of students. PCS is committed to hire the most qualified professionals, who are highly

competent in their subject matter; such teachers combine the often separated functions of curriculum specialist and outstanding teacher. While many such teachers will emerge from the traditional certification process, many natural teachers with superb subject credentials do not. For this reason PCS intends to tap the widest talent pool possible in its recruiting efforts. If it is not possible to hire exceptional certified teachers who are simultaneously highly competent in the subject they are certified to teach, PCS will hire qualified individuals who will obtain alternate route certification. PCS may ask the New Jersey Commissioner of Education to waive the time limit for course work, or to waive the course work requirement for teachers with five years of experience in an accredited school, or otherwise to adjust the alternate route certification requirements in order to expedite the certification of persons who are qualified by education and experience.

10.5 Hiring Standards and Criteria

PCS believes that the quality of the professional staff determines the quality of education offered in the school. It is therefore the responsibility of the school administration to locate and recruit the best qualified candidates to meet the school's educational needs. Candidates may include persons qualified to pursue the alternate method of certification.

Staff selection shall be based on strong academic preparation, professional competence, intellectual rigor, emotional maturity, enthusiastic professional attitude, knowledge of instructional practices, and ability to contribute to the furtherance of the school's educational goals. Attention shall be paid, among other factors, to the candidate's academic records, and his/her previous relevant experience. Staff must demonstrate that they are aware that children have many different family circumstances and that they are willing and able to provide the educational support that a diverse student population needs in school.

The PCS teaching staff members must fulfill their individual responsibilities and work in concert with the other members of the teaching team.

The Administration of the school will be responsible for advertising available jobs and soliciting applications from qualified candidates. A search committee of Administrators, teachers and parents (and, when appropriate, outside experts) will screen all applicants and make recommendations from the candidate pool and possibly interview a small subset of candidates.

The Administration will recommend to the PCS Board one or more candidates for hiring. The Administration shall nominate only candidates who meet the qualifications required by law or are eligible to meet such qualifications. It is the Administration's responsibility to obtain a criminal history check of all school employees and to obtain proof of citizenship or eligible alien status.

PCS is committed to hire the individuals who are best qualified for the job without regard to race, sex, religion or handicap unrelated to the job. PCS will adhere to relevant New Jersey laws in its hiring practices.

By a majority of votes, the Board shall approve employment and the initial

salary. The figure for the initial salary will depend on the academic degrees of the employee and on his/her previous professional experience.

The salary scale of Princeton Charter School will be developed by the Princeton Charter School Board. Employee benefits will include Social Security (7.65%), unemployment compensation, and other benefits required by law or regulation. PCS intends to include individual health care coverage as part of the benefits package for full-time employees. The details of this health care coverage, and the amounts provided by the employee and the school will be determined by the Princeton Charter School Board prior to the onset of hiring.

10.6 Employment Contracts

The terms of employment for teaching, administrative, and support staff of Princeton Charter School will be determined by contracts negotiated within the parameters of relevant New Jersey statutes. PCS faculty and staff will be required to enter into individual term employment agreements resembling those used in business but explicitly stating that all requirements of the Charter Law are made part of the agreement. Teaching staff may be obligated to provide services during the PCS academic year, in-service days, or during the entire year depending upon their role in the school. The agreement affirms that any materials created by staff members for use by PCS, or produced using the staff or resources of the school, are works-for-hire and all intellectual property rights are vested in the school.

A majority vote of the PCS Board of Trustees shall be required to terminate the employment of any PCS faculty or staff member. Any dismissal is also subject to applicable Charter Law provisions, specifically the arbitration procedures described in Appendix A, “Streamline Tenure,” of the Charter Schools Application guide.

10.7 Professional Development Opportunities

Among the guarantors of student achievement are high teacher motivation and quality professional development opportunities. Princeton Charter School seeks out professional opportunities which emphasize both content and pedagogy, help teachers develop leadership roles, and include contact with practitioners and researchers as well as other teachers. For example, the National Geographic Society supports a range of programs for teachers through the National Geographic Alliance. In New Jersey, EIRC runs these Alliance programs in geography, educational leadership, and educational technology. EIRC also provides in-service workshops that introduce geographic content, provide guided practice in effective teaching strategies, and acquaint teachers with geography teaching materials. Further examples are the Quest program at Princeton University on mathematics and science for teachers of grades 3-6, and institutes held by or supported by the National Science Foundation’s Teacher Enhancement Program. Rutgers University, Rider University, and the College of New Jersey also provide many professional development opportunities for teachers.

In addition to specific training opportunities, programs which put teachers into contact with community resources will be pursued. An example of such a resource is Sigma Xi, a science society which forms a partnership between the school and a scientist, who then works with the school's staff members.

10.8 Staff Evaluation

The Board of Trustees evaluates the Head of School who in turn evaluates and supervises the rest of the School's staff.

As part of the evaluation procedure, the Board of Trustees specifies clearly defined criteria for performance review. These criteria include 1) commitment to the PCS mission and goals, 2) high level of professionalism, 3) high level of accomplishment, and 4) effective participation in the PCS team. The Board of Trustees also specifies tools to be used in the evaluation process. Such tools may include written evaluations based on classroom observations and comparisons of the students' performance on major assessments specified by the PCS curriculum in each grade. Special contributions by the PCS staff to the School's program will also be an element in the performance review.

PCS will provide the staff with professional improvement opportunities that include participation in professional development programs and attendance at professional conferences, when appropriate. PCS will also foster collegial interactions among the staff members to ensure that the staff works effectively as a team.

11 Parental and Community Involvement

11.1 Parental Involvement

Princeton Charter School offers three avenues for parent involvement in the school: through the governance structure, both on the board of trustees and the standing and ad hoc committees, through volunteer activities, and through the daily involvement of parents monitoring their children's academic progress. Parental involvement manifests itself at the highest level in the governance structure of PCS (see Section 4), since parents constitute the majority of the Board of Trustees. In addition, both Trustee and non-Trustee parents may serve on Board advisory committees.

Parents may also establish committees under their own initiative to enrich the life of the school. These committees may undertake a number of school-wide projects such as book fairs, school picnics, after-school clubs, community service, and other activities. At least two room parents will be secured for each class in the school as liaisons between the classroom teacher and other parents.

Parents are involved in the school on a daily basis by supporting their children's academic endeavors. For example, they may be requested to initial their children's homework assignments to ensure the timely completion of homework. Not only will PCS communicate with parents openly and frequently about their children's progress but will also keep them informed about the school as a whole during open

houses, orientations, and back-to-school nights. A collection of the textbooks and other books used by the students will be maintained in the office and be easily accessible to parents. Parents will be asked to give their view of their child's academic progress guided by a questionnaire to be developed by a joint parent-teacher committee. Parents who do not choose to submit a written evaluation will be offered the opportunity to have a personal interview.

11.2 Community Group Involvement

The Princeton area is home to experts in many disciplines. Partnerships between PCS and such community resources may enrich the PCS educational program. For example, a local astronomer might prepare materials to supplement the School's textbooks in the event of a significant astronomical discovery. In all cases such materials will be subject to the approval and quality assurance process applied to all PCS instructional materials. A disciplined approach to the production of such materials through partnerships is an interesting objective in its own right and PCS may seek outside funding for such projects. In particular, members of the school's founding group plan to seek an "instructional materials development" grant from the National Science Foundation.

Four major local organizations have been contacted and are interested in helping with the development of the PCS arts program. The Princeton Chamber Symphony is developing new outreach programs to demonstrate musicianship to students in schools. The Symphony would like to provide tutorials in music appreciation to teach children how to enjoy a classical music concert. The Westminster Conservatory of Music is interested in a broader role, such as a partnership for providing the entire music program. The Arts Council of Princeton is [interested in helping Princeton Charter School with its arts program. The Arts Council can provide space for art workshops and can provide a link between the school and community artists.] The Princeton Ballet School will help identify personnel to set up and teach a dance program. These arts options will be considered as the Board of Trustees and Head of School finalize the PCS educational plan after receipt of the Charter. The Princeton University Computing Center has already committed to provide Internet access to Princeton Charter School on the same terms as it is provided to the local regional school district.

