

THE CHARTER SCHOOL OF WILMINGTON

**A Proposal to Establish a Math/Science Charter School
at Wilmington High School**

**Presented to the Board of Education
Red Clay Consolidated School District
October 30, 1995**

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REQUEST FOR CHARTER

In accordance with provisions of the "Charter School Act of 1995", signed by Governor Carper on July 10, 1995, approval is hereby requested from the Red Clay Consolidated School District Board of Education to grant a charter to operate The Charter School of Wilmington beginning July 1, 1996.

We believe the information in this charter application satisfies the requirements of Title 14, Chapter 5, Section 512 of the Delaware Code (Approval Criteria). We recognize that there are other important items to be addressed -- for example, transportation, admissions, staff qualifications, and timing. We expect to address these and other issues in the weeks and months ahead and will discuss our plans with the Red Clay Board as those plans develop.

We also emphasize that in many cases the material included in this proposed charter is a starting point. One major benefit of charter status is flexibility and the capacity to adapt quickly to new learnings. Thus, for example, while we start with a mission, goals, and curriculum that are already innovative and ambitious, we will evaluate them regularly and improve as time goes by.

Respectfully submitted.

Bell Atlantic (Delaware)

Thomas Jarrett

Hercules, Inc.

David T. Blake

Dr. Richard H. Mumma

Teachers

Beenu Gupta

Larry L. Heath

Delmarva Power

Donald E. Cain

John W. Land

Medical Ctr. of Delaware

Robert S. Bell

Philip C. Wescott

Community

Guizelous O. Molock, Sr.

DuPont Company

Dr. John W. Collette

Nancie S. Johnson

Vernon R. Rice

Richard A. Straitman

Zeneca Inc.

Patricia J. Preston-Tylee

President of Charter School

Ronald R. Russo

Parents

Russell L. Fiske

Cheryl R. Johnson-Parker

THE CASE FOR A MATH/SCIENCE CHARTER SCHOOL

A Changing, High-Tech World Requires Better Prepared High School Graduates

Today's world, not to mention that of the fast-approaching twenty-first century, is increasingly affected by new and sophisticated technologies. Jobs that once required little more than the most basic of skills and a reasonable work ethic now require analytical and quantitative skills, along with the ability to reason and solve problems. In many cases jobs that once required a high school education now require at least two years of higher education or technical training.

Thus, whether high school graduates attend college or immediately enter the work force, their success depends more than ever on their educational preparation. To compete for a decent job, or successfully function as a citizen in our society, everyone needs more preparation than he/she did a generation ago.

As major community employers, we see a rapidly increasing need for men and women who are well grounded in mathematics, science, and technology. For while we will continue to train employees in specific skills, employees cannot achieve the level of productivity needed unless they have a strong academic foundation and an ability and willingness to continue learning. The experience of the employers represented here is that too few of today's high school graduates possess these qualities.

To succeed in today's highly competitive, global marketplace, business must hire graduates with the best possible academic training. But the benefits extend well beyond the needs of business. Society will also benefit enormously from a highly skilled work force. And perhaps most important of all, well-educated students will have a better chance at rewarding and satisfying lives.

This Charter School Offers Many Benefits

Academic Excellence. Employing the highest quality faculty possible, the Charter School of Wilmington will combine an integrated, innovative, and rigorous math/science curriculum with a solid grounding in other traditional subjects such as English and social studies. Of the 24 credits that will be required for graduation, eight will come from required math and science courses while two more will come from math/science electives. (Most school districts require students to take a total of four or six math/science courses.) Students will also have the opportunity to participate in athletic and extracurricular activities.

Personal Responsibility. As spelled out in the "Principles and Beliefs" that accompany the statement of Mission and Goals, The Charter School of Wilmington will place great emphasis upon character development, accountability, and personal responsibility. Policies regarding academics, attendance, and discipline will be strictly enforced. Expectations regarding personal responsibility will be high. There will also be as much parent and community involvement as we can possibly engender.

Innovative Learning Techniques. The flexibility that goes with charter school status will permit The Charter School of Wilmington to take advantage of the most effective teaching techniques. How the school operates will be even more important than what it offers. Active and collaborative learning, teachers working as coaches rather than lecturers, contextual learning that relates academic content to real-world needs, and extra attention for students who need it -- these and other areas of emphasis will get the most from a dedicated professional faculty and from hard-working students.

There will be a strong emphasis on workplace exposure and technology. Students will have an opportunity to participate in internship programs while in school and during the summer. Visits to the facilities and laboratories of consortium members will help them understand the needs of employers and to relate their academic work to real-world applications. Corporate advisors will assist student organizations. We envision a computer lab networked with science labs and classrooms, with students linked to a multi-media center via the Internet. Under this vision, electronic mail will speed communications between school and home, and a distance learning center will expand educational experiences, possibly bringing some college instruction into the Charter School.

Parents, which the school recognizes as a child's primary educators, will be encouraged to participate actively in the school's activities -- as volunteers, guest presenters, and as leaders or helpers in school projects. An active parent association will act as a sounding board and provide input for school programs and policies.

Accountability For Results. The ultimate way in which The Charter School of Wilmington must distinguish itself is through results. Are our graduates prepared for college and/or technically demanding jobs? We will establish benchmarks of success that challenge students, parents, faculty, and staff to attain a level of achievement significantly beyond that found in the average public school. Faculty and staff will participate in an incentive pay program based upon measures of total school performance such as student achievement, parental satisfaction, employer satisfaction, and financial stewardship. Such indicators are the true tests of success and, along with the annual decision of parents and students to attend the school, will be our ultimate measure of accountability.

GOVERNANCE

QUALIFICATIONS OF ORGANIZERS

Approval Criterion A: The individuals and entities submitting the application are qualified to operate a charter school and implement the proposed educational program and the proposed board of directors includes representation from teachers and parents of students at the school and that certified teachers, parents, and community members were involved in the development of the proposed charter.

This application was prepared and is supported by a diverse group of local and multinational businesses and parents, teachers and community members.

Businesses

In July of 1995, the chief executive officers of six businesses with headquarters in the Wilmington area announced they would form a consortium to organize a mathematics and science charter school at Wilmington High School, building upon the existing Academy of Mathematics & Science. The consortium includes five for-profit corporations -- Bell Atlantic-Delaware, Delmarva Power, DuPont Company, Hercules, Inc., and Zeneca Inc. -- and one non-profit organization, The Medical Center of Delaware. Each of these companies has been active in promoting educational excellence for the youth of Delaware. In addition, each company is a major employer in the state and has a strong interest in an available work force whose members are well trained in mathematics and science, have a firm grounding in other basic study areas, and exhibit the character traits essential to productive employees; namely honesty, reliability, responsibility and discipline.

As the businesses began meeting in early September to organize the school, they requested that representatives from other groups -- including parents, teachers and other members of the community -- join them. The individuals who have participated in this effort are:

Bell Atlantic - Delaware

Thomas Jarrett, Manager - New Technology. Mr. Jarrett is a parent of a child in Christina School District, serves on a Technology Committee for Shue-Medill Middle School, and is active in several efforts to encourage the use of state-of-the-art technology in local schools. He is also a member of the State Frameworks Commission to set state standards for business education.

Delmarva Power

Donald E. Cain, Vice President-Administration. Mr. Cain is a parent of children who have attended private schools in Maryland and Delaware and the University of Delaware. He has served on the Board of Red Lion Church Academy and participated in other task force assignments. He has also held various positions in the management and support of parent-teacher relationships at private schools.

John W. Land, General Manager-Administrative Services. Mr. Land has taught at Ferris School for Boys, served as a counselor at Delaware Technical & Community College and Delcastle High School, and is a member of the Board of Trustees at Delaware State University.

DuPont Company

Dr. John W. Collette, Director - Scientific Affairs. Dr. Collette, the parent of three children who have attended Delaware public schools, has held numerous positions associated with the strengthening of mathematics and science education. He served as co-chair of the Delaware Mathematics Curriculum Framework Commission and on the leadership team of the Delaware Science Curriculum Framework Commission. He currently chairs a corporate effort supporting the introduction of a K-6 Hands-On Science Curriculum in Delaware's school districts.

Nancie S. Johnson, Vice President - State Government and Public Affairs. Ms. Johnson has held several positions in DuPont governmental affairs and has had long-time involvement with public education policy at the national and state level.

Vernon R. Rice, Associate General Counsel. Mr. Rice is the parent of six children who have attended schools in the Red Clay Consolidated School District and has been involved with several local schools in promoting the study of environmental science. He currently serves on the Advisory Board of the Academy of Mathematics and Science at the Wilmington High School.

Richard A. Straitman, Regional Public Affairs Manager. Mr. Straitman is the parent of a child in the Brandywine School District. He has worked with DuPont plants in several states on community relations programs designed to support and enhance local educational efforts.

Hercules, Inc

David T. Blake, Vice President-General Manager, Fibers Divisions. Mr. Blake is a parent of children who have attended public and private schools and serves on the Board of Directors of The Pilot School.

Dr. Richard H. Mumma, Director, Research Center. Dr. Mumma is a parent of children who have attended public and private schools, has participated in Parent Teacher Associations, and has taught organic chemistry at the college level.

Medical Center of Delaware

Robert S. Bell, Director of Government and Community Relations. Mr. Bell is a parent of two children who graduated from Delaware private schools and himself was active in fund-raising and parent associations at those schools. He also served on the Board of Advisors of Delcastle High School in the New Castle County Vocational-Technical School District.

Philip C. Wescott, Senior Vice President - Marketing, Public Affairs, Government and Community Relations and Volunteer Administration. Mr. Wescott is a parent of children who have attended public and private schools, has been an active participant in Parent Teacher Associations, has taught at the college level, and has been involved in various programs to promote business-school relationships.

Zeneca Inc.

Patricia J. Preston-Tylee, Vice President-Public Affairs. Ms. Preston-Tylee has three children and two step-children, one of whom graduated from high school in the Red Clay District. She has degrees in Journalism and Education, has taught in elementary schools, has been an instructor in journalism in postsecondary and adult education courses, and has served as a journalist covering educational matters.

Parents

Russell L. Fiske, Executive Director and Founder, Camelot: A School for Boys. Mr. Fiske is a parent of two children who have attended Wilmington High School, currently has a son at the Academy of Mathematics and Science at Wilmington HS, and has served in numerous parent teacher positions at that school. Mr. Fiske currently serves on the Advisory Board of the Academy of Mathematics and Science.

Cheryl R. Johnson-Parker. Ms. Johnson-Parker is a parent of two children enrolled in the Red Clay School District and serves as president of the Parent Committee for the Forum to Advance Minorities in Engineering (FAME). She holds an MBA degree and has taught in the public and private school systems at the junior high and college levels. She is employed by the DuPont Company.

Teachers

Beenu Gupta, certified teacher, currently teaches Biology in the Academy of Mathematics and Science, Wilmington High School.

Larry L. Heath, certified teacher, currently teaches global science at the Academy of Mathematics and Science, Wilmington High School.

Community

Guizelous O. Molock, Sr., Executive Director, Forum to Advance Minorities in Engineering (FAME). Mr. Molock has been active for several decades in educational matters in Delaware, including service as a principal and classroom instructor.

President of Charter School

Ronald R. Russo, President and Chief Educational Officer, Charter School of Wilmington.

Mr. Russo has served as a high school mathematics and science teacher and as Assistant Principal and Principal of Saint Mark's High School.

Board of Directors, The Charter School of Wilmington

It is contemplated by the organizers that the initial Board of Directors of the Charter School will be selected from the foregoing individuals. As soon as possible after the school is in operation, at least one teacher at the Charter School and at least one parent of a student at the Charter School will be elected to the Board.

