



Home Grade 11 Curriculum

## Grade 11 Curriculum

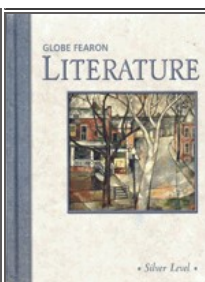
Profile Faculty

The American School, founded in 1995, follows the typical American curriculum used in most schools in the United States from pre-school to grade twelve. We believe that the environment is enhanced when students are challenged by quality education.

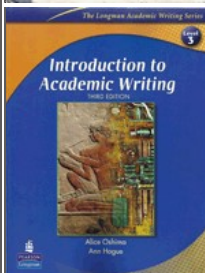
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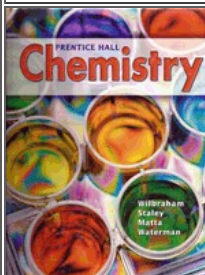
	<p><b>Math:</b></p> <ol style="list-style-type: none"> <li>1. Preliminary Information</li> <li>2. Functions and Relations</li> <li>3. Linear Functions</li> <li>4. Systems of Linear Equations and Inequalities</li> <li>5. Quadratic Functions and Complex</li> <li>6. Exponential and Logarithmic Functions</li> <li>7. Rational Algebraic Functions</li> <li>8. Irrational Algebraic Functions</li> <li>9. Quadratic Relations and Systems</li> <li>10. Higher-Degree Functions and Complex</li> <li>11. Sequences and Series</li> <li>12. Probability, Data Analysis, and Functions of A Random Variable</li> <li>13. Trigonometric and Circular</li> <li>14. Properties of Trigonometric and Circular Functions</li> <li>15. Triangle Problems</li> </ol>
	<p><b>TOEFL:</b></p> <ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Core Concept: Reading</li> <li>3. Core Concept: Listening</li> <li>4. Core Concept: Speaking</li> <li>5. Core Concept: Writing</li> <li>6. Cracking the Reading Section</li> <li>7. Reading Practice Drills</li> <li>8. Reading Practice Answers and Explanations</li> <li>9. Cracking the Listening Section</li> <li>10. Listening Practice Drills</li> <li>11. Listening Practice Answer and Explanations</li> <li>12. Cracking the Speaking Section</li> <li>13. Speaking Practice Drills</li> <li>14. Speaking Practice Answers and Explanations</li> <li>15. Cracking the Writing Section</li> <li>16. Writing Practice Drills</li> <li>17. Writing Practice Answers and Explanations</li> <li>18. The Princeton Review TOEFL iBT Practice Test</li> <li>19. Answer Key</li> <li>20. Answers and Explanations</li> </ol>
	<p><b>IELTS:</b></p> <ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Questions and Answers about IELTS</li> <li>3. Preparing for IELTS</li> <li>4. Listening Module</li> <li>5. Reading Module</li> <li>6. Writing Module</li> <li>7. Speaking Module</li> <li>8. IELTS Model Tests</li> <li>9. Answer Keys for The Module Activities</li> <li>10. Explanatory Answers for the IELTS Model Tests 11. Appendix</li> </ol>



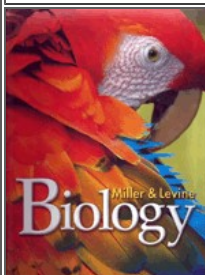
**American Literature:**  
Unit 1: Voices of Colonial America  
Unit 2: Writers in a Growing Nation  
Unit 3: New England Speaks  
Unit 4: A Nation Expresses  
Unit 5: The Modern View  
Unit 6: The Contemporary Perspective



**Academic Writing:**  
Part 1: The Paragraph  
Chapter 1: Paragraph Format  
Chapter 2: Narrative Paragraphs  
Chapter 3: Paragraph Structure  
Chapter 4: Descriptive Paragraph  
Chapter 5: Logical Division of Ideas  
Chapter 6: Process Paragraphs  
Chapter 7: Comparison / Contrast Paragraphs  
Chapter 8: Definition Paragraphs  
Part 2: The Essay  
Chapter 9: Essay Organizations  
Chapter 10: Opinion Essays