Representatives of the Founders have contacted a range of local organizations and community groups to inform them about the plans for a charter school and to learn about their interests in and ideas on education. Princeton has a diverse population and the PCS Founders believe it is important to reach out to all the segments of the community. The interim director of the Civil Rights Commission was contacted, as were three ministers of churches in Princeton. The head of the Princeton Housing Authority and the administrator of the Princeton Young Achievers have also been contacted. The PCS Founders will continue this outreach effort by setting up public meetings to explain the mission, goals, and admissions process of PCS and will seek out all those who are interested in helping constructively with

the work of forming a school.

12 Charter School Facility

12.1 Designation of Facility

Immediately upon receipt of its Charter, PCS will finalize the preliminary confidential negotiations which it is currently conducting for the lease or purchase of a property within Princeton Township or Borough and inform the Department of Education of the address of its designated facility. Of the three properties which are under active consideration, one would remain a lease situation for the duration of PCS' tenure in that building; the space available meets or exceeds the minimum requirement of approximately 3200 square feet for the initial projected PCS enrollment of 72 students.

12.2 Acquisition of Facility

The PCS Founders are currently pursuing two other properties which are available for purchase, both of which exceed 6000 square feet and offer sufficient space for the school for at least two years. One of these structures has been assessed by an architect with extensive experience designing and redesigning school buildings, who has concluded that it would require minimal renovation to retrofit as a school building. The second property would require more extensive renovation. Preliminary negotiations for both of these properties are underway, but cannot be finalized until receipt of the Charter.

12.3 Address of Facility

Once Princeton Charter School has received its Charter and has a signed contract in hand, it will forward the address of the facility to the State. This was done on April 10, 1997 as follows. The address of our facility is 575 Ewing Street in Princeton Township, New Jersey. This facility consists of a 15,000 square foot main building, a 3,000 square foot house, and a garage. The site is slightly more than five acres with parking for 100 cars and ample space for outdoor recreation. The main building is on three floors with two wings flanking a central staircase and elevator. The interior space can be easily reconfigured for school use because there are no load-bearing walls interior to the two wings, and there are sufficient exits.

12.4 Financing Plans

Financing for the PCS facility will come from three main sources: 1) the per pupil allocation, of which \$5500 per month has been reserved in the budget for rental or mortgage payments; 2) fundraising efforts which include a lump sum contribution by the Founders, other individual contributions channeled through the Friends of

Princeton Charter School, as well as grants from foundations and similar organizations; and 3) rental income which PCS may garner from renting out its space during the summer and at other times when the facility is not in use for school purposes. The initial PCS Board of Trustees will develop a long-range plan to accommodate present and future facility requirements and the financing necessary to realize them.

12.5 Renovation Needs

If PCS opts for the property that is available for lease but not purchase, no renovations will be necessary. For both properties under consideration for purchase, the Founders will seek professional advice to determine precise renovation needs and cost estimates. In submitting this application it is assumed that renovations are amortized into the lease payments.

13 Financial Plan

13.1 Financial and Fund Development Plan

The calculation of enrollment-based revenue for 1997 is as follows:

Enrollment-Based Revenues			
Grade	Enrollment	Revenue/Pupil	Revenue/Grade
4	24	\$6,720	\$161,280
5	24	\$6,720	\$161,280
6	24	\$7,526	\$180,624
Total Revenues			\$503,184

In addition to enrollment-based revenue, the first-year budget calls for initial donations, by founding parents and others, of \$10,000. These contributions will be made by February 1, and will be used for initial expenses involved with advertising, printing, finding suitable facilities, and hiring teaching and administrative staff. Further contributions will be sought from the community, from both individuals and charitable foundations. An amount of \$50,000 has already been pledged, which will be funded by May 1997, as indicated in the first year budget projections and cash flow forecasts. We also plan to raise another \$10,000 by fundraising efforts in June. PCS will begin to obtain enrollment-based revenue beginning in July.

Our calculation of expenditures is based upon the following assumptions:

- 1 Head of School @ \$52500/12 months
- 3 full-time teachers @ \$35000/10 months
- 3 part-time teachers @ \$17500/10 months
- 1 full-time aide @ \$14000/10 months
- 2 part-time aides @ \$7000/10 months

- 1 full time secretary @ \$16000/12 months
- 1 part-time custodian @ \$8000/12 months
- Benefits cost per full-time staff member: \$7000/annum
- Benefits cost per part-time staff member: 8% of salary
- Instructional supplies per pupil: \$150.
- Textbooks per pupil: \$150.
- Communications cost per pupil: \$10.
- Administrative supplies per pupil: \$20.
- Miscellaneous administrative expenses per pupil: \$50.
- Communications/telephone: \$185/month
- Insurance per pupil: \$300/year
- Rental: 1000 sq.ft. fixed space + 40 sq.ft./pupil @ \$17/sq.ft per year =\$65960.
- Energy costs: \$2/sq.ft. per year
- Support supplies and materials per pupil: \$20.
- Miscellaneous support expenses: \$300/month

PCS plans to explore every possibility of sharing services and facilities with the Princeton Regional Schools.

13.2 Accounting and Audit Plans

PCS will utilize Generally Accepted Accounting Principles for recording its financial transactions. PCS recognizes that its success as an educational institution will depend on sound financial planning, and the PCS Board will be attentive to this operational aspect.

The school will be audited by a firm of suitably qualified accountants, locally-based, but with no other connection with the Princeton Charter School. The appointment will be made so as to conform with the provisions of N.J.S.18A:23-1.

13.3 Enrollment Projections 1997-2001

The following chart details Princeton Charter School's initial enrollment projections, which assume

- the addition of grades 3 and 7 in 1998-99, of grades 2 and 8 in 1999-2000, and grade 1 in 2000-2001;
- an overall enrollment increase rate of approximately 25% per year; and
- a class size of 20 in grades K-1, 22 in grades 2-3, and 24 in grades 4-8.

The school's four-year enrollment goal is 184 pupils spread out over eight grade levels, 1-8. When a Charter renewal is applied for in the year 2001-2002, PCS plans to seek approval for a K-8 configuration. At that time, the PCS Board will evaluate whether the needs of the community would be best served by an increase in the overall school size.

Grade	1997-98	1998-99	1999-2000	2000-01
K	-	-	-	-
1	-	-	-	20
2	-	-	22	22
3	-	22	22	22
4	24	24	24	24
5	24	24	24	24
6	24	24	24	24
7	-	24	24	24
8	-	-	24	24
Total	72	118	164	184

13.4 Enrollment Projections 2001-2006

The following chart details Princeton Charter School's enrollment projections for the five years starting with the 2001-2002 school year.

Grade	2001-02	2002-03	2003-04	2004-05	2005-06
K	-	18	18	18	18
1	20	20	20	20	20
2	22	22	22	22	22
3	22	22	22	22	22
4	24	24	24	24	24
5	33	37	44	44	44
6	33	37	44	44	44
7	24	36	43	43	43
8	24	24	43	43	43
Total	202	240	280	280	280

13.5 Nonresident Enrollment Projections

Princeton Charter School expects the majority of its pupils to come from families resident in the Princeton Regional School District. The initial budget provided here assumes that all students will come from this district. We do not project or expect non-resident enrollment to exceed 10% of the entire student body for a number of reasons, including the statutory admissions preference given residents of Princeton and the natural desire of parents to keep their children's schooling close to home, family, and friends.

13.6 Districts of Residence

Princeton Charter School will be located in the Princeton Regional School district. Neighboring towns which we expect might provide non-resident applicants are Kingston (South Brunswick School District in Middlesex County); Montgomery (Montgomery School District in Somerset County); Lawrenceville (Lawrenceville School District in Mercer County); and Plainsboro and West Windsor (West Windsor/Plainsboro School District in Mercer County). The publications in which Princeton Charter School will advertise are distributed in these areas.

