Princeton Charter School
Grade Six Program

English Language and Literature: Grade Six

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 skills developed in the early grades are reviewed, and classical mythology and simple lyric, narrative, and dramatic poetry are read. Reading selections serve as subjects for a variety of writing assignments, including short essays, narratives, letters, and book reviews. Students use short stories to identify structural elements in fiction. Students learn the difference between an editorial and a news story.

Expressive and Expository Writing: Writing work emphasizes research skills and revision, and students are expected to fully apply their knowledge of grammar, spelling, and vocabulary to final drafts. Students write stories, essays, editorials, news stories, and a simple research paper.

Grammar, Syntax, and Language Mechanics: Structure of compound sentences; parts of speech; agreement; verb conjugation; and punctuation.

Vocabulary and Spelling: Spelling work uses phonetic patterns and letter clusters, prefixes, suffixes, derivatives, word roots and etymology as tools. Students continue to work on building their vocabulary.

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 hone library skills (bibliographies and note-taking) during preparation of a research project.

Homework: Students have daily assignments amounting to 20-30 minutes per night in reading, writing, vocabulary, grammar, or spelling 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 stories, book reports, and research reports.

Tests and Major Projects: Weekly vocabulary quizzes, tests at the end of units, reading and writing evaluations. Occasional book reports 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: Copper,* Prentice Hall.

Grammar:

Houghton Mifflin English, 7, Houghton Mifflin.

Rules of the Game 1, M. Page, P. Guthrie, S. Sable, Educators Publishing Service.

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

Literature:

Samurai's Tale, Erik Christian Haugaard

The Call of the Wild, Jack London

The Giver, Lois Lowry

The Odyssey, Homer and Rosalind Picard

A Break with Charity, Anne Rinaldi

Tom Sawyer, Mark Twain

A Midsummer Night's Dream, William Shakespeare

Biography of choice

A Child's Anthology of Poetry, Elizabeth Hauge Sword, ed.

Supplementary Literature

The Trojan War, Bernard Evslin

The Gift of the Magi, O. Henry

The Phantom Toll Booth, Norman Juster

The House of Dies Drear, Virginia Hamilton

Island of the Blue Dolphins, Scott O'Dell

Bridge to Terabithia, Katherine Paterson

The Witch of Blackbird Pond, Elizabeth George Speare

The Red Pony, John Steinbeck

Treasure Island, Robert Louis Stevenson

The Sword in the Stone, T. H. White

Mathematics: Grade 6

The goals of the grade-six mathematics course are:

- to develop mathematical reasoning and communication skills;
- to master arithmetic operations with decimals, fractions, proportions, and percents;
- to analyze and two- and three-dimensional geometric figures and logically interrelate properties and rules by giving or following informal arguments;
- to use graphs for data organization and analysis; and
- to build a mathematical vocabulary.

Course Content

Number Sense: Scientific notation; terminating and repeating decimals; prime factorization; equivalent fractions; mixed numbers; ratios, proportions, and percents.

Geometry and Spatial Sense: Properties of two- and three-dimensional shapes; congruence, similarity, and symmetry; perspective; angle measures; geometric constructions; geometric measures of irregularly shaped figures; coordinate geometry; geometric terms.

Numerical Operations: Order of operations; properties of operations; computations with integers, decimals, fractions, mixed numbers, ratios, proportions, and percents.

Measurement: Measurement units and tools; standard units; precision; converting units; formulas.

Estimation: Computational estimates; mental mathematics; estimation strategies.

Patterns and Functions: Construct, recognize, extend, and describe patterns using tables, rules, variables, and graphs; input-output relationships.

Probability and Statistics: Experimental probabilities; fair and unfair games; sampling; hypothesis checking; create, interpret, and translate between different types of graphs; histograms.

Algebra: Variables, algebraic expressions; operations with equations; graphing equations; inequalities; solving a formula for a variable, two-step equations.

Discrete Mathematics: Combinations, arrangements, or paths; tree diagrams; algorithms; logic.

Conceptual Building Blocks of Calculus: Patterns that continue indefinitely; infinity; linear and exponential growth; rate; speed; area; volume; subdividing a complex figure.