**Chemistry:**  
Chapter 1: Introduction to Chemistry  
Chapter 2: Matter and Change  
Chapter 3: Scientific Measurement  
Chapter 4: Atomic Structure  
Chapter 5: Electrons in Atoms  
Chapter 6: The Periodic Table  
Chapter 7: Ionic and Metallic Bonding  
Chapter 8: Covalent Bonding  
Chapter 9: Chemical Names and Formulas  
Chapter 10: Chemical Quantities  
Chapter 11: Chemical Reactions  
Chapter 12: Stoichiometry  
Chapter 13: States of Matter  
Chapter 14: The Behavior of Gases  
Chapter 15: Water and Aqueous Systems  
Chapter 16: Solutions  
Chapter 17: Thermochemistry  
Chapter 18: Reaction Rates and Equilibrium  
Chapter 19: Acids, Bases, and Salts  
Chapter 20: Oxidation-Reduction Reactions  
Chapter 21: Electrochemistry  
Chapter 22: Hydrocarbon Compounds  
Chapter 23: Functional Groups  
Chapter 24: The Chemistry of Life  
Chapter 25: Nuclear Chemistry



**Biology:**  
The Science of Biology  
The Chemistry of Life  
The Biosphere  
Ecosystems and Communities  
Populations  
Humans in the Biosphere  
Cell Structure and Function  
Photosynthesis  
Cellular Respiration and Fermentation  
Cell Growth and Division  
Introduction to Genetics  
DNA  
RNA and Protein Synthesis  
Human Heredity  
Genetic Engineering  
Classification  
Viruses and Prokaryotes  
Protists and Fungi  
Introduction to Plants  
Plant Structure and Function

	<p>Plant Reproduction and Response  Animal Evolution and Diversity  Animal Behavior  The Human Body Digestive and Excretory System  Nervous System  Skeletal, Muscular, and Integumentary Systems  Circulatory and Respiratory Systems  Endocrine and Reproductive Systems  The Immune System and Disease</p>
	<p>Physics:</p> <ol style="list-style-type: none"> <li>1. Measurement &amp; Analysis</li> <li>2. Motion in a Straight Line</li> <li>3. Motion in a Plane</li> <li>4. Newton's Laws of Motion</li> <li>5. Motion Near the Earth's Surface</li> <li>6. Planetary Mechanics</li> <li>7. Momentum</li> <li>8. Kinetic &amp; Potential Energy</li> <li>9. Electric Charges &amp; Electric Fields</li> <li>10. Current Electricity</li> <li>11. Electric Circuits</li> <li>12. Magnetic Fields &amp; Electromagnetism</li> <li>13. Electromagnetism Induction</li> </ol>
	<p>SAT-English &amp; Math:</p> <p>Part 1: Orientation</p> <ol style="list-style-type: none"> <li>1. The SAT, The Princeton Review, and You</li> <li>2. Cracking the SAT: Basic Principles</li> <li>3. Cracking the SAT: Advanced Principles</li> </ol> <p>Part 2: How to Crack the Critical Reading Section</p> <ol style="list-style-type: none"> <li>4. Joe Bloggs and the Critical Reading Section</li> <li>5. Sentence Completions</li> <li>6. Reading Comprehension: An Open-Book Test</li> <li>7. Reading Comprehension: Wait, There's More!</li> <li>8. Vocabulary</li> </ol> <p>Part 3: How to Crack the Math Section</p> <ol style="list-style-type: none"> <li>9. Joe Bloggs and the Math Section</li> <li>10. The Calculator</li> <li>11. Fun with Fundamentals</li> <li>12. Algebra: Cracking the System</li> <li>13. Advanced Arithmetic</li> <li>14. Geometry</li> <li>15. Grid- Ins: Cracking the System</li> <li>16. Putting It all Together</li> </ol> <p>Part 4: How to Crack the Writing Section</p> <ol style="list-style-type: none"> <li>17. Grammar</li> <li>18. Essay</li> </ol> <p>Part 5: Taking the SAT</p> <p>Part 6: Answer Key to Drills</p> <p>Part 7: The Princeton Review SAT Practice Tests and Explanations</p>
	<p>SAT-Physics:</p> <p>Introduction</p> <ol style="list-style-type: none"> <li>1. Math Review</li> </ol> <p>Basic Trig Review</p> <p>Vectors</p> <ol style="list-style-type: none"> <li>2. Kinematics</li> </ol> <p>Displacement</p> <p>Speed and Velocity</p> <p>Acceleration</p> <p>Uniformly Accelerated Motion and the Big Five</p> <p>Kinematics with Graphs</p> <p>Free Fall</p> <p>Projectile Motion</p> <p>Chapter 2: Review Questions</p> <ol style="list-style-type: none"> <li>3. Newton's Laws</li> </ol> <p>The First Law</p> <p>The Second Law</p> <p>The Third Law</p> <p>Newton's Law of Gravitation</p> <p>Gravitational Attraction Due to an Extended Body</p> <p>Weight</p> <p>The Normal Force</p>