14 Transportation

PCS students are entitled to transportation in accordance with the procedures established for students in Princeton Regional Schools (PRS). It will be the responsibility of PCS to obtain applications, provide them to eligible students' parents or guardians, collect completed applications on or before May 1 preceding the school year in which transportation is being requested, and submit them to the Office of the Board Secretary of Princeton Regional School, not later than May 15, in accordance with the guidelines established by the State Board and by policy 3541 of PRS. If students from other districts enroll at Princeton Charter School, copies of their policies and application forms will be obtained, provided to the students' families, collected, and submitted to the appropriate districts by the dates specified in their policies.

15 Waivers of Regulations

Alternate Route Certification On a case-by-case basis, PCS anticipates the need to request the New Jersey Commissioner of Education to waive the time limit for course work or to waive the course work requirement for teachers with five years of experience in an accredited school, or otherwise to adjust the alternate route certification in order to expedite the alternate route certification of persons who are qualified by education and experience.

Justification: See Section 10.

NJAC6:31-1:5 PCS requests a waiver of NJAC6:31-1:5, the requirement for a bilingual education program.

Justification: It is unlikely that PCS will have sufficient enrollment for such a program.

NJAC6:29-3.1 PCS requests a waiver of NJAC6:29-3.1, the requirement for a certified Physical Education Instructor to organize games and other physical activity during dance instruction and short breaks.

Justification: PCS would like to offer dance and creative movement instruction by persons who meet relevant professional standards for this instruction, but who

may not hold New Jersey physical education certificates. In addition, PCS has short 10-15 minute activity breaks in the schedule which are not long enough for formal organized games requiring a person holding a physical education certificate.

NJAC6:11-9.3 PCS requests a waiver of all provisions which would prevent a certified teacher holding a provisional certificate as a principal from acting as the chief administrative officer of the school, including, but not limited to, the requirements in NJAC6:11-9.3.

Justification: The small size of PCS implies operations on a much smaller scale than the districts referred to in this regulation. Supervision of other administrators will be either nonexistent or minimal. The Head of School, who will act as the chief administrative officer, must be empowered to report directly to the Board of Trustees on the formulation of goals, policies, plans, budgets, and personnel actions.

16 Charter School Self-Evaluation and Accountability

16.1 Self-Evaluation

Princeton Charter School will be accountable to the general public, its students and staff, its board, and the public agency granting its charter on three fronts: 1) legally, as to whether it is fulfilling the terms of its charter and regulatory and statutory requirements; 2) academically, as to whether its students are performing at improved or consistently high levels as measured by various assessment instruments; and 3) organizationally, as to whether the school is financially stable and competently governed and staffed. PCS self-evaluation will entail comparison of its performance against its stated mission, goals and objectives and not against the performance of any other public or private schools. It will be the assignment of the board (or a subset thereof), the school administration, and the teachers (or a committee thereof), along with any ad hoc parent committees which may form to that effect, to develop detailed, clear, measurable school-wide performance objectives. These objectives will naturally emphasize student achievement as measured against baseline data, but they will also include factors such as pupil and staff attendance rates, numbers of applications and enrollment; degree of parent participation, school environment including safety and order, staff development, physical plant, fiscal management, and so forth. All indicators should be concrete, quantifiable, and objective. Section 6 on Assessment describes the PCS student performance assessment procedures, which along with instruments internal to the school also include both state-mandated and voluntary national standardized testing to afford ready comparison with a broad student population.

16.2 Annual Report

The Head of School shall submit to the Board each year a report containing aggregate statistics of the performance of every grade on state-mandated tests and on other major assessments specified by the PCS curriculum. These data shall

not identify individual students, but they shall include statistical comparisons to indicate whether students collectively are benefiting from the instruction in each grade. After the Head's report has been accepted by the Board, these data shall be summarized in the Annual Report in the form prescribed by the Commissioner of Education, copies of which shall be submitted to the local school board, County Superintendent of Schools, the Commissioner, and, upon request, to the parents or guardians of PCS students.

The Board shall also include in the Annual Report a summary of the school finances, the list of staff, student demographics, any important changes in facilities, results of the parents' survey when available, a brief restatement of the School's mission and goals, and major objectives for the coming year. The latter shall be identified by the Board after consultation with the teaching staff and with parents. The Annual Report may also serve as a prospectus and shall explain how to request copies of the school charter, curriculum, and application forms.

16.3 Records System

Princeton Charter School will establish an efficient and thorough record-keeping system to track all the information needed for state and federal reporting requirements with which the school must comply. Data will be collected starting with the first student application and continuing throughout the ensuing school year for an ongoing collection and reporting effort. These data fall into four major categories: student; staff; financial; and nutrition (for participation in federal food programs). Financial records shall be kept according to Generally Accepted Accounting Principles and be examined annually by an independent auditor hired by, and reporting to, the Board. Individual student records shall be maintained by the Head of School and shall be retained after the student leaves the school, as required. A student's records are confidential, but shall be made available to his or her parents or guardians upon request. Aggregate statistics of student performance will be reported to the Board of Trustees and included in the Annual Report as detailed above. One or more database systems will be set up using the data elements necessary for school use, or required by laws and regulations.

16.4 Staff Evaluation

The Board of Trustees evaluates the Head of School who in turn evaluates and supervises the rest of the School's staff.

As part of the evaluation procedure, the Board of Trustees specifies clearly defined criteria for performance review. These criteria include 1) commitment to the PCS mission and goals, 2) high level of professionalism, 3) high level of accomplishment, and 4) effective participation in the PCS team. The Board of Trustees also specifies tools to be used in the evaluation process. Such tools may include written evaluations based on classroom observations and comparisons of the students' performance on major assessments specified by the PCS curriculum in each

grade. Special contributions by the PCS staff to the School's program will also be an element in the performance review.

PCS will provide the staff with professional improvement opportunities that include participation in professional development programs and attendance at professional conferences, when appropriate. PCS will also foster collegial interactions among the staff members to ensure that the staff works effectively as a team.

17 Timetable

July, 1996	Charter Application Technical Assistance Session
September 17, 1996	Rutgers Conference on Charter Schools
September 23, 1996	Start contacting community leaders
September-October 1996	Revise application; continue facilities search
October 15, 1996	Final application due; deposit copy at public library
October 16, 1996	Start scheduling and holding community meetings; Full scale fund raising begins
October - January	Public and private meetings with community groups; Continue fund raising, facility search, staff search
November 1996	Incorporate Friends of Princeton Charter School
December 15, 1996	Recommendations from State's Review Committee and Princeton Regional School Board
January 15, 1997	Commissioner determination of charter status
January 16, 1997	Place advertisements for student enrollees, Head, and staff positions
Date unknown	Finalize school facility and negotiate lease
January 20, 1997	Application forms available Active student application process begins; ads in papers, letters mailed, flyers posted
January 26-February 14	Parent information sessions; Community information meetings continue
February 14, 1997	Student applications due; screen for residency
February 21, 1997	Lottery to select students; announce results
February 24-26, 1997	Mail enrollment and waiting list notices
February 28, 1997	Applications for Head of School due
March 3-7, 1997	Review Head applications; initiate interview process with goal of having signed contract by 3/31
March 10-12, 1997	Signed registration cards due
March 16, 1997	Notify districts of registered students
March-April	Immediately after securing Head, initiate teacher interviews
April 14, 1997	Transportation applications to parents
Week of April 22, 1997	Place ads for positions still open
May 1, 1997	Transportation applications due
May 14, 1997	Transportation requests to districts
June 15, 1997	Student count based on signed registrations
August 1, 1998	First annual report due

A Princeton Charter School Founder Biographies

The Princeton Charter School Founders (PCSF) are either parents of children currently attending the Princeton Regional Schools or teachers certified in the state of New Jersey. These individuals are:

David Abraham is a professor of Law at the University of Miami. A 20-year Princeton resident, he was formerly a member of the department of History at Princeton University. In addition to teaching, research and publication as a historian and legal scholar, David Abraham has taught at both the elementary and junior high school levels in New York City and worked there in private legal practice.

