Princeton Charter School
Grade Seven Program

English Language and Literature: Grade Seven

The goal of the English language and literature program is to improve each student's fluency in reading, writing, listening, and speaking.

Course Content

Literature and Reading Comprehension: Reading selections serve as models of good writing and as subjects for a variety of writing assignments, including short essays, narratives, letters, and book reviews. Students identify structural elements in their reading selections.

Expressive and Expository Writing: Students work on composition skills including topic sentences, supporting ideas, transitions, varied sentence structure, conclusions, and the development of an individual style. Students are expected to fully apply their knowledge of grammar, spelling, and vocabulary to final drafts. Students write essays, editorials, news stories, book reviews, stories, and research papers.

Grammar, Syntax, and Language Mechanics: Students diagram sentences; review parts of speech and sentence structure; learn active and passive voices; and study verbals (infinitives, participles, and gerunds), independent clauses, and subordinate clauses.

Vocabulary and Spelling: Spelling work uses derivatives, word roots and etymology as tools. Students continue to work on building their vocabulary with particular attention to Greek and Latin roots.

Listening and Speaking Skills: Speaking exercises require students to memorize and recite selected poems. Student take notes during lectures, participate in class discussions, and make three- to five-minute oral reports.

Research and Study Skills: Students use library and research skills when they write essays and research papers.

Homework: Students have daily assignments amounting to 20-30 minutes per night in reading, writing, vocabulary, or grammar as follow-up or preparation for each class period. Students are given frequent writing assignments for which they make notes and produce an outline, rough draft, revision, and edited version. They write essays, stories, book reviews, and research reports.

Tests and Major Projects: Weekly vocabulary quizzes, tests at the end of units, reading and writing evaluations. Occasional book reports, writing projects, and research reports will be assigned.

Grading: Classwork, homework, quizzes, tests, participation in discussions, major projects, and presentations. Opportunities for revision of written work will be given.

Books:

Textbook: *Prentice Hall Literature: Bronze,* Prentice Hall.

Grammar:

Elements of Language, J. E. Warriner.

Rules of the Game 2, M. Page, P. Guthrie, S. Sable, Educators Publishing Service.

Vocabulary: *Vocabulary From Classical Roots B*, N. Fifer and N. Flowers.

Literature:

The House on Mango Street, Sandra Cisneros

A Christmas Carol, Charles Dickens

Johnny Tremaine, Esther Forbes

A Raisin in the Sun, Lorraine Hansberry

Tunnel in the Sky, Robert Heinlein

Animal Farm, George Orwell

Romeo and Juliet, William Shakespeare

The Ramsay Scallop, Frances Temple

Biography of a Scientist, Mathematician, Inventor, or Doctor

Supplementary Literature

Watership Down, Richard Adams

I, Robot, Isaac Asimov

A Bone from a Dry Sea, Peter Dickenson

The Man in the Ceiling, Jules Feiffer

The Slave Dancer, Paula Fox

Adam of the Road, Elizabeth Janet Gray

The Endless Steppe: Growing Up in Siberia, Esther Hautzig

Have Spacesuit, Will Travel, Robert Heinlein

The Trumpeter of Krakow, Eric Philbrook Kelly

The Glory Field, Walter Dean Myers

My Name is Aram, William Saroyan

Celebrated Jumping Frog of Calaveras County, Mark Twain

The Invisible Man, H. G. Wells

The Bridge of San Luis Rey, Thornton Wilder

Mathematics: Pre-Algebra and Algebra Topics

The goals of the pre-Algebra course are:

- to make the transition from concrete arithmetic to abstract algebra;
- to develop fluency with algebraic operations and expressions;

- to link coordinate geometry with algebraic equations and inequalities;
- to use graphs for data organization and analysis; and
- to build a mathematical vocabulary.

Course Content

Number Sense: Scientific notation; rational and irrational numbers; uses of prime factorization; proportions, ratios, and percents; bases other than ten.

Geometry and Spatial Sense: Geometric formulas for perimeter, area, circumference, volume, and surface area of two- and three-dimensional figures; congruence, similarity, and symmetry; properties of right triangles; geometric constructions.

Numerical Operations: Order of operations; properties of operations; inverse operations; computations with negative numbers, rational numbers, and percents.

Measurement: Formulas; units; precision.

Estimation: Computational estimates; estimates of geometric measures.