Special Recognition

The organizers wish to acknowledge and express appreciation to several individuals who have provided assistance in developing this application. These include L. Charles Biehl, Dean of the Academy of Mathematics and Science, who has worked diligently to get the Academy off to a strong start and has provided valuable support to the organization; Paul Fine, Michael Ferguson and Kent Cashell of the State Board of Education and Department of Public Instruction, who have generously offered information and support; and several members of the Red Clay Consolidated School District, including Dr. Robert Simons, Dr. Gail Ames, and Robert Miller, who have provided valuable support and advice. Special recognition also goes to Lee C. Tashjian, Jr., former executive assistant to the Chairman of DuPont, who played a key role in advocating the charter school and in its early planning. Mr. Tashjian is now employed in California.

FORM OF ORGANIZATION

Approval Criterion B: The chosen form of organization, identified in the articles of incorporation and by-laws, or the membership agreement, conforms with the Delaware General Corporation Law.

The Charter School of Wilmington was incorporated on September 29, 1995 as a non-profit corporation pursuant to the provisions of the general corporation law of the State of Delaware. A purpose of the corporation, as stated in the Certificate of Incorporation, is to organize and run a charter school under the Charter School Act of 1995 (14 Del. C. §501 et seq.).

EDUCATIONAL COMPONENTS

MISSION, GOALS, AND EDUCATIONAL OBJECTIVES

Approval Criterion C: The mission statement, goals, and educational objectives are consistent with the description of legislative intent set forth in § 501 of this chapter and the restrictions on charter school operations set forth in § 506 in this chapter.

MISSION

To prepare a diverse student population for success in a fast-changing and highly demanding technological world -- by setting high expectations for academic achievement, maintaining an environment conducive to learning and character development, and emphasizing the development of analytical and quantitative skills through a concentration on math and science.

GOAL

To enhance the quality of public education in Delaware by developing a unique, model school that utilizes the most effective educational techniques and ensures equal educational opportunity, thus meeting the needs of students, the business community, and society.

PRINCIPLES & BELIEFS

We believe that a successful school is based on the following academic principles:

1. Students, parents, faculty, and staff share the belief that all students are unique, have individual strengths, and are capable of learning.
2. There is a close partnership with parents, who are a child's primary educators.
3. Both innovative and time-tested teaching methods, combined with improved measures of school performance and an integrated curriculum, maximize student achievement.
4. A solid foundation for success in today's world includes a full educational curriculum supplemented with broad analytical and technical skills.
5. Students must become committed to continuous, lifelong learning.

We believe that a successful school requires a positive learning environment:

1. All members of the school community are expected to model such character traits as honesty, integrity, excellence, leadership, accountability, responsibility, appreciation of cultural diversity, self-discipline, and respect for self and others.
2. All members of the school community are also expected to model good citizenship, teamwork, punctuality, reliability, and awareness of the external environment.
3. Students, parents, faculty, and staff care about each other.
4. Students reflect a diverse cross-section of the community but share the potential and desire to meet the school's academic and other expectations.
5. All community stakeholders -- parents, students, faculty, staff, business, colleges, and others -- commit themselves to the school's success.

EDUCATIONAL OBJECTIVES

Educational objectives appear in various sections of this report. These objectives include:

- Students who are technologically literate and able to understand and make use of computers and laboratory instruments.
- Students who are broadly educated in the humanities as well as math and science.
- Students who are able to communicate effectively, both verbally and in writing. And
- Students who are well prepared to succeed in college or on the job.

STUDENT PERFORMANCE GOALS & INDICATORS

Approval Criterion D: *The school has set goals for student performance and will utilize satisfactory indicators to determine whether its students meet or exceed such goals and the academic standards set by the State Board of Education. The indicators shall include the assessments required for students in other public schools, although the charter school may adopt additional performance standards or assessment requirements, and shall include timelines for the achievement of student performance goals and the assessment of such performance.*

The Charter School of Wilmington will adopt the student academic performance standards developed by the State's Curriculum Framework Commissions and approved by the State Board of Education. (These standards are listed in Appendix C.) It will also utilize the assessments currently being developed by the Department of Public Instruction to measure performance against these standards as part of the Charter School's overall student evaluation process.

The Charter School of Wilmington will establish goals that challenge students not only to *meet* State goals and standards but to *exceed* them. The school will establish targets -- for example, that students score significantly above the public school average on State and standardized tests and that all students achieve qualifying scores on entry-level employment tests before graduation. The same kinds of targets will be created for other forms of assessment -- for example, the percentage of Wilmington Charter School graduates enrolled in institutions of higher learning, employed, or serving in the armed forces as well as minimum acceptable levels of customer satisfaction.

As part of a balanced system of performance measurement that includes the State assessments, the Charter School of Wilmington will utilize the following types of accountability measures:

Academic Achievement

Assessment and evaluation are means to monitor student progress and increase the effectiveness of curriculum content and delivery. Good assessment practices also help identify student strengths and weaknesses and provide data for instructional planning.

Assessment and evaluation must take into consideration various learning styles and learning history. Thus, it is beneficial to utilize multiple assessment techniques, including written, oral, and demonstration formats. Classroom observation, formal tests, evaluation of homework, notebooks and journals, projects, group activity, and student portfolios -- all can be a valid part of the assessment process.

Written tests will include the following:

- **The Iowa Basic Skills Test** will be administered to entering students for placement purposes.
- **The California Achievement Test (CAT)** will be given to all Freshmen and Sophomores.

- **SAT Achievement Tests** will be given to College-bound Juniors and Seniors:

Workforce Preparation

While it is hoped that many graduates will pursue opportunities in higher education, every graduate should be immediately employable. Thus, we want to assess each student's potential employability while there is still time to affect it, and to follow each student's progress after graduation.

Therefore, we contemplate the following kinds of measurements:

- An entry-level **employment test** will be given to all Juniors. Those who do not pass will receive additional help and will take the test again in their Senior year.
- **Career surveys** will follow each student beginning at the end of their Senior year. These surveys will measure the level of positive placement in institutions of higher learning, employment, or participation in the armed forces. We will evaluate their progress one year later and, if possible, in subsequent years as well.

Customer Satisfaction

It is important to know how our stakeholders regard our performance. Thus, we will measure satisfaction with a variety of audiences. For example:

- A **Parent Opinion Inventory** and **Teacher Opinion Inventory** (or similar instruments) will provide data on parent and teacher satisfaction.
- Business surveys among Charter School consortium members and other area employers will determine the level of business satisfaction with Charter School graduates.

CORRECTIVE ACTION

Approval Criterion E: The school proposes a satisfactory plan for evaluating student performance and procedures for taking corrective action in the event that student performance at the charter school falls below such standards which are reasonably likely to succeed.

The indicators described above will help determine how students are faring in terms of academic progress and career potential. Those not doing as well as they can will receive extra help, as noted below:

- While any entering student may attend the summer program at the Charter School of Wilmington, such attendance will be required for students who demonstrate deficiencies which could hamper their success in the Freshman year. This decision will be made administratively on a case basis.
- During the course of the year, any student whose performance falls below acceptable levels as determined by internal (teacher prepared) or external assessments will receive tutoring assistance with peers, teachers, and/or business mentors. Such tutoring could take place in an extended day program.
- Students whose yearly cumulative performance is below acceptable standards will be assigned to an appropriate summer school program.

STRATEGIES AND CURRICULUM

Approval Criterion F: The school's educational program, including curriculum and instructional strategies, has the potential to improve student performance.

LEARNING STRATEGIES

The Charter School of Wilmington will use the following learning strategies to improve student performance.

1. The development of skills and competencies.

The Charter School of Wilmington will develop in its students scientific, mathematical, and **technological competencies** emphasizing skills that include analysis, application, evaluation, and synthesis. Using the latest technology available, students will develop strong research skills, skills in oral and written communication, scientific and mathematical reasoning, and other skills that can be applied to personal career goals. **Humanities** courses will round out the students' education.

2. The student as active participant.

The Charter School of Wilmington will help students work in an environment in which critical reasoning and effective communications are essential. Whenever possible, learning will take place through the **investigation** and **exploration** of topics generated through **problem posing** by the instructor. Students will make observations, generate and organize data, and pursue alternative problem-solving strategies to develop rigorous mathematical and scientific concepts.

The student will be an active participant in the learning process, with the teacher serving as facilitator and coach. The curriculum will be based on contextual learning and problem solving, with emphasis on student exploration and investigation of topics along with the use of effective communication, both written and oral. As an important part of the learning process, Senior level students will perform **independent research** as part of a **senior research project or thesis**, with the work being aligned as closely as possible with the students' goals and experiences while enrolled in the Charter School.

It's important to remember that not all student learning takes place in school. Education also takes place through such experiences as field trips and through homework, which not only reinforces classroom lessons but provides the opportunity for new knowledge and inquiry.

3. The relevancy of learning to life and to work.

For student learning to incorporate more realism and personal value, topics will be taught **contextually**, driven by the applications for which they are used. Thus, whether learning takes place in the classroom, laboratory, during a seminar, or at a job location, that experience will often be **hands-on** — using real information in real context to solve real problems related to the study at

hand. This will be reinforced through an integrated curriculum which demonstrates the strong link between math and science.

Students need to understand how what they learn in school will be used and why such learning is to their advantage. One way to do this is for students to participate in **internships** and **on-location experiences**. Such experience will be available, among other places, in the facilities of the businesses that are sponsoring this school. During students' tenure in the Charter School, particular attention will be paid to **career awareness** as a way to drive students' studies, as well as **career and academic counseling** to guide students in making decisions for further education and/or training following graduation.

4. The extensive use of technology.

It's important for students both to understand the role of technology and be able to use it. In all areas of curriculum, **appropriate technology** will be integrated into the teaching and learning process, including but not limited to mathematical modeling, computer simulations of complex, dangerous or unwieldy experiments and activities, extension of the curriculum, and remediation and tutoring.

We will also help students become comfortable with technology as a tool in their own lives. One goal is to make laptop computers available to Juniors and Seniors; another to provide a server in the library that allows access to software and multi-media twenty-four hours a day, seven days a week. Our intent is to assemble computer networks that enable student research, curriculum enhancement, exploration, and simulation in a variety of locations. We will also aim for data transmission capabilities that allow distance learning, Internet access, up and down-loading of text material, and access to the Charter School's computer facilities from remote sites such as students' homes. We also envision the day when parents and teachers will be able to communicate via Electronic Mail, a vehicle teachers can also use to assign work.

5. The importance of professional development.

To ensure a high level of quality in ongoing curriculum and teaching methodology, all members of the faculty will be involved in a continuous **professional development** process during as well as outside the school year. Curriculum development, strengthening of ties with local business and industry, and continued improvement of effective teaching and assessment will be guided by ongoing systematic inquiry. This approach will ensure the building of a collegial culture, sharing data-driven decision making.

GRADUATION REQUIREMENTS

The state of Delaware requires that students in grades 9 through 12, in order to graduate, shall accumulate a minimum of 19 credits. The Red Clay District requires 20 credits. The Charter School of Wilmington will require 24 credits, as follows:

- (1) 4 credits in English (1 for each grade -- 9, 10, 11, 12)
- (2) 4 credits in Mathematics
- (3) 4 credits in Science
- (4) 3 credits in Social Studies (Civics, U.S. History, and World History)
- (5) 2 credits in Foreign Language
- (6) 1/2 credit in Health
- (7) 1 credit in Physical Education
- (8) 2 credits in Math/Science electives
- (9) 3-1/2 credits in other electives
- (10) Community service of no less than 40 hours will be required for graduation.