Friction  
Pulleys  
Inclined Planes  
Chapter 3: Review Questions  
4. Work, Energy, and Power  
Work  
Work Done by a Variable Force  
Kinetic Energy  
The Work–Energy Theorem  
Potential Energy  
Gravitational Potential Energy  
Conservation of Mechanical Energy  
Power  
Chapter 4: Review Questions  
5. Linear Momentum  
Another Look at Newton’s Second Law  
Impulse  
Conservation of Linear Momentum  
Collisions  
Chapter 5: Review Questions  
6. Curved and Rotational Motion  
Uniform Circular Motion  
Center of Mass  
Rotation and Translation  
Rotational Dynamics  
Torque  
Equilibrium  
Angular Momentum  
Conservation of Angular Momentum  
Rotational Kinematics  
Kepler’s Laws  
Chapter 6 Review Questions  
7. Oscillations  
Simple Harmonic Motion (SHM): The Spring–Block Oscillator  
The Kinematics of SHM  
The Spring–Block Oscillator: Vertical Motion  
Pendulums  
Chapter 7: Review Questions  
8. Electric Forces and Fields  
Electric Charge  
Coulomb’s Law  
The Electric Field  
Conductors and Insulators  
Chapter 8: Review Questions  
9. Electric Potential and Capacitance  
Electrical Potential Energy  
Electric Potential  
Capacitance  
Combinations of Capacitors  
Dielectrics  
Chapter 9: Review Questions  
10. Direct Current Circuits  
Electric Current  
Resistance  
Electric Circuits  
Circuit Analysis  
Resistance–Capacitance (RC) Circuits  
Chapter 10: Review Questions  
11. Magnetic Forces and Fields  
The Magnetic Force on a Moving Charge  
The Magnetic Force on a Current-Carrying Wire  
Magnetic Fields Created by Current-Carrying Wires  
Chapter 11 Review Questions  
12 Electromagnetic Induction  
Motional EMF  
Faraday’s Law of Electromagnetic Induction  
Chapter 12 Review Questions  
13 Waves  
Transverse Traveling Waves  
Wave Speed on a Stretched String  
Superposition of Waves  
Standing Waves  
Sound Waves  
Resonance for Sound Waves

The Doppler Effect  
 The Doppler Effect or Light  
 Chapter 13 Review Questions  
 14. Optics  
 The Electromagnetic Spectrum  
 Interference and Diffraction  
 Reflection and Refraction  
 Mirrors  
 Ray Tracing for Mirrors  
 Thin Lenses  
 Ray Tracing for Lenses  
 Chapter 14 Review Questions  
 15 Thermal Physics  
 Temperature Scales  
 Physical Changes Due to Heat Transfer  
 Heat Transfer  
 Thermal Expansion  
 The Kinetic Theory of Gases  
 The Ideal Gas Law  
 The Laws of Thermodynamics  
 Chapter 15 Review Questions  
 16. Modern Physics  
 The Rutherford Model of the Atom  
 Photons and the Photoelectric Effect  
 The Bohr Model of the Atom  
 Wave-Particle Duality  
 Nuclear Physics  
 Radioactivity  
 Nuclear Reactions  
 Disintegration Energy  
 Special Relativity  
 Contemporary Physics  
 Chapter 16 Review Questions  
 17. Solutions to the Chapter Review Questions  
 18. The Princeton Review Practice SAT Physics Subject Test 1  
 19. Answers and Explanations to Practice SAT Physics Subject Test 1  
 20. The Princeton Review Practice SAT Physics Subject Test 2  
 21. Answers and Explanations to Practice SAT Physics Subject Test 2  
 About the Authors



SAT-Chemistry:  
 Introduction About the Test  
 A DIAGNOSTIC TEST  
 Answers and Explanations  
 Calculating Your Score  
 Diagnosing Your Needs  
 Planning Your Study  
 Final Preparation – The Day Before the Test  
 After the Test  
 REVIEW OF MAJOR TOPICS  
 1. Introduction to chemistry  
 Matter  
 Energy  
 Conservation of Mass and Energy  
 Scientific Method  
 Measurements and Calculations  
 Chapter Summary  
 Internet Resources  
 Practice Exercises  
 2 Atomic Structure and the Periodic Table of the Elements  
 Electric Nature of Atoms  
 Atomic Spectra  
 The Wave- Mechanical Model  
 Sublevels and Electron Configuration  
 Transition Elements  
 Periodic Table of the Elements  
 Properties Related to the periodic Table  
 Nuclear Transformations and Stability  
 The Nature of Radioactive Emissions  
 Methods of Detection of Alpha ,Beta ,and Gamma Rays  
 Decay Series, Transmutations, and Half – Life  
 Radioactive Dating  
 Nuclear Reactions  
 Chapter Summary