Textbooks:

New Jersey HSP Math, Grade 6, Harcourt, Inc.

Grade 7 *Addison Wesley Mathematics,* 1995.

UCSMP Transistion Mathematics, Prentice Hall.

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

Homework: Students have nightly assignments amounting to 20-30 minutes per night 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: 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.

History and Geography: Grade Six

This course is the second year of a four-year, roughly chronological study of world history and geography. The course covers Asian civilizations to circa 500 A.D. and ancient Greece and Rome. Emphasis is on the study of the political, economic, cultural, and technological forces that have shaped the course of events. The general objectives for students are to develop knowledge of the human story to circa 500 A. D. 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

India to 322 B.C.: Geographic features of the Indian subcontinent; Indus valley civilizations; the coming of the Aryans; the Rig Veda; the caste system; the Ramayana; the Mahabharata; Buddhism.

India from 322 B.C. to 480 A.D. The Mauryan Empire; the Gupta Empire; society; villages, towns, and cities; Hinduism; the culture and learning of classical India.

China to 221 B.C.: Geographic features; the earliest Chinese; life in the Shang Dynasty; the poet Ch'u Yuan; life in the Chou dynasty; Confucius and other philosophers.

China from 221 B.C. to 500 A.D.: The Chi'in empire; the Han dynasty; sericulture and the silk road; the Hsiung-nu; the three kingdoms; Buddhism comes to China; invention and technology; medicine.

Japan to 1603 A.D.: Geographic features of Japan; Prince Shotoku; the Nara Period; the Heian period; the Kamakura period; Kublai Khan and the Mongols; Ashikaga and the Daimyo; the Samurai.

Greece to 148 B.C.: City-states; Solon, Cleisthenes, and Pericles; ships and trade; the Persian wars; legends and myths; art and architecture; the Olympic games; the Peloponnesian wars; Alexander the Great; the Roman invasions.

Rome to 476 A.D.: the Etruscans; the Punic wars; the Republic; the Empire; art and architecture; daily life; government; the army; the decline of Rome.

Books:

A Course in Human History to c. 500 A.D.: China; India; Japan, the Washington World History Project.

The Greeks, Roy Burrell.

> *Heroes, Gods and Monsters of the Greek Myths,* Bernard Evslin.
>
> *The Romans,* Roy Burrell.
>
> *Aeneas: Virgil's Epic Retold for Young Readers,* Emily Frenkel.
>
> 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 Six

The science program includes life, physical, and space 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.

Life Sciences: Cells

Topics: characteristics of living things; chemistry of living things; cell theory; structure and function of cells; cell growth and division; photosynthesis; respiration.

Space Sciences: Astronomy

Topics: structure of the solar system; seasons and tides; solar and lunar eclipses; space exploration; stars; galaxies; evolution of the Universe. A field trip will be made to Princeton University Observatory (Peyton Hall) to observe the Moon, planets, and other celestial objects.

Physical Sciences: Electricity and Magnetism

Topics: Electric charges; current flow; series and parallel circuits; magnetic poles; magnetic field lines of force; the Earth as a magnet; charged particles in a magnetic field; electromagnetism; electronic transmission.

Health

Topics: human nervous and endocrine systems.

Instructional Materials:

Exploring the Universe	Prentice Hall Science, 1997.
Cells: Building Blocks of Life	Prentice Hall Science, 1997.
Electricity and Magnetism	Prentice Hall Science, 1997.
Human Biology and Health	Prentice Hall Science, 1997.
You and Your Body	Delta Science Modules II.

Milestones: Grade Six

Short-Story Milestone (English)

Task: Write a short story from one of several assigned topics drawn from chess, music or sports.

Criteria: An outline and draft; quality of content and of writing; 750-1000 words.

Physical Fitness Milestone (Physical Education and Mathematics)

Task: Run a half-mile and record time; predict best time for one-quarter and one full mile, assuming a faster rate for shorter distances and gradual decline in speed over a full mile. Summarize total class results in a graph.

Criteria: Maximum time of 5 minutes; reasonableness of calculations; accuracy of graph.