Total: 24 credits

We regard these requirements as only a minimum education program. We recommend that students consider enrolling in a variety of additional courses to better prepare themselves for their post-graduate years.

CURRICULUM

Course requirements are described below. Descriptions of the ninth and tenth grade math and science curricula are contained in Appendix D. A complete list of course descriptions is contained in Appendix E. This innovative math/science curriculum was developed last year for Wilmington High School's Math/Science Academy and is consistent with the State's new Science Standards. At least initially, the curriculum in other areas will be that utilized currently at Wilmington High School. Where possible, we plan to share elective courses with the Phoenix Academy and the Banking and Finance Academy, both located at Wilmington High School, and with Wilmington High School itself.

COURSE REQUIREMENTS

All Ninth Grade Students

Integrated Mathematics I, II, or III
 Foundations of Technology
 Global Science I
 English 9
 Civics
 Foreign Language I
 Physical Education/Health or Elective*

All Tenth Grade Students

Integrated Mathematics II or III
 or Precalculus
 Computer Utilization
 Global Science II
 English 10
 U.S. History
 Foreign Language II
 Elective or Physical Education/Health

Pre-engineering Science and Mathematics

<u>Grade 11</u>	<u>Grade 12</u>
Precalculus or AP Calculus	Math Elective*
Development of Physics	AP Physics
AP Computer Science	Senior Research
English 11	English 12
World History	Practicum/Internship
Foreign Language III	Elective*
Elective*	Elective*

Pre-medical Sciences and Mathematics

<u>Grade 11</u>	<u>Grade 12</u>
Precalculus or AP Calculus	AP Statistics
AP Biology	AP Chemistry
Development of Physics	Senior Research
English 11	English 12
World History	Practicum/Internship
Foreign Language III	Elective*
Elective*	Elective*

Environmental Science and Mathematics

<u>Grade 11</u>	<u>Grade 12</u>
AP Statistics	Math Elective*
Precalculus or AP Calculus	Science Elective*
Science Elective*	Senior Research
English 11	English 12
World History	Practicum/Internship
Foreign Language III	Elective*
Elective*	Elective*

Specialized Science and Mathematics

<u>Grade 11</u>	<u>Grade 12</u>
Precalculus or AP Calculus	AP Statistics
Development of Physics	AP Science Elect.
AP Computer Science	Senior Research
English 11	English 12
World History	Practicum/Internship
Foreign Language III	Elective*
Elective*	Elective*

*Electives. Students will be encouraged to find places in their schedules for electives such as music, art, etc. Specialized electives for Grades 11 and 12, all of which have either mathematics or science prerequisites as listed in the course selection catalogue, are indicated below:

Pre-Engineering

Applied Physics
 Eng. Drawing/CAD
 Automation & Robotics
 Energy Systems
 Linear Algebra
 Applied Discrete Math
 Multi-variate Calculus
 Differential Equations

Pre-Medical

Microbiology
 AP Physics B
 AP Calculus BC
 Intro. Mgt. Science
 Linear Algebra
 Appl. Discrete Math
 Intro. Mgt. Science

Environmental Sciences

Energy Systems
 Ecology
 Environmental Chemistry
 Pollution Control Processes
 Envir. Field Operations
 Radiation Protection
 Applied Discrete Math
 Intro. Mgt. Science
 Mgt. Sci./Ops Research
 AP Biology/Chem/Physics

Specialized

AP Biology
 AP Chemistry
 AP Physics B/BC
 Eng./Arch. CAD
 Automation/
 Robotics
 Envir. Studies
 Diff. Equations
 Linear Algebra
 Intro Mgt Science
 Ops. Research

AT-RISK STRATEGIES

Approval Criterion G: The school's educational program sets forth strategies to be employed as it deems necessary to accommodate the needs of at-risk students and those needing special education services.

Students who are identified as being at-risk* will receive additional support in achieving the standards set for all Charter School students. In addition to utilizing all State funds provided for children with special needs, such as Chapter One funding. The Charter School of Wilmington will:

- Enroll entering at-risk students in the school's summer program to eliminate academic deficiencies which could hamper success in their freshman year.
- Provide at-risk students with tutoring assistance from peers, teachers, and/or business mentors.
- Offer extra help before or after regular school hours and/or during the summer.
- Work with community groups and agencies to obtain the best available professional assistance.
- Purchase special computer software which will be available in the computer lab.
- Purchase private services such as READS (Remedial Educational and Diagnostic Services).

The Charter School will make full use of all State and District resources which follow any special education student who attends the school.

* Students who are in danger of dropping out of school prior to graduation are considered to be "at-risk". By way of example only, such students might be at least one year older than the other students in their grade; they might have failed at least one course; they might not have participated in any extra-curricular activities; they might have abused drugs or alcohol; they might be economically disadvantaged; and so forth.

FUNDING AND ADMINISTRATION

ECONOMIC VIABILITY

Approval Criterion H: The plan for the school is economically viable, based on a review of the school's proposed budget of projected revenues and expenditures for the first three years, the plan for starting the school, and the major contracts planned for equipment and services, leases, improvements, purchases of real property, and insurance.

After extensive discussions with State and District personnel, and a review of all sources of revenue and expenditures, we have compiled three-year projections which are set forth below. During the early years, before we are able to benefit from economies of scale, we expect a budget shortfall. We will rely on contributions from the business consortium and such other sources as foundations and government grants to satisfy that shortfall. Beyond this operating shortfall, we expect significant start-up expenses, which will largely be borne by the business consortium.

We expect to contract with Wilmington High School for athletics and extracurricular activities as well as for utilities, for which we will pay a per-student fee. We expect to contract with outside vendors on maintenance items (on an as-needed basis) and on the leasing and maintenance of office equipment as well as on physical improvements. We plan no purchase of real property. Our insurance plans are discussed under "Potential Legal Liability."

The following Revenue and Expenses are based upon these enrollment projections:

ENROLLMENT PROJECTIONS			
	FY97	FY98	FY99
9th Grade	125	150	150
10th Grade	100	125	150
11th Grade	25	100	125
12th Grade	0	25	100
Totals	250	400	525

BUDGET WORKSHEET

Category	Year 1	Year 2	Year 3
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REVENUE

State Appropriations	958,563	1,655,163	2,141,197
Local Fund Transfers	497,885	828,481	1,130,876
Other	0	0	0
Consortium Contribution	200,000	80,000	0
TOTAL REVENUE	1,656,448	2,563,644	3,272,073

EXPENSES

Salaries/FTE

				FTE-1	FTE-2	FTE-3
Teachers	448,309	681,188	928,837	14	22.5	37.5
Principal/Administrative	129,821	127,920	173,037	2	2	3
Clerical	22,624	42,780	44,490	1	2	2
Custodial	0	0	0			
Other:						
Counselor	32,022	45,413	62,972	1	1.5	2
Media Specialist	16,012	30,275	31,486	0.5	1	1
Substitutes	0	20,000	25,000			

Other Employment Costs

Health Insurance	96,200	156,832	210,912
Pension	71,496	102,497	137,111
FICA	40,225	57,510	76,931
Medicare	9,407	13,450	17,992
Worker's Compensation	9,083	12,986	17,372
Unemployment Insurance	1,492	2,133	2,854
Other Benefits:			
Local Portion	306,732	478,351	639,892
Subtotal Personnel	1,183,423	1,771,335	2,368,886

Student Support

Transportation	92,482	153,890	210,060
Cafeteria	9,454	12,076	14,505
Extra Curricular	35,000	60,000	60,000
Supplies and Materials	19,000	30,000	34,000
Textbooks	30,000	60,000	11,297
Computers	0	0	0
Other:			
Drivers Education	14,556	24,220	33,061
Instructional Equipment	9,000	25,000	15,000
Subtotal Student Support	209,492	365,186	377,923

Admin/Opers Support

Insurance	3,000	4,992	6,814
Rent	1	1	1
Mortgage	0	0	0
Utilities	41,278	68,686	90,150
Maintenance	3,004	4,997	6,821
Supplies and Materials	8,000	10,000	12,000
Equipment Lease/Maintenance	1,500	3,996	1,622
Telephone/Communications	2,401	5,003	5,454
Accounting and Payroll	8,000	20,000	22,000
Printing and Copying	29,000	43,000	52,000
Postage and Shipping	15,000	20,000	22,000
Other:			
Food	3,138	10,000	12,000
Data Processing	10,577	17,603	24,027
Custodial Services	114,634	190,751	260,375
Equipment	20,000	15,000	5,000
Professional Services	4,000	13,094	5,000
Subtotal Admin. Support	263,533	427,123	525,264

TOTAL EXPENSES	1,656,448	2,563,644	3,272,073
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FINANCE AND ADMINISTRATION

Approval Criterion I: The school's financial and administrative operations meet or exceed the same standards, procedures, and requirements as a school district. If a charter school proposes to operate outside of the State's accounting, payroll, purchasing, compensation, pension and/or benefits systems, a specific memorandum of understanding shall be developed and executed by the charter school, the approving authority, the Budget Director and the Controller General to assure that the State's fiduciary duties and interests in the proper use of appropriated funds and as a benefits and pension trustee are fulfilled and protected, the State's financial reporting requirements are satisfied, and the interests of charter school employees are protected.

We are now in discussions with State and District personnel to determine the feasibility of using the State's accounting, payroll, purchasing, and pension and benefits systems and presently expect to utilize those systems. In the event we do *not* use these State systems, we will develop a memorandum of understanding as required under Criterion I.

POTENTIAL LEGAL LIABILITY

Approval Criterion J The assessment of the school's potential legal liability, and the types and limits of insurance coverage the school plans to obtain, are adequate.

An assessment of the charter school's potential liability is provided by the memorandum from Alfred J. D'Angelo, Esquire, included as Appendix A.

The Charter School of Wilmington plans to obtain the following insurance coverage:

a) Wrongful acts of employees, officers, etc.; automobile liability (for drivers education); and worker's compensation. Red Clay currently purchases insurance covering these risks, and the Charter School will seek to have Red Clay's coverage extended to the Charter School or will purchase such coverage directly.

b) Sports insurance programs. It is contemplated that Charter School students will participate in sports in the regular Wilmington High School sports program and that sports insurance purchased by Red Clay will cover such students.

c) Property damage on computers. Red Clay currently purchases limited coverage in this area. We will seek to have Red Clay's coverage extended to the Charter School or purchase such insurance directly.

Discussions are underway with Red Clay officials to insure coverage in each of the areas identified above. To the extent the Charter School secures coverage through Red Clay policies, it will reimburse Red Clay for the portion of premiums allocable to Charter School activities.

d) General loss or destruction of equipment, materials, etc. Risk of such loss in Delaware public schools is covered by the State of Delaware's self insurance program. The State has given assurance that all Charter School equipment and materials purchased with public funds will be covered under the state's self insurance program (see memorandum from Keith Barron, Appendix B). The school will evaluate exposure in this area as it begins operations and will purchase additional coverage if necessary.

e) Workers' Compensation. Discussions are underway with State Officials to determine whether Charter School employees will be state employees for workers' compensation purposes. If so, the current intention is to participate in the State Program. If not, coverage will be purchased separately.

STUDENT DISCIPLINE POLICY

Approval Criterion K: *The procedures the school plans to follow to discipline students and ensure its students' adherence to school attendance requirements comply with state and federal law.*

The Charter School of Wilmington will be operated on the belief that appropriate student behavior is as important to a productive, successful life as academic achievement. The Charter School's student discipline policy will be the framework within which effective learning takes place. That policy will apply during the regular school day, as well as at all school-sponsored or school-sanctioned activities. It is intended to promote respect for self and others and responsibility for one's behavior.