Education: public schools in Buffalo, NY; B.A. University of Chicago, 1968; Ph.D. University of Chicago, 1977; J.D. University of Pennsylvania, 1989.

Fred Brodzinski is Associate Director of the Institute for Transportation Systems, City University of New York. He was previously Dean of Students at Ramapa College of New Jersey. Fred Brodzinski is a certified teacher in Comprehensive English, Secondary Level.

Education: Father Judge H.S., Philadelphia; A.B. (English) St. Joseph College, 1970; M.S. (Education) Indiana University, Bloomington 1972; M.A. (Educational Administration) Columbia University; EdD (College and University Administration), Teachers College, Columbia University.

Bruce T. Draine is a professor of Astrophysical Sciences at Princeton University, where he is department chair. Resident in Princeton for 17 years, from 1979 to 1982 he was in the School of Natural Sciences at the Institute for Advanced Study. He has been principal investigator on research grants from the National Science Foundation and from NASA and has served as chair of review panels for both NSF and NASA.

Bruce Draine served in the U.S. Peace Corps in Ghana from 1969-71, where he taught secondary school physics and mathematics.

He has been active in supporting public education. He has given science presentations to students at Littlebrook School and a workshop on astronomy for PRS district teachers, and has organized visits by both elementary and middle school students to Princeton University Observatory for telescopic observations of Jupiter and Saturn. In the 1991-92 school year he was a member of the PRS mathematics curriculum committee. He has been registrar for the Princeton Youth Baseball Association since 1994.

Education: West Essex Regional High School 1965; B.A. (Physics) Swarthmore College 1969; Ph.D. (Physics) Cornell University 1978.

Jeremy Goodman is an associate professor of Astrophysical Sciences at Princeton University. From 1985 to 1988 he was in the School of Natural Sciences at the Institute for Advanced Study. He was a David and Lucille Packard Fellow from 1988 to 1992.

Jeremy Goodman has given science presentations for Riverside School Science Days and classroom presentations on the Solar System and astronomical measurement. He was a volunteer chemistry tutor for Princeton Young Achievers in 1996.

Education: St. Alban's School, Washington D.C.; A.B. and A.M. Harvard University 1979; Ph.D. Princeton University 1983.

Dina Gutkowicz-Krusin is principal scientist at Electro-Optical Sciences, Inc., and is also a member of the corporate Board of Directors. She is currently working on computer-based diagnostics for skin cancers.

Dina Gutkowicz-Krusin has been involved in supporting public education over several years. She was a member of the Princeton Regional School Mathematics Curriculum Committee during 1991-92, and has been a member of the Educational Technology Committee since 1995.

Education: Public High School, Warsaw, Poland 1967; B.S. (Physics) City College of New York 1971; Ph.D. (Theoretical Physics) Cornell University 1977.

Jane Hallett recently resigned as co-president of the Johnson Park Elementary School PTO, having also served as PTO secretary. She has been involved in the PTO and many school activities since the school reopened in 1992. These activities include developing and presenting mathematics activities at mathematics and science days, working with students in the after school clubs, working with classes in the computer lab and being a member of the mathematics and science committee.

Jane is a certified substitute for PRS as well as being a certified teacher in the UK and Hong Kong. She has taught grades 6-12 in public and private schools in the UK. In Hong Kong Jane taught at South Island School, a British international school, where one of her responsibilities was the evaluation of the mathematics achievement of new students from Europe and the US.

Education: Jane was educated in the UK at Bassaleg School and The University of Oxford from which she holds the degree of Master of Arts. Her undergraduate honors degree is in Mathematics. Her work in Education for which she holds the Post Graduate Certificate of Education (PGCE) was undertaken at London University.

Simon Hallett is a principal and portfolio manager of Harding, Loevner Management, a Somerville NJ based investment advisory firm. He has been with the firm since 1991, shortly after it was founded. The company serves a wide range of clients including families, charitable endowments, and mutual funds. Before coming to the US in 1991 Simon was a director of Jardine Fleming Investment Management, a large investment management firm in Hong Kong, where he lived for 10 years.

Education: Simon was educated in the UK at Plymouth College and the University of Oxford from which he holds the degree of Master of Arts. His undergraduate honors degree is in Philosophy, Politics and Economics.

Lolita Buckner Inniss is a law professor at Widener University Law School, Delaware, where she teaches administrative law, immigration law, and law and literature. She also maintains a law office in Princeton, New Jersey. She has served in the past as attorney for local boards of education, and for other municipal boards.

Ms. Inness has worked as a parent on issues of curriculum and after-school care during several years in the Hillsborough Township School District.

Education: Phineas Banning High School, Carson, California; A.B. (Romance Languages and Literature) Princeton University, with certification in Latin American Studies and African American Studies. J.D. University of California, Los Angeles.

Molly Kulkarni has worked in a variety of settings including Bay Banks, Boston, and with the Women's Educational and Industrial Union as a part-time counselor. She served as Vice-President and President of Tech Community Women at M.I.T., on the Executive Council at the University League Nursery School in Princeton, and has been active in a variety of capacities at Riverside School. Her other interests include fashion design, aerobics, and personal training.

Education: Associates Degree in Business Administration from Middlesex Community College (1987); B.A. in Psychology from the University of Massachusetts, Boston (1996).

Elena Leonova is a concert pianist and member of the faculty of the Mannes College of Music, New School for Social Research. She has toured throughout the United States, Europe, Central and South America, and appears regularly in recitals and as a soloist with the orchestras of major concert halls of New York. Her performances have been broadcast by WQXR, WNYC, KFAC, National Television and Radio of Italy (RAI), Mexico, Israel, and others. She was formerly a faculty member of the New England Conservatory in Boston, Glassboro State College (now Rowen College), and the State University of New York at Purchase, NY.

Elena Leonova teaches master classes and lectures in the United States and abroad. She has been a member of juries of numerous international and national piano competitions in Europe and the U.S. and is involved in research on the early music education of children.

Education: M.M. Moscow Tchaikovsky Conservatory, Top Honors; P.D.G. The Mannes College of Music, New York.

Sandra Milevski is a homemaker and edits the *Baltic Studies Newsletter*. Before moving to Princeton, she was an analyst specializing in information policy at the Congressional Research Service (Library of Congress), Office of Educational Research and Improvement (U.S. Department of Education), and the U.S. National Commission on Libraries and Information Science. She is certified as an Educational Media Specialist and worked for seven years in a New Jersey public high school in that capacity.

Sandra Milevski has been active in various educational and civic organizations within her ethnic community. She has organized, taught, and participated in summer camps dedicated to educating young people in their language and culture and teaches at the Latvian School. She has also been a room parent and library volunteer at Littlebrook School.

Education: Marple-Newtown Senior High School (PA); B.S.L. (Russian) George-

town University 1973; M.S. (Information Science) Drexel University 1977; Advanced Certificate (Information Policy) Columbia University 1984.

Anca Niculin is employed by Formal Systems, where she works on all aspects of computer-based training programs for corporations using multimedia techniques.

Education: public high school in Rumania; B.A. (Architecture), Univ. of California, Berkeley 1980; M.A. (Architecture), Massachusetts Institute of Technology, 1982; graduate studies in computer science, New York University.

Toby Peterson is an adjunct professor at Hudson County Community College in Jersey City, where she teaches basic English courses to immigrants and students who speak standard English as a second dialect. Her approach focuses on analytical thinking and writing skills, using class discussions as an important vehicle to promote analysis. Students learn to organize their thinking and writing using five-paragraph essays.

Toby Peterson is a certified teacher in New Jersey and New York. She has taught English at Cornell University, at the Cascadilla School in Ithaca, NY, and in the New York City public schools. She authored the book *Acquired Taste: the French Origin of Modern Food*, 1994.

Education: B.A. in Sociology from Northeastern; M.A. in English as a Second Language from New York University.