Patterns and Functions: Describe patterns in problems; write rules in algebraic terms; function terminology and evaluation.

Probability and Statistics: Frequency distributions; mean, median, mode, and range; probability of an event; mutually exclusive events; permutations, combinations and arrangements; sampling; hypothesis checking; create, interpret, and translate between different types of graphs; histograms.

Algebra: Variables; solutions of multiple linear equations; graphs of linear and quadratic equations; solutions of inequalities; the use of algebraic equations to solve arithmetic problems.

Discrete Mathematics Combinations, arrangements and permutations; networks; paths; tree diagrams; and Boolean logic.

Conceptual Building Blocks of Calculus: Limits; infinity; linear and exponential growth; change in area or volume with a change in dimension.

Textbooks:

Pre-Algebra: An Accelerated Course, Houghton-Mifflin 1992, M. P. Dolciani, R. H. Sorgenfrey, and J. A. Graham.

A Bridge to Algebra and Geometry, Houghton-Mifflin 2001, F. J. Gardella.

Problem of the Day: mathematical challenges and puzzles drawn from books by Martin Gardner, Raymond Smullyan, etc.

Homework: Students have approximately 30-minute daily assignments to review and practice what they have learned in class.

Tests: Quizzes are given approximately once per week, and tests are given at the end of every chapter and at the end of the year.

Grading: Quarterly grades are based on homework completion, quizzes, tests, participation in discussions, and any projects assigned.

Mathematics: Algebra I

The Algebra course provides a rigorous and comprehensive study of first-year algebra during which each student should

- develop algebraic reasoning;
- develop fluency with algebraic operations and expressions;
- use equations, inequalities, or systems of equations to solve problems;
- link coordinate geometry with algebraic equations and inequalities;
- graph equations and inequalities on a coordinate system with pencil and paper, and with a graphing calculator; and
- add terms from algebra to his or her mathematical vocabulary.

Course Content

Number Sense: Variables; real numbers; integers; rational and irrational numbers; exponents; radicals; ratios; proportions; percents; complex numbers; factoring.

Geometry and Spatial Sense: Geometric formulas for perimeter, area, circumference, volume, and surface area of two- and three-dimensional figures; congruence, similarity, and symmetry; properties of right triangles.

Numerical Operations: Order of operations; properties of operations; inverse operations; computations with negative numbers, rational numbers, and percents; polynomial operations;

Measurement: Appropriate units; precision.

Estimation: Reasonable solutions.

Patterns and Functions: Describe patterns in problems; write rules in algebraic terms; function terminology and evaluation; domain and range; linear, quadratic, absolute value, and greatest integer functions.

Probability and Statistics: Experimental probabilities; algebraic equations to solve problems involving probabilities.

Algebra: Multi-step linear equations and inequalities; solutions of multiple linear equations; graphs of linear and quadratic equations; solutions of inequalities; factoring quadratic equations; the use of equations to solve world problems involving various units, arithmetic operations, and types of numbers.

Discrete Mathematics: Combinations, arrangements and permutations; networks; paths; tree diagrams; Boolean logic.

Conceptual Building Blocks of Calculus: Minima and maxima; limits; infinity; linear and exponential growth; change in area or volume with change in dimension.

Textbooks:

Algebra I, M. P. Dolciani, R. Sorgenfrey, and J. Graham, Houghton Mifflin 1989.

Algebra: Structure and Methods Book I, R. Brown, M. P. Dolciani, R. Sorgenfrey, and W. Cole, McDougal Littell.

Problem of the Day: mathematical challenges and puzzles drawn from books by Martin Gardner, Raymond Smullyan, etc.

Homework: Students have daily assignments, approximately 40 minutes long, to review and practice what they have learned in class.

Tests: Quizzes are given approximately once per week, and tests are given at the end of every chapter and at the end of the year.

Grading: Quarterly grades are based on homework completion, quizzes, tests, participation in discussions, and any projects assigned.

History and Geography: Grade Seven

This course is the third year of a four-year, roughly chronological study of world history and geography. This portion of the course covers civilizations from circa 500 A.D.. to circa 1500 A.D. and includes the study of the political, economic, cultural, and technological forces which have shaped the course of events. The general objectives for students are to develop knowledge of the human story and skill in thinking, imagining, and communicating — especially in writing — about how people lived during this period. The curriculum is directed toward developing the students':

- knowledge of historical and geographical facts (people, places, events, chronologies);
- ability to describe the lives of the various peoples they have learned about, and to relate the lives of people in antiquity to their own lives today;
- ability to compare the portion of the human story they are studying with portions they studied previously;
- recognition of primary historical sources, and understanding of how primary sources are used by historians to construct "narratives" of the past; and
- skill with maps and time-lines.