All students have an equal right to an education. Disorderly, disruptive conduct that interferes with student learning will not be tolerated. If attempts at counseling and discipline are unsuccessful, and after all due process has been observed, such behavior will become grounds for dismissal from the Charter School.

The Charter School will incorporate the Red Clay Consolidated School District 1995 Revised Student Code of Conduct by reference as a minimum standard of student behavior. We also intend to go beyond that policy and in so doing will be guided by the following philosophy:

Attendance - Promptness and attendance are important to the educational process and to the development of a healthy work ethic. Students must be present to learn and to develop good habits that will serve them well later in life. Absences, tardiness, and early dismissals should occur only for legitimate reasons. *Unexcused* absences will be dealt with immediately and directly. There must be a limit even in the case of *excused* absences -- medical appointments, illness, field trips, etc. -- and we will adopt and implement a policy in that regard.

PROPOSED SCHOOL CALENDAR

Since the Charter School of Wilmington will be renting space at Wilmington High School, the annual calendar -- including the number of school days (180), the length of the school day (7:50 a.m. to 2:20 p.m.), the beginning and ending date of the school year, as well as major holidays -- will be the same (at least initially) as that established by the Red Clay Consolidated School District.

Dress Code - Just as rules regulating behavior foster respect for who we are, rules regarding student attire recognize the need to respect where we are. Parents, students, and staff members will be solicited for input on the possible adoption of a school uniform or code. In any event, a student's attire must be modest and never (in the administration's opinion) disruptive, offensive, or indecent. Appropriate footwear must be worn at all times while outdoor clothing (coats, hats, etc.) are not to be worn in the building during the school day. Students who violate the dress code may be required to remain in the office or may be sent home until they comply. Since teachers and administrators serve as role models for students, there will be a dress code for them as well.

Substance abuse - Any involvement (possession, use, or sale) with drugs or alcohol during the school day or at school-sponsored or school-sanctioned activities is strictly forbidden and can result in expulsion. Such activity has no place in schools or businesses and is severely detrimental to the best interests of the student. In addition, Wilmington High School is a smoke-free facility, and smoking will not be permitted on school property.

Contract - To establish a clear understanding with parents and students of what behavior is expected, the school will design a contract for their signatures specifying the school's goals and student expectations.

HEALTH AND SAFETY

Approval Criterion L: *The procedures the school plans to follow to assure the health and safety of students, employees and guests of the school while they are on school property are adequate and that the charter school will comply with applicable provisions of Chapter 85 of Title 11 of this Code.*

The Charter School will comply with all state and local laws affecting health and safety and with applicable provisions of Chapter 85 of Title 11 of the Delaware Code. It will identify and review the policies and procedures in effect at other Red Clay high schools and adopt them as appropriate. It will also take advantage of the industrial safety expertise available from consortium companies, especially in regard to laboratory settings.

PEPPER, HAMILTON & SCHEETZ

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WRITER'S DIRECT NUMBER
(215) 981-4597

October 23, 1995

VIA FACSIMILE

Vernon R. Rice
Associate General Counsel
DuPont Legal
Wilmington, DE 19898

Dear Vernon:

At the request of yourself and with the approval of the Red Clay Board, I have reviewed the proposed Charter application, prior to submission, for the sole purpose of expressing an opinion concerning the assessment of the school's legal liability and the adequacy of its insurance coverages.

The proposed Charter School has the same legal liability as any other school operated under the authority of the Red Clay District. Thus the proposed Charter School would be responsible for and has proposed adequate insurance for the following acts:

- a. Wrongful acts of employees, officers, director;
- b. Automobile liability and worker's compensation;
- c. General loss or destruction of equipment, materials, etc.

In addition, the Charter School is responsible for any contracts into which it enters including contracts between the Charter School and the Red Clay School District.

Sincerely,

Fred

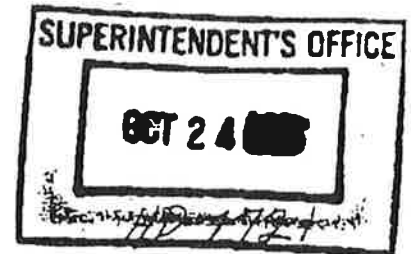
Alfred J. D'Angelo, Jr.

AJD:bl

Enclosure



STATE OF DELAWARE
EXECUTIVE DEPARTMENT
STATE PERSONNEL OFFICE
TOWNSEND BUILDING, P.O. BOX 1401
DOVER, DELAWARE 19903



OFFICE OF THE
DIRECTOR

Keith D. Barron, State Risk Manager
Debra Lawhead, Insurance Coverage Officer


INSURANCE COVERAGE OFFICE

TELEPHONE: (302) 739-4195

Phone: (302) 739-3651
Fax: (302) 739-3000

MEMORANDUM

TO: Michael Ferguson, Department of Public Instruction

FROM: Keith D. Barron, State Risk Manager 

SUBJECT: Insurance Coverage for Charter Schools

DATE: October 24, 1995

The schools receive state, local and private funding. They remain part of the district they are in, but are not governed by the traditional rules of the public schools. If the structures are owned by the State or District, the state property self-insurance would be responsible for covered losses. The state self-insurance program pays replacement cost for the structure and classroom contents. It pays actual cash value for the non-educational contents.

The districts do not enjoy sovereign immunity and purchase their own general liability coverage from local funds. Presumably the charter schools should be added to the district policy.

I do not know if the employees will be state employees! I assume they would be state employees and would be covered by the State Workers' Compensation. If that is not the case, then either the charter school would have to purchase separate compensation coverage, or there would have to be a decision made to cover them through the fund by legislation (similar to volunteer firemen).

If the schools have a separate governing board from the district board, you may want to consider an "Errors and Omissions" policy or a "Director's & Officers' Liability" policy.

Transportation by state buses would be covered by the state plan. Transportation by contract buses would be covered by the contractor's auto insurer. Ted Tull oversees the contractors.

Let me know what else you need.

KDB:mwl

Appendix C

STATE STANDARDS

SCIENCE

Standard #1 - Nature and Application of Science and Technology

The practice of science and the development of technology are critical pursuits of our society. These pursuits have involved diverse people throughout history and have led to continuous improvement in the quality of life and in our understanding of nature. Therefore, students should understand the processes of scientific inquiry and technology development and the history and context within which these have been carried out.

Standard #2 - Materials And Their Properties

Materials exist throughout our physical world. Therefore, it is essential that students develop a basic understanding of the nature of materials, their structure, and their properties. They should also experience and learn the processes by which materials are changed and how the uses of materials are related to their properties.

Standard #3 - The Fundamentals, Effects And Applications of Energy

Energy flowing between objects, between different parts of the biosphere and from one part of the universe to another drives the continual processes of change occurring throughout all physical systems (biological, chemical, geological). Energy is also essential to society to improve the productivity of work and the quality of life. Therefore, students should understand the fundamentals of energy and the laws which govern the force and motion of objects.

Standard # 4 - Earth's Dynamic Systems

Changes in the systems of Earth are part of everyday life. Therefore, students should understand the components of Earth's dynamic systems and the changes that result from interactions among these components - the atmosphere, lithosphere, hydrosphere, biosphere, and cryosphere.

Standard #5 - Earth In Space

The Earth system is part of the solar system that exists within a vast universe. Students should understand that across the universe, chemical composition of materials is identical and the same laws of science apply, even though the distributions and types of materials will differ from planet to planet. The Earth's motion and position relative to the sun and the moon are unique among planets of the solar system, which allows diverse forms of life to be supported on Earth.

Standard #6 - Life Processes

Students should understand how living organisms use matter and energy to build their structures and conduct their life processes. They should also learn the mechanisms and behaviors used by living organisms to regulate their internal environments and to respond to changes in their surroundings. They should also learn that knowledge about cell processes can be applied to improving human health and well-being.

Standard #7 - Diversity And Continuity Of Living Things

Students should understand how living things reproduce, develop, and transmit traits and how theories of evolution explain the unity and diversity among the vast array of species found on earth. Students should also understand how knowledge of genetics, reproduction, and development is being applied to improve agriculture and human health.

Standard #8 - Ecology

Students should acquire a basic understanding of the structure of ecosystems and how they function and change. They should know that organisms are linked to one another and the physical environment by the flow of energy and the cycling of materials. They should recognize that humans are an integral part of the natural system and that humans' activities can alter the stability of ecosystems. Students should also understand that humans can apply scientific and technological knowledge about ecosystems in making informed decisions about the use of natural resources.

MATHEMATICS

Standard # 1

Students will engage in **problem solving** as the core of the entire mathematics program. Problem solving provides the context in which concepts and skills are introduced and learned; requires the application of a variety of strategies; develops persistence, self-reliance and confidence; integrates mathematical reasoning, communication and connections, and emphasizes the process that could lead to a reasonable solution.

Standard #2

Students will develop their ability to **communicate mathematically** by solving problems in which there is a need to obtain information from the real world through reading, listening and observing; to translate this information into mathematical language and symbols; to process this information mathematically; and to present results in written, oral and visual formats.

Standard #3

Students will develop their ability to **reason mathematically** by solving problems in which there is a need to investigate significant mathematical ideas in all content areas; to justify their thinking; to reinforce and extend their logical reasoning abilities; to reflect on and clarify their own thing; to ask questions to extend their thinking; and to construct their own learning.

Standard #4

Students will develop their ability to make **mathematical connections** by solving problems in which there is a need to view mathematics as an integrated whole and to integrate mathematics with other disciplines, while allowing the flexibility to approach problems, from within and outside mathematics, in a variety of ways.

Standard #5

Students will develop an understanding of **estimation, measurement and computation** by solving problems in which there is a need to measure to a required degree of accuracy by selecting appropriate tools and units; to develop computing strategies and select appropriate methods of calculation from among mental math, paper and pencil, calculators or computers; to use estimating skills to approximate an answer; and to determine the reasonableness of results.

Standard #6

Students will develop **number sense** by solving problems in which there is a need to represent and model real numbers verbally, physically and symbolically; to use operations with understanding; to explain the relationships between numbers; to apply the concept of a unit; and to determine the relative magnitude of real numbers.

Standard #7

Students will develop an understanding of **algebra** by solving problems in which there is a need to progress from the concrete to the abstract using physical models, equations and graphs; to generalize number patterns; and to describe represent and analyze relationships among variable quantities.

Standard #8

Students will develop **spatial sense** and an understanding of **geometry** by solving problems in which there is need to recognize, construct, transform, analyze properties of, and discover relationships between, geometric figures.

Standard #9

Students will develop an understanding of **statistics** and **probability** by solving problems in which there is a need to collect, appropriately represent, and interpret data; to make inferences or predictions; to present convincing arguments; and to model mathematical situations to determine the probability of events.

Standard #10

Students will develop an understanding of **patterns**, **relationships** and **functions** by solving problems in which there is a need to recognize and extend a variety of patterns; and to analyze, represent, model, and describe real-world functional relationships.

ENGLISH LANGUAGE ARTS

Students in Delaware public schools, using the processes of effective readers, writers, listeners, viewers and speakers will be able to:

Standard #1

Use written and oral English appropriate for various purposes and audiences.

Standard #2

Construct, examine and extend the meaning of literary, informative and technical texts through listening, reading and viewing.

Standard #3

Access, organize, and evaluate information gained through listening, reading and viewing.

Standard #4

Use literary knowledge accessed through print and visual media to connect self to society and culture.