Maureen P. Quirk is an electrical engineer on the research staff of the Center for Communications Research in Princeton, NJ. From 1983 to 1985 she was at the Jet Propulsion Laboratory in Pasadena, CA. Currently she is the treasurer of the IEEE Signal Processing Society's Conference Board which oversees two international technical conferences and six workshops each year with combined budgets of over two million dollars. Since 1995 she has been a member of the Lehigh University Engineering Advisory Council.

Maureen Quirk has been active in public education for the past six years. In the 1991-1992 school year she was a member of the Princeton Regional School mathematics curriculum committee. In 1993 and 1994 she was on the leadership team drafting the content standards section of the New Jersey Mathematics Curriculum Framework. She has served on the organizing committees for Science Day and Science Week at Riverside School, and given science presentations at these events. In 1995 and 1996 she was a volunteer mathematics tutor for Princeton Young Achievers.

Education: Central Bucks High School, Buckingham PA; B.S. Electrical Engineering Lehigh University (1977); Diploma of Imperial College (D.I.C. 1978) as a Marshall Scholar at the Imperial College of Science and Technology in London, England; M.A. (1979) and Ph.D. Princeton University 1982.

Lee Silver is a professor of Molecular Biology at Princeton University, where he is the director of a research laboratory studying mammalian genetics and reproduction. The laboratory has twelve employees and a \$600,000 annual budget. He is the editor-in-chief of the professional journal *Mammalian Genome*, and is the co-author

of an upcoming introductory textbook on genetics, as well as a previously published graduate level textbook on mouse genetics. He was a member of the Task Force on New Reproductive Practices for the New Jersey State Commission on Legal and Ethical Problems in the Delivery of Health Care (1988-1990), and a member of the Governor's Scientific Advisory Committee, 1987.

Lee Silver has been active in supporting public education. He served as a member of the Princeton Regional School Board from 1994 to 1996. He has given workshop presentations on science to PRS district teachers, participated in science day and science week activities, and made his expertise on genetics available to teachers.

Education: Central High School, Philadelphia PA; B.A. and M.S. in Physics from the University of Pennsylvania; Ph.D. in Biophysics from Harvard University.

Susan Remis Silver is the director of the Office of Inmate Advocacy of the Office of the Public Defender. From 1984-1994 she worked in the Office of the Public Advocate, and from 1982-1984, she clerked for Judge Debevoise, United States district judge for the district of New Jersey. She was admitted to the Bar in New Jersey and Washington, D.C.

Susan Silver has been an active parent at Community Park Elementary School.

Education: Spackenkill High School, Poughkeepsie, New York; B.A. Cornell University 1978; J.D. New York University School of Law 1982.

Peter N. Yianilos is a Senior Research Scientist at the NEC Research Institute, Princeton NJ. In 1979 he founded Proximity Technology, which later merged to become Franklin Electronic Publishers – where he served as President and Chief Scientist. His algorithms, compression methods, data structures and product concepts formed the basis for the first hand-held electronic books, ranging from spellers and dictionaries to Bibles and encyclopedias – and are used in many classrooms nationwide. His current research is in the area of Machine Learning and Intelligent Systems.

Peter Yianilos has served on several Princeton Regional School District committees, and has given numerous Science Day presentations. He is also active in the Princeton Children's Chess Foundation, as a volunteer and Board member.

Education: Nova High School, Fort Lauderdale, FL; B.S./M.S. Mathematics, Emory University 1978; Graduate study in Mathematics, U.C. Berkeley 1978-9; Ph.D. Computer Science, Princeton University, 1997.

B Princeton Charter School Education Program and New Jersey Core Curriculum Content Standards

The education program of Princeton Charter School meets or exceeds the New Jersey Core Curriculum Content Standards. These standards for each content area are listed below, together with some examples of associated activities.

Cross-Content Workplace Readiness

Standard 1 *All students will develop career planning and workplace readiness skills.*

To develop workplace readiness, PCS students learn about the importance of hard work, personal responsibility, and respect for others.

Standard 2 *All students will use information, technology, and other tools.*

As part of the science curriculum, PCS students develop understanding of available technology, such as computers or the Web, and learn to select and use tools appropriate to a task.

Standard 3 *All students will use critical thinking, decision-making, and problem-solving skills.*

PCS students develop and hone the skills to formulate a question or define an issue; find relevant information using appropriate tools and evaluate it through critical thinking and quantitative analysis; solve problems and make decisions based on available information; and organize and present their work both orally and in written or graphic form.

Standard 4 *All students will demonstrate self-management skills.*

PCS students learn study skills and demonstrate personal responsibility, constructive engagement in activities, and self-discipline to tackle various assignments in a timely fashion.

Standard 5 *All students will apply safety principles.*

As part of the science, health, and physical education curricula, PCS students learn about and apply safety principles such as injury prevention, safe use of tools and equipment, laboratory safety rules, and fundamentals of first aid.

The Visual and Performing Arts

Standard 1.1 *All students will acquire knowledge and skills that increase aesthetic awareness in dance, music, theater, and visual arts.*

By the end of 4th grade, PCS students learn basic vocabulary, grammar, and syntax of the arts. By the end of 8th grade, students use the languages of the arts to evaluate aesthetic qualities of art works.

Standard 1.2 *All students will refine perceptual, physical, and technical skill through creating dance, music, theater, and/or visual arts.*

Standard 1.3 *All students will utilize arts elements and arts media to produce artistic products and performances.*

PCS students receive instruction in and actively participate in making music, dancing, staging theatrical productions, and creating two- and three-dimensional art works.

Standard 1.4 *All students will demonstrate knowledge of the process of critique.*

PCS students use the languages of the arts to describe and evaluate art works based on observation, analysis, and interpretation.

Standard 1.5 *All students will identify the various historical, social, and cultural influences and traditions which have generated artistic accomplishments throughout the ages, and which continue to shape contemporary arts.*

Art history is an integral part of the history curriculum at PCS. By the end of 4th grade, students learn about the arts in different parts of the world during various historical periods. By the end of the 8th grade, students learn about significant artists and art works in dance, music, theater, and visual arts.

Standard 1.6 *All students will develop design, artistic, and technological skill for planning the form and function of space, structures, objects, sound, and events.*

PCS students participate in designing elements of the indoor (classrooms and common areas) and outdoor (garden and playground) spaces.

Comprehensive Health and Physical Education

Standard 2.1 *All students will learn health promotion and disease prevention concepts and health-enhancing behaviors.*

By the end of 4th grade, PCS students learn about the basic structure of a human body; know responsible health behaviors; understand how some childhood injuries and illnesses can be prevented or treated; and develop personal protection strategies. By the end of 8th grade, students learn about special health needs of adolescents; learn to analyze health benefits or risks of different behaviors; and learn about existing health and help-providing organizations in the community.

Standard 2.2 *All students will learn health-enhancing personal, interpersonal, and life skills.*

By the end of 4th grade, PCS students learn to set and track their progress toward personal health and physical fitness goals. By the end of 8th grade, students are able to analyze the effects of behaviors on health and physical fitness and use the analysis for effective decision-making. All students learn different age-appropriate strategies for nonviolent conflict resolution.

Standard 2.3 *All students will learn the physical, mental, emotional, and social effects of the use and abuse of alcohol, tobacco, and other drugs.*

By the end of 4th grade, PCS students define and understand the proper uses of drugs and medicines, recognize physical and behavioral effects of mood-altering drugs, and understand how drug abuse contributes to illness or injury. By the end of 8th, grade students are able to analyze the effects of chemical substances on human development and behavior, including drug abuse and dependency.

Standard 2.4 *All students will learn the biological, social, cultural, and psychological aspects of human sexuality and family life.*

By the end of 4th grade, students learn about human development from conception to death. In 5th and 6th grades, students learn about the human reproductive system and understand physiological changes that take place during puberty. By the end of 8th grade, students learn about human sexuality, pregnancy, parenthood, and prevention of sexually-transmitted diseases.

Standard 2.5 *All students will learn and apply movement concepts and skills that foster participation in physical activities throughout life.*

Throughout, PCS students learn, practice, and refine movement skills; these movements (running, throwing, etc) are used in games, sports, and free play. Students also learn movement concepts appropriate to different dance forms.