Course Content

Medieval Civilizations: The world of Islam; Mohammed; the rise of Islam; Islamic civilizations; the African kingdoms of Ghan, Mali, and Songhai; trade; Sundiata; the Middle Ages in Europe; knights; the feudal system; the culture, and government of Medieval Europe; the crusades; the Magna Carta; the Mongols; Genghis Khan; Kublai Khan.

The Rennaissance: The beginnings of the Renaissance in Italy; the Medici of Florence, the Pope in Rome; the merchants of Venice; Machiavelli; women in the Renaissance; Leonardo da Vinci; Brunelleschi, Donatello, and Botticelli; Michelangelo; Raphael; Van Eyck, Durer, and Bruegel; music in the Renaissance; Cervantes; Shakespeare; Gutenberg; Martin Luther and the Reformation; the Counter Reformation, Galileo.

The Age of Exploration: Explorers of the ancient world; the Vikings; the Portuguese Explorers; Christopher Columbus; Ferdinand Magellan; John and Sebastian Cabot; Francis Drake; Jacques Cartier; Henry Hudson; James Cook.

United States Civics: The Constitutional Convention; the Virginia and New Jersey plans; the Constitution; the Bill of Rights; the legislative, executive, and judicial branches; the legislative process; political parties; the rights and responsibilities of citizenship.

Books:

Medieval Civilization, The Educational Research Council.

Rats, Bulls, and Flying Machines: A History of the Renaissance and Reformation, Core Knowledge Foundation.

The Age of Exploration, Sarah Flowers.

The Constitution, Warren E. Burger.

Atlas: *The Nystrom Desk Atlas,* Nystrom.

Homework: Students have reading assignments as preparation or follow-up for class. Homework activities include reading, analytical writing, creative writing, and making and using maps.

Tests and Major Projects: Tests are given at the ends of units. Projects include simple research reports, book reports, and dramatizations.

Grading: Homework, quizzes, tests, participation in discussions, major projects, and presentations. Opportunities for revision of written work will be given.

Science: Grade Seven

The seventh-grade program includes life and physical sciences. Students are expected to:

- learn scientific concepts and vocabulary in areas covered;
- design and conduct experiments;
- use measurements in the course of experiments;
- record and graph data;
- apply mathematics to analyze the experiments;
- use data and analysis to make predictions; and
- write well organized laboratory reports.

Physical Sciences: Optics and Acoustics

Topics: characteristics of waves; sound waves; the speed of sound; resonance; the wave nature of light; the electromagnetic spectrum; diffraction; rays and shadows; Snell's law; lenses and focal length; refraction of colors;

Physical Sciences: Motion, Force, and Energy

Topics: velocity and momentum; frames of reference; forces such as gravity and friction; Newton's laws of motion; pressure; motion in fluids; work; power; simple machines; kinetic and potential energy; energy conversions; and conservation of energy.

Life Sciences: Genetics

Topics: genetics; how chromosomes work; mutations; DNA; human genetics; heredity; sex-linked traits; mapping the human genome.

Human Biology

Topics: human circulatory, respiratory, and endocrine systems.

Instructional Materials:

Sound and Light	Prentice Hall Science, 1997.
Motion, Forces, and Energy	Prentice Hall Science, 1997.
Heredity: the Code of Life	Prentice Hall Science, 1997.
Human Biology and Health	Prentice Hall Science, 1997.

Milestones: Grade Seven

1.1 Milestones: Grade Seven

Literary Analysis Milestone (English)

Task: Write a paper that demonstrates ability to analyze a selection drawn from literature.

Criteria: Identify theme, plot, setting, major characters, and so forth; good paragraph construction; proper use of language without grammatical or spelling errors.

Graphing Calculator Milestone (Mathematics)

Task: Use a graphing calculator to do at least three of the following: plot points; graph and compare linear or quadratic equations; use the absolute value function; use the table, zoom, and trace functions; calculate nth roots; enter matrices and calculate determinants; solve systems of linear equations with three or more variables.

Criteria: Thorough familiarity with calculator; accurate calculations; quality and accuracy of graph comparisons.