SOCIAL STUDIES

History organizes events and phenomena in terms of when they occur. Students study the ways in which individuals and societies have changed and interacted over time. They practice the skills of gathering historical data, and examining, analyzing, and interpreting these data. They learn to organize events through chronologies, and to suggest and evaluate cause-and-effect relationships among those events. Before choosing a position or acting, citizens need to be able to research issues in order to understand the effect of historical developments and trends on contemporary events. The study of history empowers them to form reasonable conclusions about the potential consequences of available options.

History Standard #1

Students will be able to employ chronological concepts in analyzing historical phenomena. [Chronology]

History Standard #2

Students will be able to gather, examine, and analyze historical data. [Analysis]

History Standard #3

Students will be able to interpret historical data. [Interpretation]

History Standard #4

Students will develop historical knowledge of major events and phenomena in world, United States, and Delaware history. [Content]

Citizens should possess a knowledge of geography and an ability to apply a geographical perspective to life situations. All physical phenomena and human activities exist in space as well as time. Geography studies the relationships of people, places, and environments from the perspective of where they occur, why they are there, and what meaning those locations have for us. Citizens with the knowledge and perspectives of geography understand the environmental and human processes that shape the Earth's surface, and recognize the culturally distinctive ways people interact with the natural world to produce unique places. An appreciation of the nature of their world and their place in it will better prepare citizens for a physical environment more threatened and a global economy more competitive and interconnected.

Geography Standard #1

Students will develop a personal geographic framework, or "mental map," and understand the uses of maps and other geo-graphics. [Maps]

Geography Standard #2

Students will develop a knowledge of the ways humans modify and react to the natural environment. [Environment]

Geography Standard #3

Students will develop an understanding of the diversity of human culture and the unique nature of places. [Places]

Geography Standard #4

Students will develop an understanding of the character and use of regions and the connections between them. [Regions]

Integrated Mathematics I

This course is the foundation of a three year integrated mathematics program. It provides the student with skills and knowledge for problem solving in algebra, geometry, probability and statistics. Emphasis throughout the integrated curriculum is on problem solving, use of appropriate technology, and working in a cooperative environment.

Upon completion of Integrated Mathematics I, from each of the listed domains, the student will be able to:

Algebra

- work with exponents, the related notation, and the meaning;
- write and evaluate algebraic expressions;
- work with scientific notation for estimation and computation;
- solve linear equations of various types;
- represent and work with functions in a variety of settings;
- work with various relations using direct variation;
- use dimensional analysis as a problem solving tool;
- model linear growth and decay;
- work with graphs of linear functions in two variables;
- work with systems of linear equations and inequalities;
- work at an elementary level with quadratic expressions;
- use factoring, graphing and the quadratic formula in appropriate settings;
- solve a variety of problems using appropriate modeling and algebraic tools.

Geometry

- work with polygons and their properties, including perimeter and area;
- work at an elementary level with coordinate geometry;
- work with sine and cosine right triangle ratios;
- work with Pythagorean Theorem for problem solving;
- work with surface area and volume of various spatial figures;
- demonstrate understanding of reflections, transformations, and symmetry.

Probability and Statistics

- use matrices and graphs to represent data;
- use histograms, frequency tables and stem plots to display and interpret data;
- choose an appropriate graphic for data display;
- generate and interpret scatter plots;
- work with the elementary rules of probability.

Integrated Mathematics II

This course continues the development of topics introduced in Integrated Mathematics I, with continued emphasis on the relationships between various components of mathematics, and working in a variety of problem solving situations.

Upon completion of Integrated Mathematics II, from each of the listed domains, the student will be able to:

Algebra

- demonstrate an understanding of the notion and application of inductive and deductive reasoning as problem solving tools;
- work with growth and variation models, including linear (direct and inverse) and inverse square relationships;
- solve systems of equations using various methods;
- work at an elementary level with discriminants and complex numbers;
- solve quadratic equations using a variety of methods;
- demonstrate understanding of matrix operations;
- work with distance, slope and midpoints from an algebraic perspective;
- work with elementary postulates and proofs relating to algebra;
- work with a variety of rational, cubic and parametric equations;
- work with systems of equations with three unknowns;
- use modeling to solve problems involving quadratics.

Geometry

- demonstrate understanding of inductive and deductive reasoning;
- demonstrate understanding of properties of quadrilaterals;
- work with triangles and quadrilaterals in coordinate geometry;
- work with the notion of proof for angles, segments and parallel lines;
- demonstrate understanding of tautologies, including conditional statements;
- work with various properties and proofs for similar and congruent triangles;
- work with right triangles, including similarity, congruence and trigonometry;
- demonstrate understanding of coordinates and figures in three dimensions.

Probability and Statistics

- demonstrate understanding of various survey and sampling methods;
- work with basic counting rules, including permutations and combinations;
- demonstrate understanding of the concepts of probability and odds;
- work with elementary binomial distributions and the Binomial Theorem;
- solve a variety of problems involving probability.

Global Science I

This course is the first of a two year sequence in the integrated approach to the study of science and its societal applications, including life science, environmental science, chemistry and physics. Emphasis is on mastery of fundamental principles of conducting a scientific investigation using data extraction and analysis. Students will build their understanding of key concepts through hands-on investigations into real world problems.

Upon successful completion of Global Science I, the student will be able to:

- use the methods of scientific inquiry and data analysis to be a critical evaluator of scientific evidence;
- use appropriate tools of data representation to communicate results of scientific investigation;
- demonstrate understanding of the risks and benefits of technology and its effects on society and the environment;
- demonstrate understanding of the various structural models of matter and their historical development;
- demonstrate understanding of the relationships between matter and energy;
- demonstrate understanding of sources, forms and transformations of energy;
- demonstrate understanding of the structure of matter from the level of atoms to compounds, mixtures and solutions;
- demonstrate understanding of interactions of matter and energy in problems of force, motion and mechanics and the laws which govern them;
- demonstrate understanding of the fundamental chemical processes of living things;
- construct cellular models to demonstrate understanding of the nature and structure of cells;
- demonstrate understanding of the dynamics of multicellular relationships and body systems.

Global Science II

This course continues the development of science and its societal implications with continued emphasis on scientific investigation using data analysis and evaluation. Students will continue building understanding of key concepts by becoming "data critics" in a variety of real work problem contexts as they make the transition into more specialized areas of science. The course content expands to encompass a deeper level of understanding of the chemical, physical and biological concepts inherent to societal and environmental issues.

Upon successful completion of Global Science II, the student will be able to:

- demonstrate an understanding of how matter and energy interact to create such phenomena as the greenhouse effect and global warming;
- conduct investigations relating to the analysis of water and air quality;
- demonstrate an understanding of the structures and processes, including DNA, RNA and other nucleic acids and the roles they play in protein synthesis, reproduction and development;
- demonstrate an understanding of the role of genetics in heredity, diversity and evolution;
- demonstrate an understanding of the roles of nutrition and environmental considerations as they relate to body systems and human communities;
- extend the use of models to describe the molecular, atomic and ionic makeup of a variety of substances;
- use formulas and diagrams to explain and predict chemical reactions and molecular changes in a variety of substances;
- conduct investigations and analyses of properties and compositions of unknown substances to determine their makeup;
- describe the technology currently used in the chemical industry for analysis of materials;
- apply laws of physics and mechanics to real world problems such as effective and efficient transportation systems.

Course offerings and descriptions can be found in Appendix B.

(As already indicated, these courses will be incorporated with instructional strategies which place an emphasis on research, laboratory and study skills, oral and written communication, and application of scientific and mathematical concepts to personal and career situations. Training in critical reasoning skills will be achieved through analysis, application, evaluation and synthesis using classroom and laboratory investigations and projects.)

COURSE OFFERINGS AND DESCRIPTION

Theoretical and Applied Sciences

3090 Global Science I

1 Credit

This is the fundamental laboratory science course for students of the Charter School, integrating life science, environmental science, chemistry, and physics to analyze interactions between humanity and the environment. Emphasis is placed on active student involvement in the scientific inquiry into problems and challenges of the modern age.

Prerequisite: none

3190 Global Science II

1 Credit

This course completes the Charter School student's fundamental secondary science background in preparation to take more specialized science courses. Content includes fundamental structures and dynamics of matter and energy, living things, and earth in space. Emphasis on active student involvement follows methodology developed in Global Science I, extending the depth of investigations and moving toward procedures more closely approximating science in the field.

Prerequisite: a grade C or better in Global Science I.

3210 Advanced Placement (AP) Biology

1 Credit

This course is the equivalent of a full-year introductory college course designed to give the student understanding of those ideas which include molecules and cells, genetics and evolution, organisms and populations. The major emphasis of the course is on laboratory observations and experimentation.

Prerequisite: a grade of B or better in Global Science II and teacher recommendation.

3215 Microbiology

1 Credit

A laboratory based course emphasizing techniques necessary to identify and contrast various microorganisms - bacteria, fungi, viruses and algae; the role of microorganisms in human diseases will be fully studied. Extensive instruction in laboratory techniques will be employed.

Prerequisite: a grade of C or better in Global Science II.

3220 Advanced Placement (AP) Chemistry

1 Credit

This course is the equivalent to a full year introductory college course in chemistry with laboratory. Topics include those listed for chemistry above with a more stringent emphasis on empirical study and laboratory work.

Prerequisite: a grade of B or better in Global Science II and teacher recommendation.

3221 Analytical Chemistry**1 Credit**

An inductive approach to the teaching of chemistry is utilized in this laboratory science course. Experimentation precedes classroom discussion of concepts whenever possible, so that chemical theory is developed from laboratory observations. This approach allows students to employ the scientific method, and to better understand chemical concepts. Students learn spectroscopy, chromatography, and other analytical techniques.

Prerequisite: a grade of C or better in Global Science II.

3321 The Development of Physics**1 Credit**

A traditional college preparatory physics course, this course also touches on the history and philosophy of science. laboratory work and problem solving are included. In addition, this course surveys the basic topics of physics.

Prerequisite: a grade of C or better in Integrated Mathematics III.

3330 Advanced Placement (AP) Physics B**1 Credit**

Advanced Placement Physics B is a non-calculus college-level course which uses college level material. The pace is fast, and requires a good working knowledge of algebra, geometry, and trigonometry. The course is designed to prepare the student for the Advanced Placement Test. The topics are: dynamics, kinematics, momentum and energy conservation, statics, rotation, gravity, heat and the laws of thermodynamics, waves and their properties with sound and light as examples, static electricity, electromagnetism, optics, relativity, and modern and nuclear physics.

Prerequisite: a grade of B or better in Precalculus and teacher recommendation.

3331 Advanced Placement (AP) Physics C**1 Credit**

Advanced Placement Physics C is the foundation of physics for students majoring in engineering or physical sciences. The use in the sequence of topics is parallel to or preceded by courses that include calculus. Strong emphasis is placed on solving a variety of challenging problems, and some of the problem settings require calculus. Topics in the C course deal principally with mechanics, electricity and magnetism.

Prerequisites: a grade of B or better in Calculus, AP Calculus AB or BC and teacher recommendation.

3332 Applied Physics**1 Credit**

This is a physics course aimed at both the college prep and honors level student who has reasonable ability to manipulate formulas. Calculus is used in this course. The topics covered are: motion and mechanical energy (including the conservation laws of momentum and energy), heat and the laws of thermodynamics, properties of waves (and how this applies to the topics of light and sound), electricity and magnetism (plus some electronics), and an introduction to nuclear physics and those other topics usually referred to as "modern physics", such as relativity.

Prerequisite: a grade of C or better in Calculus, AP Calculus AB or AP.