Standard 2.6 *All students will learn and apply health-related fitness concepts.*

All PCS students learn age-appropriate techniques for developing cardiorespiratory endurance, muscular strength/endurance and flexibility, as well as for preventing sports injuries.

Language Arts

Standard 3.1 *All students will speak for a variety of real purposes and audiences in a variety of contexts.*

By the end of 4th grade, PCS students have made up their own oral stories, read aloud, retold ideas and plots, and discussed age-appropriate literature. They use standard English in all discussions with and presentations to the class in all subject areas. By the end of 8th grade, students have refined their interpretations and classroom discussions of literature, presented oral reports to the class, memorized and recited selected short works, and conducted interviews.

Standard 3.2 *All students will listen actively in a variety of situations in order to receive, interpret, evaluate, and respond to information obtained from a variety of sources.*

By the end of 4th grade, PCS students have actively listened to and discussed numerous fictional and other literary works, biographies and stories from history, as well as presentations in science and mathematics. They follow oral instructions from Kindergarten, identify syllables in first grade, record simple notes from spoken information, and recognize non-standard English as a means of characterization in literary works. By 8th grade, students listen critically to each other's reports, discussions, and arguments as well as to information provided in lectures, and take notes as appropriate.

Standard 3.3 *All students will compose texts that are diverse in content and form for different audiences and for real and varied purposes.*

PCS students write every day. Beginning with simple phrases and sentences, students gradually refine and expand their writing ability to include short writing assignments (journal entries, stories, letters) by grade 2 and the formal outlining-drafting-editing process to write and "publish" works that include smooth transitions by grade 4. Eighth graders show mastery of basic grammar, syntax, spelling, usage, and punctuation in their analytic and expressive writing and begin to develop a personal writing style. They also experiment with writing to create a given effect (e.g., to persuade, to instruct) and they cite sources as appropriate.

Standard 3.4 *All students will read, listen to, view, and respond to a diversity of materials and texts with comprehension and critical analysis.*

Reading extensively is the bedrock of both the PCS language arts and history/geography curricula. By the end of 4th grade, students have become proficient and independent readers who follow plot and characterization and begin to develop inference and critical interpretation skills. By 8th grade, students have read a substantial body of serious literary works, have discussed and analyzed a subset of

these works in detail, and have used multiple sources to synthesize information for research purposes.

Standard 3.5 *All students will view, understand, and use nontextual visual information and representations for critical comparison, analysis, and evaluation.*

Throughout the K-8 education program information is presented to students in media and formats which are not limited to language in print but include sound, pictures, graphs and charts, maps and globes, photographs, electronic images, etc. Students learn to understand and analyze messages presented in these multiple forms. In particular, museum visits, live performances, etc. are interspersed throughout the program at all grade levels.

Mathematics

Standard 4.1 *All students will develop the ability to pose and solve mathematical problems in mathematics, other disciplines, and everyday experiences.*

By the end of grade 4, PCS students have posed, explored, and solved problems using a variety of strategies, models, and tools. Problems are used to motivate concepts and provide practice and challenge in all the content areas. By the end of grade 8, students have developed strong problem-solving skills including the ability to use appropriate models, to select among multiple approaches, and to develop alternate strategies.

Standard 4.2 *All students will develop the ability to communicate mathematically through experiences which involve a variety of written, oral, symbolic, and visual forms of expression of mathematical ideas.*

Classroom activities are designed to develop students' skill in communicating mathematical ideas. By the end of grade 4, students are able to present a mathematical problem, strategy, and solution in a variety of forms to their class. By the end of grade 8, students are able to analyze, evaluate, and explain mathematical arguments. They use symbols and mathematical language as tools for understanding.

Standard 4.3 *All students will develop the ability to connect mathematics to other learning through experiences which focus on the interrelationships of mathematical ideas and the roles that mathematics and mathematical modeling play in other disciplines and in life.*

Students use mathematics to enhance their understanding of other subject areas. By the end of grade 4, students have used mathematics to compute the current in a simple circuit, to make a simple map, to find symmetries in art and nature, to check whether a bean plant grows faster in the sun or the shade, and to organize nutritional data they have collected. By the end of grade 8, students have applied mathematical models to deepen their understanding of the relationship between the length of a violin or guitar string and the pitch of the sound it makes, the risks associated with smoking, and the distance to the nearest star.

Standard 4.4 *All students will develop reasoning ability and will become self-reliant, independent mathematical thinkers through experiences which reinforce and extend their mathematical and logical thinking skills.*

Students learn how to judge the reasonableness of mathematical results. By the end of grade 4, students make estimates of the results of arithmetic operations, and justify their guess of how many beans are in a jar. By the end of grade 8,

students have used an opinion poll to make conjectures about the outcome of an election; proven an algebraic or geometric relationship by deduction or induction; and critiqued a conclusion reported about some data in the newspaper.

Standard 4.5 *All students will regularly and routinely use calculators, computers, manipulatives, and other mathematical tools in both instructional and assessment activities in order to enhance their mathematical thinking, understanding, and power.*

By the end of grade 4, students have regularly used counters and other manipulatives to promote understanding of numerical operations. They use calculators to check estimates and to compute such quantities as the mean of a set of data. They use technology to gather data and display mathematical information. By the end of grade 8, students use computer spreadsheets and graphing programs to display quantitative information. They use computers and calculators to investigate functions and their graphs.

Standard 4.6 *All students will develop number sense through experiences which enable them to investigate the characteristics and relationships of numbers, represent numbers in a variety of forms, and use numbers in diverse situations.*

Kindergarten and first-grade students use numbers for counts, measures, times, dates, and other common uses. Activities include counting up, counting down, and skip counting. Class activities with objects, measurement, and the number line help students develop a sense of the relative sizes of integers and of fractions. Students learn place value concepts through activities such as grouping objects and using number charts. As they progress through the lower grades, students work with fractions, decimals, and whole numbers, and learn equivalent representations of numbers. By the end of grade 4, students understand place values through many digits, and are able to compare and order integers, commonly used fractions, and decimals. By the end of grade 8, students extend their understanding of numbers to include rational numbers, percents, exponents, roots, absolute values, and scientific notation.

Standard 4.7 *All students will develop spatial sense through experiences which enable them to recognize, visualize, represent, and transform geometric shapes and to apply their knowledge of geometric properties, relationships, and models to other areas of mathematics and to the physical world.*

In Kindergarten through grade 4, students develop understanding of geometric concepts and spatial sense through work with solids, pattern blocks, templates, geoboards, and computer drawing tools. Students also learn basic geometric vocabulary. By the end of grade 4, students learn to make a perspective drawing of a simple solid; identify symmetries of geometric and natural objects; use transformations such as translation, rotation, reflection, and scaling to create geometric patterns; classify shapes by properties such as number of faces, edges, vertices, and lines of symmetry; use the scale on a map to determine a distance; use geometric measures such as length, perimeter, area and volume; subdivide complex figures into simple shapes; and use tessellations. By the end of grade 8, students characterize geometric figures using a minimum set of properties; are able to predict what the intersections of a plane with a cylinder, cone, or sphere would be; use geometric transformations; select the most efficient strategies for computing geometric measures; use the Pythagorean theorem to solve problems; draw geometric models to solve algebraic and scientific problems such as determining the height of an object from the length of its shadow using similar triangles.

Standard 4.8 *All students will develop an understanding of numerical operations through experiences which enable them to construct, explain, select, and apply various methods of computation, including mental math, estimation, and the use of calculators, with less emphasis on paper-and-pencil techniques.*

By the end of grade 4, PCS students have fluent command of arithmetic operations on whole numbers; apply arithmetic properties to solve problems; and use estimation to judge the reasonableness of solutions. By the end of grade 8, students extend their command of arithmetic operations to fractions, decimals, integers, and rational numbers; solve problems involving percents, proportions and ratios; and use correctly the standard algebraic order of operations.