Internet Resources  
Practice Exercises  
3. Bonding  
Types of Bonds  
Intermolecular Forces of Attraction  
Double and Triple Bonds  
Resonance Structures  
Molecular Geometry-VSEPR-and Hybridization  
Sigma and Pi Bonds  
Properties of Ionic Substances  
Properties of Molecular Crystals and Liquids  
Chapter Summary  
Internet Resources  
Practice Exercises  
4. Chemical Formulas  
Naming and Writing Chemical Formulas  
Oxidation State and Formula Writing  
Names and Formula of Common Acids and Bases  
Chemical Formulas Their Meaning and Use  
Laws of Definite Compositions and Multiple Proportions  
Writing and Balancing Simple Equations  
Showing Phases in Chemical Equations  
Writing Ionic Equations  
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5. Gases and the Gas Laws  
Some Representative Gases  
General Characteristics of Gases  
Gas Laws and Related Problems  
Chapter Summary  
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6. Stoichiometry (Chemical Calculations) and the Mole Concept  
The Mole Concept  
Molar Mass and Moles  
Mole Relationships  
Gas Volumes and Molar Mass  
Density and Molar Mass  
Mass-Volume Relationships  
Mass-Mass Problems  
Volume- Volume Problems  
Problems with an Excess of One Reactant or a Limiting Reactant  
Percent Yield of a Product  
Chapter Summary  
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Practice Exercises  
7. Liquids, Solids, and Phase Changes  
Liquids  
Phase Equilibrium  
Boiling Point  
Critical Temperature and Pressure  
Solids  
Phase Diagrams  
Water  
Polarity and Hydrogen Bonding  
Solubility  
Water Solutions  
Continuum of Water Mixtures  
Expressions of Concentration  
Dilution  
Colligative Properties of Solutions  
Crystallization  
Chapter Summary  
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Practice Exercises  
8. Chemical Reactions and Thermochemistry  
Predicting Reactions  
Thermochemistry  
Changes in Enthalpy  
Additivity of Reaction Heats and Hess's Law  
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Practice Exercises

**9. Rates of Chemical Reactions**  
**Factors Affecting Reaction Rates**  
Activation Energy  
Reaction Rate Law  
Chapter Summary  
Internet Resources  
Practice Exercises

**10. Chemical Equilibrium**  
Reversible Reactions and Equilibrium  
Le Chatelier's Principle  
Effects of Changing Conditions  
Equilibrium in Heterogeneous Systems  
Common Ion Effect  
Driving Forces of Reactions  
Chapter Summary  
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**11. Acids, Bases, and Salts**  
Definitions and Properties  
Indicators  
Titration-Volumetric Analysis  
Buffer Solutions  
Salts  
Amphoteric Substances  
Acid Rain-An Environmental Concern  
Chapter Summary  
Internet Resources  
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**12. Oxidation-Reduction and Electrochemistry**  
Oxidation-Reduction and Electrochemistry  
Quantitative Aspects of Electrolysis  
Balancing Redox Equations  
Chapter Summary  
Internet Resources  
Practice Exercises

**13. Some Representative Groups and Families**  
Sulfur Family  
Halogen Family  
Nitrogen Family  
Metals  
Chapter Summary  
Internet Resources  
Practice Exercises

**14. Carbon and Organic Chemistry**  
Carbon  
Organic Chemistry  
Hydrocarbons  
Hydrocarbon Derivatives  
Chapter Summary  
Internet Resources  
Practice Exercises

**15. The Laboratory**  
Laboratory Safety Rules  
Some Basic Setups  
Summary of Qualitative Tests  
Chapter Summary  
Internet Resources  
Practice Exercises

**PRACTICE TESTS**  
Practice Subject Tests in Chemistry  
Practice Test 1  
Answers and Explanations for Test 1  
Calculating Your Score  
Diagnosing Your Needs  
Practice Test 2  
Answers and Explanations for Test 2  
Calculating Your Score  
Diagnosing Your Needs  
Practice Test 3  
Answers and Explanations for Test 3  
Calculating Your Score  
Diagnosing Your Needs  
Practice Test 4  
Answers and Explanations for Test 4