7100 Engineering Drawing/C.A.D.**1/2 Credit**

This half-year course is an introduction to computer-aided drafting. The student will learn to operate a CAD system, and understand the application of computer graphics in industry.
Prerequisite: successful completion of Integrated Mathematics III.

7111 Architectural Drawing/C.A.D.**1/2 Credit**

This half-year course is a continuation of Engineering Drawing, with emphasis on skill development, industrial application and computer techniques. Students will concentrate on computer-aided drafting as it relates to their field of study.
Prerequisite: successful completion of Engineering Drawing/C.A.D.

7200 Principles of Automation/Robotics**1/2 Credit**

This half-year course will study the principles involved in the mechanical construction of automatically performing apparatus, commonly known as "robots". The computer is an integral part of the construction of these devices.
Prerequisite: successful completion of Integrated Mathematics III.
*modular unit courses for the environmental sciences.

3310 Energy Systems**1/2 Credit**

This course will use an engineer's perspective in utilizing various forms of energy to improve the quality of life of mankind. Energies such as heat, electricity, sound, and mechanical energy will be studied in reference to ways to control and measure their effects.
Prerequisite: a grade of C or better in Global Science II.

3311 Ecology**1/2 Credit**

This course is the study of interactions of plants and animals with one another and with their physical environment. Habitats, ecological succession, food webs and energy needs within an ecosystem will be studied in depth through experimentation, data collection and computer simulations.
Prerequisite: a grade of C or better in Global Science II.

3312 Environmental Chemistry**1/2 Credit**

This course investigates the chemical composition and chemical reactions which take place in our environment. Chemical cycles such as the carbon, hydrogen and nitrogen cycles will be explored as they interact with living and non-living components of the biosphere. Emphasis will be placed upon systematic modeling and simulation presented in an experimental format.
Prerequisite: a grade of C or better in Global Science II.

3313 Pollution Control Processes**1/2 Credit**

The effects of pollutants on the deterioration of our environment and related health problems as a result will be studied in depth. The course will focus on industrial pollutants and ways to minimize and abate them. Topics will include acid rain, air quality standards, water contaminants and metal contamination, such as lead poisoning. Extensive use will be made of computer generated models.

Prerequisite: a grade of C or better in Global Science II.

3314 Environmental Field Operations**1/2 Credit**

This course will involve students in field testing various environmental sites to determine population density and interactions between various species with the environment, predicting ecological succession, and monitoring the effects of pollution on the natural cycles of animals and plants. Data collection and analysis, along with models and simulations, will complete the investigation of pollutants and the effects of other threats to the environment.

Prerequisite: a grade of C or better in Global Science II.

3315 Radiation Protection**1/2 Credit**

Both natural and man-made radiation will be studied. The processes of fission, fusion and natural transmutation will be included in the course. The health effects of radiation or products of radiation such as radon, ozone, ultraviolet rays and exposure to nuclear fall-out will be explored.

Prerequisite: a grade of C or better in Global Science II.

Mathematics and Mathematical Sciences**# 1180 Integrated Mathematics I****1 Credit**

Designed as a prerequisite entrance to the Charter School and offered as part of the summer program, this course is the equivalent of introductory algebra and geometry. Topics include communicating mathematically, solving elementary equations by various methods, representing data using various methods, use of functions for problem solving, introduction to coordinate and transformational geometry, graphs of linear and quadratic equations, and investigation of planar and special figures.

Prerequisite: none

1280 Integrated Mathematics II**1 Credit**

This course is designed to follow Integrated Mathematics I or its equivalent. Topics include mathematical reasoning and data analysis, growth and decay models, systems of linear and quadratic functions, combinatorics, coordinate geometry, logic, and topics inherent to the study of Euclidean and spatial geometry.

Prerequisite: a grade of C or better in Integrated Mathematics I.

1380 Integrated Mathematics III**1 Credit**

This course completes the series of studies to prepare students for more advanced studies in mathematics. Topics include more advanced problem solving methods, methods and applications of proof, trigonometry, analysis of the complex number system, statistical and probabilistic models, linear programming, and advanced work with equations, functions and graphs.
Prerequisite: a grade of C or better in Integrated Mathematics II.

1419 Precalculus**1 Credit**

This course extends the development of algebraic functions, exponential and logarithmic functions, and the circular functions and their inverses. Additional topics include the elements of analytical geometry, with special attention given to plane and spacial coordinate geometry, conic sections, parametric equations, polar coordinates, sequences and series.
Prerequisite: a grade of C or better in Integrated Mathematics III or Géometry.

1430 Advanced Placement (AP) Calculus AB**1 Credit**

This course represents the equivalent of a college level calculus course, with emphasis on use of appropriate technology. Topics include elementary algebraic, trigonometric, exponential and logarithmic functions, limits, continuity, differential calculus with applications, and introductory integral calculus.
Prerequisite: a grade of B or better in Precalculus and teacher recommendation.

1431 Advanced Placement (AP) Calculus BC**1 Credit**

This course includes all the elements of Calculus AB as well as advanced topics in integral calculus and sequences and series. Emphasis will be on use of appropriate technology. Other topics include related rates, maxima and minima, curve sketching and polar coordinates.
Prerequisite: a grade of B or better in Precalculus and teacher recommendation.

1440 Advanced Placement (AP) Statistics**1 Credit**

This course is designed to be a non calculus based study of statistics and problem solving using statistical methods. Emphasis is on investigation, creation of models, and analysis of variables for drawing conclusions. This course is in the pilot stage; the first official examination is scheduled for spring 1997.
Prerequisite: a grade of B or better in Integrated Mathematics III.

1450 Differential Equations**1 Credit**

Studies include various types of differential equations including first order, higher order with constant coefficients, systems of linear differential equations, LaPlace transformations, power series solutions, and hypergeometric type equations. Appropriate technology will be extensively employed.
Prerequisite: a grade of B or better in Calculus, AP Calculus AB or AP Calculus BC.

1460 Linear Algebra

1 Credit

Students will study systems of linear equations, vector spaces, linear dependence, linear transformations and matrix representation, determinants, eigenvectors and eigenvalues, and a variety of applications, with use of appropriate technology.

Prerequisite: a grade of C or better in Calculus, AP Calculus AB, or AP Calculus BC.

1470 Applied Discrete Mathematics

1 Credit

This course is designed as an overview of the applications of discrete mathematics to complement the continuous mathematics studies which lead to calculus. Topics include graph theory (including paths, circuits, trees and networks), recursion and iteration (including fractal geometry), matrix representation and operations as discrete processes and mathematical modeling for problems from management, social and behavioral sciences.

Prerequisite: successful completion of Integrated Mathematics III or Geometry.

1471 Introduction to the Mathematics of Management Science

1/2 Credit

An introductory half-year course in mathematical sciences, with emphasis on problem solving strategies and methods to create and analyze models to solve complex problems. Topics include shortest path, circuit and minimum network problems, critical path analysis, flow networks, graphs and their applications. linear programming, computer-based numerical methods and Monte Carlo simulation.

Prerequisite: successful completion of Integrated Mathematics III or Geometry.

1472 Management Science and Operations Research

1/2 Credit

A more advanced half-year investigation of applied mathematical sciences. Topics include inventory modeling and cost optimization, probability models including queuing theory, Markov chains, stochastic inventory, survival analysis and epidemic models, quality control and decision-making under uncertainty.

Prerequisite: successful completion of Introduction to the Mathematics of Management Science.

1480 Multi-variable Calculus

1 Credit

An extension of the AP calculus experience to three dimensions, including analytic geometry and transformations. Appropriate visualization and modeling technology will be extensively employed.

Prerequisite: a grade of B or better in AP Calculus AB or BC.

Theoretical and Applied Computer Science

1880 Foundations of Technology

1/2 Credit

A required introductory technology course for all students of the Charter School, offered as part of the summer program prior to entry into the Charter School. Emphasis is on the effective use of technological tools in the study of mathematics and science. A laboratory approach to investigation and problem solving will include use of the computer and various appropriate mathematics and science software, scientific and graphics calculators.

Prerequisite: none

1881 Computer Utilization

1 Credit

An introductory course designed to give students insight into the structure of a computer system, with emphasis on problem solving and structured programming. Pascal is the major programming language utilized; skills relating to designing and running efficient programs for both mathematical and non-mathematical problems will be explored in an individualized format.

Prerequisite: a grade of C or better in Foundations of Technology.

1890 Advanced Placement (AP) Computer Science A

1 Credit

This course introduces students to the academic discipline of computer science and provides an enriched version of the Computer Utilization course. In addition to instruction in Pascal, experience with algorithms, design techniques, programming methodology, data structures, and procedural abstraction allow students to use this course as a foundation for structured problem solving.

Prerequisite: A grade of C or better in Integrated Mathematics III or Geometry and teacher recommendation; recommended corequisite: Precalculus.

1891 Advanced Placement (AP) Computer Science AB

1 Credit

This course contains all the elements from Computer Science A as well as more in-depth algorithm analysis, design and execution complexity and data structures involving pointers.

Prerequisite: A grade of B or better in Integrated Mathematics III or Geometry and teacher recommendation; recommended co-requisite: Precalculus.

Art Department

7070 Art I

.5 Credit

The introductory art course is a foundation course designed to enhance the ability of each student to understand a variety of media and techniques. This course will provide basic experiences in many forms of visual expression. The program will cover a variety of two-dimensional and three-dimensional design forms. Basic fundamentals of principles of design, composition, color, form and line will be studied. Study of Art history and arts and crafts of other cultures, will also be included. Students will be required to participate and finish assigned projects. Some homework and written testing will be part of the final grade.

7073 Art History-Artists and Their Styles (9-12)

.5 Credit

This is an introductory course to Art History. It is the first course in preparing students interested in museum curating and archeology. This will be a hands on history course, creating art while learning about different artist's lives and their work. If you like to look at art but hesitate to try on our own, this is the course for you. Some homework and written testing will be part of the final grade.

8081 2-Dimensional Art (10-12)

.5 Credit

The 2-Dimensional Art is designed to build upon the skills learned in Art I, as well as offering the student an opportunity to experience specific two-dimensional art forms. Students will study in-depth drawing, painting, print making and graphic design. Art history and study of other cultures will be included. Some homework and written testing will be part of the final grade. Prerequisite: Art I or teacher recommendation.

7072 3-Dimensional Art (10-12)

.5 Credit

3-Dimensional Art is designed to build upon the skills learned in Art I, as well as offering the student an opportunity to experience specific 3-dimensional art forms. They will study in-depth arts and crafts of other cultures, for example, African masks, Mexican pinatas, North American clay projects, South American weaving, jewelry making and sculpture. Some homework and written testing will be part of the final grade. Prerequisite: Art I or teacher recommendation.

7078 Portfolio (11-12)

1 Credit

Courses in the advanced level of high school are designed to meet the needs of those students with strong interests and abilities in the visual arts. Those students with particular interest in art as an avocation may refine specific skills within an area of concentration. Students who wish to enter post-secondary visual arts programs are counseled and instructed in portfolio development. Normal activities may be supplemented with trips to area art colleges, local galleries, visits by representatives of local art schools, and trips into the community of working artists. Exhibits of

student work will be held within the school and, when possible, in the community. Out of class assignments will be given. An emphasis is placed on the student's individual goals. Prerequisite: Art I, 2-Dimension and 3 Dimensional Art and instructor approved.

7074 Art-Global Approach (9-12)

.5 Credit

This course will increase students awareness of art forms created by artists of past and present cultures. Students will study art history, art criticism and aesthetics as well as creating art. Some homework and written testing will be part of the final grade.