Standard 4.9 *All students will develop an understanding of measurement and systems of measurement through experiences which enable them to use a variety of techniques, tools, and units of measurements to describe and analyze quantifiable phenomena.*

By the end of grade 4, students learn and use English and metric units for length, area, volume, weight, time, and temperature; recognize the need for standard units of measure; and use measurements extensively in science experiments. By the end of grade 8, students also learn the need for repeated measurements to improve precision; learn fundamentals of error analysis; test hypotheses by measurement and analysis; and understand how a change in an object's linear dimension(s) affects its measures of length, area, and volume.

Standard 4.10 *All students will develop an understanding of estimation through experiences which enable them to recognize situations in which estimation is appropriate, and to use a variety of estimation strategies.*

By the end of grade 4, students estimate the number of objects in a group or container without counting; estimate simple measurements; understand the usefulness of estimation in problem solving; and use estimates to judge the reasonableness of solutions. By the end of grade 8, they extend these skills to a wider variety of problems and numbers, including problems of social importance, such as total energy consumption in the U.S. or the rate of propagation of an epidemic.

Standard 4.11 *All students will develop an understanding of patterns, relationships, and functions through experiences which enable them to discover, analyze, extend, and create a variety of patterns, and to use pattern-based thinking to understand and represent mathematical and other real-world phenomena.*

By the end of grade 4, students construct, recognize, and extend simple geometric and arithmetic patterns such as plus 3, times 5, or the Fibonacci sequence; discover rules for patterns such as successive multiples of eleven; and use an equation with one variable to express a simple arithmetic pattern given in a table. By the end of grade 8, students represent mathematical relationships with tables, graphs, and equations; use functions to represent the dependence of one quantity on another; and use patterns and functions to solve problems.

Standard 4.12 *All students will develop an understanding of probability and statistics through experiences which enable them to systematically collect, organize, and describe sets of data, to use probability to model situations, and to make appropriate inferences and arguments.*

By the end of grade 4, students correctly use the terms possibly, probably, and certainly; determine the probability of a simple event such as the toss of a

coin, throw of a die, or result of a spinner spin; determine the mean and range of a data set; formulate a problem that involves collecting data; and organize data into bar graphs, circle graphs, and pictographs. By the end of grade 8, students recognize the difference between simple and compound events, and dependent and independent events; predict the outcome of an event; determine the probability of a compound event; conduct experiments to learn the difference between theoretical probabilities and actual outcomes; interpret probabilities as fractions, ratios, and percents; accurately and appropriately represent data in tables, charts, and graphs; determine the mean, range, mode, and median of data sets; and make and evaluate inferences based on data analysis.

Standard 4.13 *All students will develop an understanding of algebraic concepts and processes through experiences which enable them to describe, represent, and analyze relationships among variable quantities, and to apply algebraic methods to solve problems.*

By the end of grade 4, students represent an arithmetic relationship with an equation or inequality using a variable; translate between a number pattern expressed with objects or a table to a graph, rule, or equation; By the end of grade 8, students solve small systems of linear equations; express laws of probability in algebraic form; understand and use the rectangular coordinate system; use graphs to represent and estimate solutions of equations and inequalities; and use algebraic methods to solve word problems.

Standard 4.14 *All students will develop an understanding of the concepts and applications of discrete mathematics through experiences which enable them to use a variety of tools of contemporary mathematics to explore and model a variety of practical situations.*

By the end of grade 4, students classify and sort objects by attributes such as shape or color; determine the number of combinations through activities such as selecting a lunch from three sandwich and two beverage choices; figure out all possible routes from the classroom to the outdoors; write out instructions for multiplying out two-digit numbers. By the end of grade 8, students systematically determine the number of possible combinations, permutations, or arrangements in a variety of problems; use tree graphs; use a directed graph to represent a food web; and work with iterative and recursive processes such as compound interest.

Standard 4.15 *All students will develop an understanding of the conceptual building blocks of calculus, through experiences which enable them to describe and analyze how various quantities change, to build informal concepts of infinity and limits, and to use these concepts to model, describe, and analyze natural phenomena.*

By the end of grade 4, students investigate simple infinite series such as doubling, and understand rates of change such as speed and growth rate. By the end of grade 8, students approximate quantities with increasing degrees of precision and understand the concept of significant digits; recognize the difference between linear and exponential growth; explore geometric and arithmetic progressions; and understand that the grid size affects the precision of measurements.

Standard 4.16 *All students will demonstrate high levels of mathematical thought through experiences which extend beyond traditional computation, algebra, and geometry.*

All PCS students will be challenged and enabled to go as far mathematically as they can.

Science

Standard 5.1 *All students will learn to identify systems of interacting components and understand how their interactions combine to produce the overall behavior of the system.*

By the end of grade 4, PCS students have experimented with, thought about, and discussed simple systems such as pulleys and simple electrical circuits, and understand the roles of individual components, and the manner in which these components combine to form a working system. By the end of grade 8, students are able to analyze the properties of such systems using physical laws; students can calculate, for example, the mechanical advantage of a pulley system, or the current flowing in an electrical circuit. This understanding is tested and reinforced by hands-on experiments involving quantitative measurements.

Standard 5.2 *All students will develop problem-solving, decision-making, and inquiry skills, reflected by formulating usable questions and hypotheses, planning experiments, conducting systematic observations, interpreting and analyzing data, drawing conclusions, and communicating results.*

By the end of grade 4, PCS students have been presented with simple systems – such as a simple pulley system – for which they are asked to formulate a hypothesis or prediction concerning its physical behavior (*e.g.*, predicted mechanical advantage of a pulley system). The students plan and carry out experimental measurements to test their hypothesis, record the results, and prepare reports describing their observations and presenting their conclusions. By the end of grade 8, students have designed and carried out experimental or observational studies on a variety of systems, including mechanical, electrical, chemical, biological, and astronomical examples. Experimental findings are communicated using words, charts, graphs, pictures, and diagrams. Student reports demonstrate understanding of the role of experimental error, statistical uncertainty, and the role of control experiments.

Standard 5.3 *All students will develop an understanding of how people of various cultures have contributed to the advancement of science and technology, and how major discoveries and events have advanced science and technology.*

Curiosity is a central human trait; all historical cultures have formulated explanations for the natural phenomena surrounding us. What we refer to as science is an approach to understanding nature that relies on careful, systematic observation and measurement, the formulation of hypotheses (usually mathematical) to make quantitative predictions concerning natural phenomena, and – most importantly – the testing of these hypotheses by further experiment. By the end of grade 4, PCS students have read about several different scientists and inventors, in historical context. By the end of grade 8, students have learned about major events and people in the history of science.

Standard 5.4 *All students will develop an understanding of technology as an application of scientific principles.*

Students appreciate that modern technology has been made possible by the development of scientific understanding of natural phenomena, and how technology in turn supports further scientific progress.

Standard 5.5 *All students will integrate mathematics as a tool for problem-solving in science, and as a means of expressing and/or modeling scientific theories.*

A quantitative approach to science is stressed at PCS, with mathematics integrated naturally into the science curriculum. The level of mathematical sophistication progresses as the requisite mathematical tools and skills are acquired. By the end of grade 4, students use measuring instruments such as thermometers, rulers, graduated cylinders, and scales, and recognize the importance of the units of measurement; tables and graphs are used to represent data. By the end of grade 8, students are able to compute the mean and median for a set of experimental data, and have developed an informal understanding of how the precision of an experimental result can be improved by averaging repeated measurements.

Standard 5.6 *All students will gain an understanding of the structure, characteristics, and basic needs of organisms.*

By the end of grade 4, students have studied several examples of living things, with attention to their basic needs, different levels of organization, and roles in a food web. By the end of grade 8, students are able to describe the major categories of living organisms, identify different levels of organization of multicellular organisms, and explain the life cycles of organisms.

Standard 5.7 *All students will investigate the diversity of life.*

PCS students study the diversity, complexity, and interdependence of life on earth. By the end of grade 4, students are able to describe a simple classification system for grouping organisms. They recognize that individuals vary within every species, and can describe examples of external features of plants and animals that help them survive in varied habitats. By the end of grade 8, students are able to classify organisms by internal and external characteristics, illustrate how genetic variation results in the potential for variation among offspring, explain how genetic mutation can result in inherited changes among offspring, recognize that individual organisms with certain traits are more likely to survive and have offspring, and recognize how changing environmental conditions can result in evolution of a species.