Calculating Your Score  
Diagnosing Your Needs  
APPENDIXES  
Modern Periodic Table  
Some Important Equations  
Some Useful Tables  
The Chemical Elements  
Glossary



### SAT-Biology:

#### Part One: Orientation

##### 1. Introduction

Point 1: Approaching the Test Strategically

Point 2: Teaching You the Biology You Need to Know for the Exam

##### 2. The Exam Format, Question Types, and Strategies

###### The Format

###### The Question Types

Strategy 1: Study the Right Stuff in the Right Way

Strategy 2: Practice the Right Stuff at the Right Time

Strategy 3: Easy Stuff First Strategy 4: Take a Guess, but Guess Smart

Strategy 5: Choosing the “Wrong” Answer—LEAST/EXCEPT/NOT Questions

Strategy 6: I, II, III—You’re Out!

Strategy 7: Avoid the Camouflage Trap

Strategy 8: Avoid the Temptation Trap—Predict an Answer

###### Strategy Summary

###### Special Tips for Laboratory Five-Choice Questions

#### Part Two: Subject Review

##### 3. Molecules of Biology

Biologically Important Macromolecule #1: Protein

Biologically Important Macromolecule #2: Carbohydrate

Biologically Important Macromolecule #3: Lipid

Biologically Important Macromolecule #4: Nucleic Acid

##### 4. Cell Structure

###### Eukaryotic Cell Structure

What Goes On in the Cytoplasm: Chemical Reactions and Enzymes

##### 5. Cellular Respiration

###### Let’s Talk About Cellular Respiration

###### Glycolysis

The Pyruvate Dehydrogenase Complex (PDC)

###### The Krebs Cycle

Electron Transport and Oxidative Phosphorylation

What Happens If Oxygen Is Not Available?

##### 6. Transcription and Translation

###### DNA Replicates Itself

Chromosomes and the Whole Organism: The Same Set in Every Cell

Chromosomes Come in Pairs: Homologous Chromosomes

How Chromosomes Govern Protein Synthesis: Transcription and Translation

###### Translation

How Translation Works, Part 1: tRNA

How Translation Works, Part 2: The Ribosome

##### 7. Mitosis and Meiosis

How a Whole Cell Reproduces Itself: Mitosis

Genes, Proteins, and Chromosomes

But Where Did These Chromosomes and Their Genes COME From?

The Formation of Gametes: Meiosis

##### 8. Cracking Genetics

###### Biology of Inheritance

###### Phenotype and Genes

Mating and Crossing: Predicting the Phenotype and Genotype of Offspring

###### Punnett Squares

Another Thing About Genetics and Inheritance: Sex and Sex-Linked Traits

###### Pedigree Analysis

##### 9. Cracking Evolution and Diversity

###### The Origin of Life

###### Evolution

Getting Organized: Phylogeny

A Kingdom Protista

B Kingdom Plantae

C Kingdom Fungi

D Kingdom Animalia

##### 10. Organ Systems

Control of the Body, Part 1—The Nervous System

Control of the Body, Part 2—The Endocrine System

Transport Within the Body—The Circulatory System



Blood Typing  
 The Heart  
 Ventilation and Gas Exchange—The Respiratory System  
 Body Processing, Part 1—The Digestive System  
 Body Processing, Part 2—The Urinary System  
 Support and Protection of the Body, Part 1—The Skeletal System  
 Support and Protection of the Body, Part 2—The Muscular System  
 Support and Protection of the Body, Part 3—The Skin  
 Reproduction and Development, Part 1—The Male System  
 Reproduction and Development, Part 2—The Female System  
 Reproduction and Development, Part 3—Fertilization, Embryology, and Fetal Development  
 11. Plants  
 Leaf Structure  
 12. Behavior  
 13. Microorganisms  
 14. Cracking Ecology  
 What Is a Population?  
 What Is a Community?  
 More About the Community—Who's Who  
 Let's Talk About Ecological Succession  
 Getting Bigger—the Ecosystem  
 What Goes Around, Comes Around—Nutrient Cycles  
 Getting Bigger Again—Biomes  
 Part Three: Answers to In-Chapter Questions  
 15. Answers to In-Chapter Questions  
 Part Four: The Princeton Review Practice SAT Biology E/M Subject Tests and Explanations  
 16. Practice SAT Biology E/M Subject Test 1  
 17. Practice SAT Biology E/M Subject Test 1: Answers and Explanations  
 18. Practice SAT Biology E/M Subject Test 2  
 19. Practice SAT Biology E/M Subject Test 2: Answers and Explanations  
 About the Author

## Arabic Books from the Ministry of Education