Business Education Department

5070 Keyboarding

.5 Credit

Keyboarding is for everyone - a must for all students who are not enrolled in a year keyboarding class. The inputting and recording of keystrokes is called keyboarding. This prepares students with keyboarding skills that they can apply to typewriters, microcomputers, text editors, word processors, and computer terminals. Recommendation: follow this course with computer applications or a word processing course.

5072 Keyboarding/Document Formatting

1 Credit

This course prepares individuals to use an electronic/computer keyboard correctly for proficiency in producing personal and business documents. Keyboarding must be taken prior to enrolling in Document Formatting. Content includes mastery of keyboard and operative parts of the typewriter or computer; formatting manuscripts, reports, personal letters, business letters, tabulation, rough drafts, and many other business and personal formatting needs.

5076 Intermediate Keyboarding

1 Credit

A full year course emphasizes the use of an electronic/computer keyboard with importance placed on developing speed and accuracy as well as on advanced formatting skill development.

5078 Data Base Management

1 Credit

This course uses existing software to generate business/banking oriented data to standards required in the industry for establishing base-level information and storage/retrieval/updating of that information.

5094 Computer Software Applications for Business

1 Credit

This course prepares students to complete business applications using commercially available software packages. Emphasis is placed on using word processing, data base management and spreadsheets and will cover the numerous applications of the computer programs as they are adapted to various business situations.

5098 Document Processing (Sem I)**.5 Credit**

The use of keyboarding skills to input, edit, print, store, and retrieve information. Spelling, grammar, punctuation, sentence structure, editing and communication skills will be emphasized.

5099 Document Process (Sem II)**.5 Credit**

Reinforcement of skills and knowledge mastered in Micro. Info. Proc I. The use of advanced skills in WP 5.1 will be emphasized along with the use of graphics.
Prerequisite: MIP I (5098).

5121 Introduction to Accounting**1 Credit**

This course gives the student an understanding of important double-entry concepts which are embodied in manual, mechanical or electronic accounting systems. The concepts will be applied to Single Proprietorship accounting. Basic math is helpful in auditing of accounts. This course is helpful to college-bound students as well as the banking and business oriented student.

5122 Advanced Accounting**1 Credit**

This course is a continuation of Accounting I, primarily business oriented, offered to gain further insight into other forms of business organization and entries peculiar to specialized organizations. Variations of accounting used by partnerships and corporations.

5124 Computerized Accounting (Part I Sem I)**.5 Credit****# 5125 Computerized Accounting (Part II Sem II)****.5 Credit**

Part I Computerized Accounting incorporates the computer with manual accounting. This course is designed for students who have successfully completed Accounting I and are currently enrolled in Accounting II. The areas to be covered will include Ledgers, Journals, Accounts Payable and Receivable, Payroll and Cyclical Accounting as well as all financial statement analysis and preparation.

Part II Includes advanced applications of the General Ledger, accounts Payable/Receivable, Payroll and Financial Analysis through computer use.

5192 Principles of Business**1 Credit**

This course provides an overview of the free enterprise system and a study of the students' roles as participating citizens in the system. An understanding of the interdependency of the elements of the American business system is developed and career opportunities in the various fields of business are identified.

Drama

7020 Drama (9-12)

.5 Credit

The skills of acting for the theatre will be emphasized and will complement the English curriculum. Students will develop basic acting skills through theatre games, improvisation, voice and diction exercises and portrayal of characters in scenes and plays. This is a performing class with participation in several competitions and festivals.

Driver Education

The Driver Education program is designed to develop knowledge, habits, skills and attitudes necessary for the safe use of a motor vehicle on the streets and highways. Students attend at least 30 hours of classes during the year. They spend five or more hours behind the wheel of an automobile and five additional hours observing, during which time a great number of driving experiences are encountered.

The student also spends 10 hours in the Driver Education simulator.

Students are enrolled during their sophomore year. (A driver's license may not be issued to anyone who has not successfully completed a formal driver education course until the person is 18 years of age.)

8502 Driver Education - One quarter - 1st semester

.25 Credit

8506 Driver Education - One quarter - 2nd semester

.25 Credit

English Department

All students are required to take English 9, 10, 11 and 12. Only one of these courses may be taken each year unless special permission is granted. All students must confer with their English teacher concerning what level of English course should be selected.

0091 English 9 (Honors)

1 Credit

This course is designed for students who are reading above grade level and have a good foundation in grammar. The course content will include an in-depth study of grammar (including SAT practice tests), vocabulary, composition and literature. Independent reading and writing are required.

0092 English 9 (Academic)**1 Credit**

This course is recommended for students who have good reading ability and a basic foundation in grammar. Emphasis will be placed on grammar rules, spelling, vocabulary and the study of basic literary techniques and forms.

0093 English/Reading 9 (General)**1 Credit**

The emphasis on this course is on improving reading, listening, writing and speaking skills. Basic skills for writing correct sentences, paragraphs and letters are stressed. Reading materials are designed to improve comprehension and increase students' enjoyment of reading.

0101 English 10 (Honors)**1 Credit**

An in-depth program of grammar, composition, and literature, which encompasses several novels, and a Shakespearean play will be emphasized. Also stressed will be the study and preparation of the research paper.

0102 English 10 (Academic)**1 Credit**

The main goal will be to develop the students' skills at thinking and writing clearly and logically by offering an in-depth program in grammar, composition, and literature. Furthermore, the basics of how to write a research paper will be stressed.

0103 English 10 (General)**1 Credit**

Emphasis will be placed on basic writing skills, including grammar and composition, as well as on the study of basic literacy forms.

0111 English 11 (Honors)**1 Credit**

This course is designed for the academic and highly motivated students. The course content will include a survey of American writers. It will also include a Shakespearean play. A concentration on creative writing and a research paper will be included.

0112 English 11 (Academic)**1 Credit**

This course is designed to cover writers of the American period. It will also include concentration on reading and writing skills. Vocabulary will be stressed.

0113 English 11 (General)**1 Credit**

This course is designed to stress writing skills, grammar, reading skills, and vocabulary. There will be a strong emphasis on the mechanics of the English language.

0121 English 12 (Honors)**1 Credit**

This course is recommended to students of above average ability who have a good foundation in grammar. The emphasis of course content is on critical and analytical examination of literature, essay writing, group discussion and public speaking.

0122 English 12 (Academic)**1 Credit**

This course is recommended to students who have good reading ability and a basic foundation in grammar. This course includes literary interpretation of British literature, essay writing and vocabulary. A research paper is required.

0123 English 12 (General)**1 Credit**

The emphasis of this course is on practical writing skills and vocabulary. The focus of the study of literature will be to encourage and develop critical thinking skills.

SAT Preparation English/Math**# 0741 Fall (Grades 11-12)****.5 Credit****# 0742 Spring (Grades 10-11)****.5 Credit**

This course is offered to students as a review for the Mathematics/Verbal Section of the Scholastic Aptitude Test taken for college entrance. Workbooks, lecture, and computer software will be utilized along with peer tutoring and teacher assistance. Test-taking techniques will be practiced to develop the student's maximum efficiency when working on the exam. Sample tests will be provided. Please note: Seniors may only sign up for the fall.
Recommended: College bound juniors and seniors.

*Both SAT English and Math will be taught during the same semester. Students will spend shared time in both courses.

Prerequisite: Teacher recommendation.

Jobs for Delaware Graduates**#9201 Jobs for Delaware Graduates - 12th Grade****1 Credit**

This course is designed for students who wish to gain knowledge in the area of interviewing techniques, career exploration and preparation, resume writing, and all facets of employable skills.

There is a student organization, Delaware Career Association, which is integral to the course. Through this association, students are afforded the opportunity to demonstrate ability of leadership, social, and civic awareness. This program is geared to full time employment at graduation for targeted students. This course is for students who plan to work after graduation and are not planning to go to college and are not in any vocational programs (e.g., work experience) during their senior year.

Audio/Visual & Stagecraft

#6775 Stagecraft

.5 Credit

This course is an introduction to backstage work. Crew will be responsible for technical support of in-house productions; some job possibilities may arise. Enrollment only with the approval of instructor.

#6776 Audio/Visual Drew

1 Credit

This course involves the distribution, collection, and routine maintenance of audio-visual equipment. Enrollment only with approval of instructor.

Music Department

#7677 Concert Choir

1 Credit

Concert Choir is open to all students, although an initial audition is necessary. While preparing music of all styles, the concentration is on vocal, as well as basic musical growth and development. Concert choir takes several trips each year to represent the school. Admission by audition only.

#7679 Chamber Ensemble

1 Credit

Chamber Ensemble participation requires the approval of the choral director. Music composed especially for smaller choral ensembles, from Renaissance Madrigals to Contemporary popular music, is performed with an emphasis on development of vocal, basic musical, and occasionally dancing skills. Admission by audition only.

#7872 Band

1 Credit

This course is composed of marching band, which performs at football games, competitions, and parades (predominantly in the fall, but some spring performances) and concert band, which performs during the winter and spring in various concert situations. Attendance at marching band camp (the last 2 weeks of August) is mandatory.

#7873 Band Front**1 Credit**

This course is for any student who has auditioned and been selected for the band from i.e., the twirling corps of the marching band. Attendance at band camp (the last 2 weeks of August) is mandatory.

#7877 Jazz Ensemble**1 Credit**

This is a performing instrumental musical ensemble which deals with jazz and its related form throughout various periods of time. **PREREQUISITE:** Be a member of the marching/concert band, unless you play guitar or piano (then admission by audition only).

#7893 Music Theory	- Semester	.5 Credit
#7894 Music Theory II	- Semester	.5 Credit
#7895 Music Theory III	- Semester	.5 Credit
#7896 Music Theory IV	- Semester	.5 Credit

These courses are designed for the serious music student who wants to know how music works. By utilizing both the mind and the ear, the student will become a better musician and listener, as one begins to understand the art of music.

Physical Education Department

One credit in Physical Education is required of all students for graduation. The credit must be earned in the mandatory ninth and tenth grade classes: **TEAMS SPORTS (8203)** and **INDIVIDUAL SPORTS (8201)**. The courses are designed to acquaint students with the skills necessary to enjoy the activity in class and on a recreational basis. Fitness related activities will be conducted on a regular schedule each week. Each course is 1/2 credit. **ALL STUDENTS TAKING THE REQUIRED CLASSES ARE ADVISED THAT THEY MUST EARN ONE-HALF CREDIT IN PHYSICAL EDUCATION IN ORDER TO BE PROMOTED TO THE ELEVENTH GRADE. STUDENTS WILL BE GIVEN ONLY ONE OPPORTUNITY EACH YEAR TO TAKE THESE COURSES. ANY STUDENT WHO HAS NOT SUCCESSFULLY COMPLETED THE REQUIRED COURSES AFTER BEING SCHEDULED TWICE WILL BE REQUIRED TO COMPLETE THE COURSES IN SUMMER SCHOOL**

#8072 Health - One Semester**.5 Credit**

Health is required for graduation. The course is divided into nine major units: Mental Health; "Here's Looking at You, 2000" (Drug Education); Nutrition/Physical Fitness/Health Maintenance; Physical Handicaps; Aging/Death/Dying; Family Living; First Aid (including CPR); Public Health/Environmental Issues. Red Cross Certification in standard first aid is available for those who qualify.

#8103 Required Ninth Grade Physical Education

.5 Credit

#8105 Required Tenth Grade Physical Education

.5 Credit

ELECTIVES

STUDENTS MAY ONLY TAKE ELECTIVE COURSES AFTER COMPLETING THE REQUIRED COURSES. Students may add to their skill level in an area which is of particular interest to them. When several activities are listed, the course will be divided equally among them. Each elective course is 1/2 credit.