Standard 5.8 *All students will gain an understanding of the structure and behavior of matter.*

PCS students study the states and properties of matter, how these can be understood in terms of matter being composed of atoms and molecules, and understand how this atomic model relates to the principles of chemistry. By the end of grade 4, students recognize that matter can exist as a solid, liquid, or gas, and can be transformed from one state to another by heating or cooling. By the end of grade 8, students are able to explain how substances can react with each other to form new substances with characteristic properties different from those of the original substances; know that commonly-encountered matter is made up of atoms that may join together to form molecules, and that the state of matter is determined by the arrangement and motion of the atoms or molecules; can explain how atoms are rearranged when substances react chemically, but that the total number of atoms and total mass of the substances remains unchanged in the reaction; and know that over 100 different atoms, corresponding to the same number of different elements, have been identified and can be grouped according to their similar properties.

Standard 5.9 *All students will gain an understanding of natural laws as they apply to motion, forces, and energy transformations.*

The basic principles of mechanical physics are studied at PCS, leading ultimately to the concept of energy. By the end of grade 4, students can understand that the

motion of an object is described by both speed and direction; demonstrate that the state of motion of an object can be changed by pushing or pulling, and that the amount of change is related to the strength of the push or pull; recognize that some forces are invisible and can act at a distance; understand that sound can be produced by vibrating objects, and that the pitch of the sound depends on the rate of vibration; investigate sources of heat and show how heat can be transferred from one place to another; investigate sources of light and show how light behaves when it strikes different objects; demonstrate how electricity can be used to produce heat, light, motion, and sound. By the end of grade 8, students can explain that the state of motion of an object which is subject to zero net force will remain unchanged; can show that when more than one force acts on an object at the same time, the forces can reinforce or cancel each other, resulting in a net force; investigate how the force of friction acts to retard motion; know that there are various forms of energy, including heat, light, sound, chemical, mechanical, electrical, and nuclear, and that energy can be transferred from one form to another; can explain how heat flows through materials or space from warmer objects to cooler ones; know that the sun is a major source of the earth's energy, and that the emission from the sun includes visible, infrared, and ultraviolet light; can explain how light is reflected, refracted, or absorbed when it interacts with matter, and how materials may appear colored as a result of this interaction; and can show how vibrations in materials can generate waves which can transfer energy from one place to another.

Standard 5.10 *All students will gain an understanding of the structure, dynamics, and geophysical systems of the earth.*

By the end of grade 4, students recognize and demonstrate the use of different kinds of maps; are aware of the different materials that make up the earth, including rocks, soils, liquids, and gases; understand the ways in which water moves from one place to another on the earth; collect and record weather data to characterize existing weather conditions, and recognize how those conditions affect our daily lives. By the end of grade 8, students can compare different map projections, and explain how physical features are represented on each; identify the major features of the earth's crust, the processes and events that change them, and the impact of those changes upon the biosphere, including people; identify the age of fossils, and explain how they provide evidence that life has changed through time; describe and explain the causes of the natural processes and events that have shaped the earth's surface and interior; monitor local weather conditions and changes in the atmosphere that lead to weather systems; discuss the composition, cycling, and distribution of the earth's oceans and other naturally occurring bodies of water.

Standard 5.11 *All students will gain an understanding of the origin, evolution, and structure of the universe.*

Students should learn about the place of the earth in the universe, the size of the universe, and the history of the earth and the universe. By the end of grade 4, students observe and identify celestial objects and their apparent motion in the day and night sky; relate the motions of the earth-sun-moon system to units of time (days, months, years); depict a model of the solar system; compare the different length scales in the solar system, including the diameters of the earth, moon, planets, and sun, and the diameters of the planets' orbits. By the end of grade 8, students are able to describe the physical characteristics of the components of the solar system, and compare the earth to other planets; explain how naturally

occurring events on earth (days, tides, seasons) are related to the positions of the sun, earth, and moon; describe some of the technologies used to explore the universe; discuss the distance to the nearest star, the size of our galaxy, the number of stars in our galaxy, and the distances to nearby galaxies.

Standard 5.12 *All students will develop an understanding of the environment as a system of interdependent components affected by human activity and natural phenomena.*

Students learn about the finiteness of natural resources, and about the ways in which both natural phenomena and human activity can affect the atmosphere, surface, and oceans of the earth. By the end of grade 4, students are able to discuss the interdependence of living things and their environment, explain how human activity affects the environment, recognize the distinction between renewable and nonrenewable natural resources. By the end of grade 8, students evaluate the impact of personal and societal activities on the local and global environment, and compare and contrast policies that affect the use and management of natural resources.

Social Studies

Standard 6.1 *All students will learn democratic citizenship and how to participate in the constitutional system of government of the United States.*

As students learn about the world's peoples and their history, they learn about different forms of government, including the government of the United States. By the end of grade 4, students have studied the Bill of Rights; participated in a voting process; and learned that the government taxes its citizens and businesses to provide such services as public schools, roads, and the protection of the people. By the end of grade 8, students learn about the three branches of the United States government: the executive, the legislative, and the judiciary. As part of their studies they examine the creation of a law of wide public interest and follow it through the legislative process.

Standard 6.2 *All students will learn democratic citizenship through participation in the humanities, including all forms of aesthetic expression.*

By the end of grade 4, students have read stories and viewed artwork from different historical and social settings all over the world. By the end of grade 8, students are able to analyze and interpret literature and art works from around the world.

Standard 6.3 *All students will acquire historical understanding of political ideas, forces, and institutions throughout the history of New Jersey, the United States, and the world.*

Standard 6.4 *All students will acquire historical understanding of societal ideas and forces throughout the history of New Jersey, the United States, and the world.*

Standard 6.5 *All students will acquire historical understanding of varying cultures throughout the history of New Jersey, the United States, and the world.*

Standard 6.6 *All students will acquire historical understanding of economic ideas and forces throughout the history of New Jersey, the United States, and the world.*

From Kindergarten through grade 3, students read and listen to stories set in many different times and places all over the world. In grade 4 students focus on the history of North America and of New Jersey in particular. In the course

of their studies, students develop appreciation for the similarities and differences among cultures, and a foundation for more formal study of the history, government, society, culture, and economy of different peoples. In grades 5 through 8, students pursue a chronological study of world history including the United States. By the end of grade 8, students are able to analyze and interpret politically significant historical events and their consequences; describe different societies, including their ethical values; discuss the arts and customs of different cultures and analyze their similarities as well as differences; describe different economic systems and their effects on the daily lives of people.

Standard 6.7 *All students will acquire geographical understanding by studying the world in spatial terms.*

Standard 6.8 *All students will acquire geographical understanding by studying human systems in geography.*

Standard 6.9 *All students will acquire geographical understanding by studying the environments and society.*

Students study the geography of a region concurrently with its history. By the end of grade 4, students use maps and globes to locate places and physical, biological, and human characteristics; understand the effects of geography on economic activity; and identify the consequences of natural and artificial changes in the environment. By the end of grade 8, students are experienced users of maps and other geographical representations; are able to compare and analyze demographic characteristics of populations; and learn about distribution and utilization of renewable and nonrenewable resources throughout the world.

World Languages

Standard 7.1 *All students will be able to communicate at a basic literacy level, orally and in writing, in at least one language other than English.*

Starting in 1st grade, PCS students learn to communicate in a language other than English. Conversational skills as well as reading and writing skills are taught.

Standard 7.2 *All students will be able to demonstrate an understanding of the interrelationship between language and culture for at least one world language in addition to English.*

By the end of 4th grade, PCS students learn about peoples who speak the language they study: their history, cultures, and arts. By the end of 8th grade, students analyze similarities and differences between their culture and that of the speakers of the language they study, using, for example, newspapers and literary works.