#8201 Individual Sports

.5 Credit

Archery, badminton, golf, racquetball, swimming, table tennis and tennis are among the activities offered. Instruction and competition will be featured.

#8203 Team Sports

.5 Credit

Basketball, soccer, street hockey, and softball will be included, as well as other team sports. Class work will concentrate on team play and offensive and defensive strategies.

#8205 Weight Training I

.5 Credit

Use of weight machines and free weights in an individually designed program of weight lifting three days each week. Swimming or other aerobic activity twice each week.

#8207 Weight Training II

.5 Credit

May be taken only after successful completion of 8205.

#8210 Swimming

.5 Credit

Instruction and recreational swimming. Open to non-swimmers as well as more advanced swimmers. Individualized program of instruction.

#8310 Life Guarding - First Aid

.5 Credit

Successful completion of the course leads to an American Red Cross Life Guard certificate which is required for employment at pools. **PREREQUISITE:** Must be at least fifteen years old. Swim test prior to scheduling. Students are required to purchase Red Cross course materials. They are necessary for future reference and employment as a Lifeguard.

Remedial Phys Ed 9

Remedial Phys Ed 10

The Remedial Physical Education 9 and 10 classes are designed for upper classmen who did not satisfy one of the requirements during grades 9 and 10.

Social Studies Department

The Social Studies program is designed to allow a student to select from both required and elective courses. All students must have three (3) credits in Social Studies in order to graduate. All students must take Civics (9th) and U.S. History (10th) and World History (11th).

It is recommended that students take courses consistent with their career plans.

Recommended Courses Sequence:

Honors

Civics
10th U.S. History
11th World History
12th American Government and Economics

Academic

Civics
10th U.S. History
11th World History
12th American Government and Economics

#2091 Civics 9 (Honors)

1 Credit

This course is designed for the strongly academic and highly motivated students. The course content will include a study of economics, geography, and the American political and social system. Students must write at grade level or higher, be capable of in-depth investigation and possess the desire for knowledge.

PREREQUISITE: "B" Average and teach recommendation.

#2092 Civics 9 (Academic)

1 Credit

This is a study of the basic American economic, political, and social system, which will give students a solid foundation for further study in the social sciences. Consumer Economics and current issues will be stressed. There will be independent research and group work.

#2093 Civics 9

1 Credit

This is a study of the basic American economic, political, and social system which will give students a solid foundation for further study in the social sciences. The course will also include Consumer Economics and current issues. Emphasis will be placed on individualized instruction.

#2101 World History 10 (Honors)**1 Credit**

This course is designed for strongly academic and highly motivated students. The content includes a study of European civilization with emphasis on the Fertile Crescent, Greece, Rome, Middle Ages, and the Renaissance. The course will stress the use of primary sources and individual research. Students taking this course must read and write at grade level or higher, be capable of in-depth investigation, and possess the desire of knowledge.

#2102 World History 10 (Academic)**1 Credit**

A survey of Western civilization is presented. Units such as the Fertile Crescent, Egypt, Greece, Rome, Middle Ages, and the Renaissance are studied. The development of skills in doing research and writing short reports are stressed. The course is open to all students pursuing a college preparatory course.

#2103 World History 10**1 Credit**

This course reviews basic map skills and stresses the development of social science skills. The study of current events and geography is interwoven by use of newspaper and weekly news publications.

#2110 U.S. History (Advanced Placement)

This course is designed for the serious academic student who is interested in participating in a College level course with the opportunity to take a test and receive college credit. Students should be prepared for an intense study of subject material. Prior teacher approval is required.

#2111 U.S. History 11 (Honors)**1 Credit**

This course is designed for the strongly academic and highly motivated student. The course contains a brief review of the pre-1865 period. The course will stress the use of primary sources, multiple texts, and individual research. Students taking this course must read and write at grade level or higher, be capable of in-depth investigation, and possess the desire for knowledge. Prerequisite: "B" average and teacher recommendation.

#2112 U.S. History 11 (Academic)**1 Credit**

This course is a survey of American history with emphasis on the period from the Civil War to the present. Class discussion, projects, and audio-visual material will be used. This course is designed for the college-bound student.

#2113 U.S. History 11**1 Credit**

This course uses chronological approach with a review of the Pre-Civil War period. Emphasis is placed on the Post-Civil War period. This course is designed for those not going to post-high school education.

AMERICAN GOVERNMENT AND ECONOMICS - All year for 12th Grade

Every graduating senior must receive one (1) credit from the Senior social science classes. There are three (3) levels of classes from which to choose:

#2120 American Government and Economics (Advanced Placement)

This course is designed for the serious academic student who is interested in participating in a college level course with the opportunity to take a test and receive college credit. Students should be prepared for an intense study of subject material. Prior teacher approval is required.

#2121 American Government and Economics 12 (Honors)

1 Credit

This one-year course is designed for strongly academic and highly motivated students. The first semester is geared mainly to economics and its comparison with other political systems. The second semester emphasizes the analysis and interpretation of American government. Students taking this course must read and write at grade level or higher, be capable of in-depth investigation, and possess the desire for knowledge.

#2122 American Government and Economics 12 (Academic)

1 Credit

The two (2) major areas to be covered will be economics (Free Enterprise System, Comparative Economics) and American government. Research will be an essential part of the program.

#2123 American Government and Economics 12

1 Credit

To enroll in this course, students should be enrolled in English 0123. Major topics covered are the same as course 2122.

#2106 Crime and Justice

.5 Credit

The course, Crime and Justice, is designed to promote a basic comprehension regarding the need for laws, why people break laws, and the consequences on faces when they break laws. Specific topics discussed will be juvenile delinquency, family law, our penal system, capital punishment, and other related topics. Those students enrolling must read at present grade level.

Prerequisite: Successful completion of Introduction to Social Science.

#2107 Sociology 11/12

.5 Credit

This course will focus on the cause and consequences of human behavior and structure. Emphasis will be placed on socialization, social stratification, culture, norms, change, heredity, environment, family, and social institutions. Current issues of a sociological nature will be included in the course. Cultural and geographical areas of the world will be included in particular areas of the course.

#2115 World Religions and Societies 11/12**.5 Credit**

This course will concentrate on the many religions of the world, including: Islam, Buddhism, Native American, Amish, Judaism, Christianity, and others. The religions will be studied not as they are practiced in the American main stream, but as they are practiced around the world. The course will combine documentaries, research, simulation, debate, and traditional instruction. Those taking the course will be required to complete at least one research paper and project. This course will be especially exciting to those who want to explore perspectives of different people around the world.

Prerequisite: At least a "C" in World History/Psychology, or teacher recommendation.

#2104 Public Speaking and Debate 10-12**.5 Credit**

This course will concentrate on improving a person's ability to influence others through the spoken word. Each student will do speeches that are prepared, as well as impromptu. Students will give speeches in class and will be recorded on video. Students will critique each other. Each student will have to perform speeches in categories such as informative, instructional, and persuasive. Each major speech will have research element contained in it. Students will also be encouraged to debate in class exercises on issues of the day.

#2114 American History Through Film 10-12**.5 Credit**

Many students feel apathetic toward our nation's history due to their inability to create an accurate image of the people and events that have shaped our country over the past 500 years. However, American History Through Film is designed to embellish students' understanding of the American history by providing students with the opportunity to view realistic depictions of significant people, places, and events from the perspective of Hollywood filmmakers. Students will be asked to compare/contrast the cinematic portrayals of history with conventional textbook accounts. Each week, the course will examine different periods in American history spanning from the Age of Exploration to the tumultuous 1960's. Student achievement will be assessed from weekly writing assignments. Students should remember the adage, "A picture is worth 1,000 words."

Prerequisite: At least a "C" in World History, or teacher recommendation.

#2105 Minority Cultural Studies - 10-12**.5 Credit**

This course examines traditional minority cultures. Students will get an in-depth look at African history, Asian history, Latin American history, and women in history. Minority Cultural Studies is intended to broaden student awareness and knowledge of various cultures, while at the same time expanding the students' appreciation of their unique differences.

#2109 Contemporary Issues 10-12**.5 Credit**

As we move into the 21st century, it is becoming increasingly imperative that students develop, at the very least, a rudimentary understanding of the issues that will dramatically affect the world, the United States, and the individual. Students will examine issues such as America's role in the post-Cold War world, the deterioration of our environment, and the problems facing America's cities and how students can prepare themselves for these changes.

Prerequisite: At least a "C" in United States/World History, or teacher recommendation.

#2108 Psychology 11/12**.5 Credit**

This course will focus on human and animal behavior. The course is designed to enable students to better understand themselves and other around them. Specifically, the program of instruction will include studies of the following: the relationship between brain and behavior, human emotions and the physical and social influences affecting them, various states of consciousness including sleep and dream analysis, methods of learning and how people learn in different ways, the stages of human development, development of personality, and psychological disorders. The course will include in-depth studies of these topics and various scientific experiments that have been conducted on them.

Prerequisite: At least a "C" in World Religions/Contemporary issues, or teacher recommendation.

World Language Department

Traditionally, foreign languages have been offered for the student who will be pursuing languages as a career or meeting entrance requirements to college. However, foreign language offerings have been expanded to include cultural and historical aspects. All interested students could benefit greatly from studying a second language. The values realized through the study of another language and its culture prepare a person for greater enjoyment of foreign travel and for a wide range of interesting job opportunities.

Recommended Course Sequence For Academic Students:

- 9th Grade - Spanish I or French I
- 10th Grade - Spanish II or French II
- 11th Grade - Spanish III or French III
- 12th Grade - Spanish IV or French IV

To achieve a useful level of proficiency, it is recommended that a student continue the same language for four years rather than two years of French and two years of Spanish. Although this is a recommended outline for the academic student, any motivated student should be encouraged to sign up for language study.

**Level I #4101 French I
 #4201 Spanish I**

1 Credit

Level I students will begin the development of skills first in listening and speaking and eventually in writing and reading a second language. The primary emphasis will focus on communication in the present tense. Students will demonstrate a proficiency of expression in situations such as: greetings/leave-taking, expressing likes/dislikes, and talking about self and family, friends, home, school, and leisure activities. Students will function in interactive situations with learned expressions. Daily practice in class, as well as at home, is critical for success. Contemporary life, customs, and traditions of the countries where the language is spoken, which would be of interest to young people, will be included in the course of study.

**Level II #4121 French II
 #4211 Spanish II**

1 Credit

Students who have demonstrated success at Level I will continue to develop skills in listening and speaking a second language with increased emphasis on writing and reading skills. Knowledge of culturally appropriate behavior in face-to-face situations will be demonstrated. Students will make requests and obtain information from culturally appropriate materials (menus, schedules, maps, etc.). They will exhibit the ability to obtain information through effective communication in these interactive situations. They will structure productive, grammatically correct sentences and short text. Emphasis will be placed on expanded use of tenses to express time in the future as well as in the past. Students will compare and appreciate social and cultural differences of people in the world.

**Level III - IV #4131 French III
 #4231 Spanish III
 #4141 French IV
 #4241 Spanish IV**

1 Credit

Students in their third and fourth years of study will be exposed to authentic works of literature and history, as well as texts from contemporary publications. From these, students will expand their language use to include summaries and critiques, expression of opinions in such areas as politics and society, and eventually will research a topic to present to the class in written and oral form. The history of the countries where the target language is spoken will be studied and researched. Through this language study, students will practice the proper use of structure and expression in the target language.