

Managed Curriculum



Physical Science

2011-2012 School Year



John White, RSD Superintendent

The 2011-2012 Managed Curriculum

Opening of School Introductory Unit

Focus on Pacing

There is a natural tendency, when using new materials, to begin more slowly. However, because there is so much mathematics content to review and teach in the course of a year, it is expected that you set the pace at the beginning of the school year. Students generally adjust to the pace of the teacher. This will ensure that *ALL* of the concepts will be covered prior to testing (GLEs).

There may be times when it will seem difficult to maintain the pace. But it is important to understand that a slow pace can make it too easy to lose perspective and difficult to relate ideas. If you spend too much time on certain lessons, you will find that your slowest students may have learned more by having gone through content slowly, but the other students may have learned less. The wise teacher strikes a balance, goes quickly enough to keep things interesting but slowly enough to have time for explanations. Make adjustments for students with special needs: individualized lessons, learner center activities, additional homework and/or extended day/week/year opportunities.

Teachers should use this unit to:

- develop classroom culture and establish classroom routines
- administer Pre test to determine students' strengths and weaknesses
- practice and use test taking strategies
- discuss , model and reinforce *Science Safety*

Teaching NOTE: *It is expected that Benchmark Assessments will provide feedback regarding students' understanding and/or mastery of required concepts. This information should be utilized for re teaching and provide input to make ongoing adjustments to lesson plans.*

Suggested Resources

- CHAMP Module 4
- Review science safety contract
- Review Test Taking Strategies
- Louisiana Guide to Statewide Assessment

Introduction to Inquiry and Unit 1: Observation, Measurement and Experiment Design

Unit Description

Utilizing inquiry processes, this unit will focus on making accurate, objective observations and asking testable questions as the foundation to scientific inquiry. Emphasis will also be placed on using the metric system to collect scientific data, along with organizing and reporting data.

Student Understandings

Students will gain skill in metric conversion, utilize inquiry processes to design their own experiment, and determine density as an identifying property of matter. They will also develop understanding of proper laboratory procedures with a strong emphasis on safety. Their knowledge of the metric system will be demonstrated through collection of scientific data and problem solving.

Guiding Questions

Can students...

- display proper laboratory safety procedures?
- make quality observations and ask testable questions?
- utilize accurate metric measurements in solving problems?
- demonstrate techniques used when solving problems?
- organize quantitative data into tables and graphs?
- correctly utilize inquiry processes in investigations?
- describe how to determine density of a substance?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
Students will: <ul style="list-style-type: none"> • describe how investigations can be observation, description, literature survey, classification, or experimentation. • display proper laboratory procedure. • gather and organize data in charts, tables, and graphs. • write, plan, and conduct a valid investigation. • make quality observations and ask testable questions. 	SI: 1, 2, 3, 4, 5, 6, 9, 10, 12, 15 PS: 1, 2	LCC Activity 1 LCC Activity 2 LCC Activity 3 LCC Activity 4 LCC Activity 5	<i>Safety Contract BLM, Safety Evaluation BLM</i> Glencoe Physical Science – pgs. 4 - 35 Glencoe Vocabulary Puzzlemaker Software – Ch. 1 Section Focus Transparency 1, 2, 3 <i>Inquiry Presentation Rubric BLM</i> http://www.ee.unb.ca/tervo/ee2791/intro.htm http://www.nist.gov/public_affairs/kids/metric.htm
Students will: <ul style="list-style-type: none"> • describe how to determine density of a substance. • gather and organize data in charts, tables, and graphs. 	SI: 4, 5, 7, 15 PS: 1, 2	LCC Activity 6 LCC Activity 7 LCC Activity 8	Glencoe Vocabulary Puzzlemaker Software – Ch. 1 Glencoe Physical Science Chapter 1

Teacher Reflection on Content Coverage

Can students...

- display proper laboratory safety procedures?
- make quality observations and ask testable questions?
- utilize accurate metric measurements in solving problems?
- demonstrate techniques used when solving problems?
- organize quantitative data into tables and graphs?
- correctly utilize inquiry processes in investigations?
- describe how to determine density of a substance?

Unit 2: Nature of Matter

Unit Description

The classification and properties of matter are explored by utilizing inquiry processes and modeling techniques, with an emphasis on differentiation among elements, compounds, and mixtures. The kinetic molecular theory is examined through the study of dissolving rates, modeling molecular behavior, and observing.

Student Understandings

Matter exists as pure substances or mixtures. Students should understand the various classifications of matter and how they are connected. Students will learn to differentiate among elements and compounds, which can only be separated or rearranged through chemical processes, as well as mixtures, which can be separated through various physical processes. Students develop and explain models of the Kinetic Theory of Matter and analyze phase changes among substances.

Guiding Questions

Can student...

- classify matter based on observable and measurable properties?
- differentiate between types of mixtures?
- describe how stated factors affect rate of dissolving?
- utilize the kinetic molecular theory to describe the properties and structure of the different states of matter?
- describe the behavior of matter during phase changes?
- classify changes as chemical or physical?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • investigate and classify materials as elements, compounds, or mixtures (heterogeneous or homogeneous). • investigate and compare methods for separating mixtures. • explain the kinetic theory of matter. 	<p>SI: 3, 5, 7,</p> <p>PS: 11, 14, 20</p>	<p>LCC – Activity 1 LCC – Activity 2 LCC – Activity 3</p> <p>LCC – Activity 4</p>	<p>Glencoe Vocabulary Puzzlemaker Software – Ch. 17 Section 1 Glencoe – Physical Science Chapter 17 section 1 pgs 516 - 525</p> <p><i>Kinetic Molecular Theory BLM</i> Glencoe – Physical Science Chapter 4 – Section 1 Glencoe Vocabulary Puzzlemaker Software – Ch. 4</p>

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • describe how certain factors affect the rate of dissolving • describe the behavior of matter during phase changes • - classify changes as chemical or physical 	<p>SI: 1, 2, 3, 4, 5, 7, 9, 10</p> <p>PS: 11, 13, 19, 20, 21, 22, 27</p>	<p>LCC – Activity 5</p> <p>LCC – Activity 6</p> <p>LCC – Activity 7</p> <p>LCC – Activity 8</p>	<p>Glencoe – Physical Science Chapter 23 <i>Glencoe Chapter Resources Book – Foldables Worksheet 17 & Note-taking worksheets pgs. 35-37</i></p> <p>Glencoe Physical Science Chapter 16 – Section 1, pgs. 486-495</p> <p>Glencoe Vocabulary Puzzlemaker Software – Ch. 17- Section 2 Glencoe – Physical Science Chapter 17 – Section 2 pgs. 526-533</p>
<p><i>Teacher Reflection on Content Coverage</i> Can student...</p> <ul style="list-style-type: none"> • classify matter based on observable and measurable properties? • differentiate between types of mixtures? • describe how stated factors affect rate of dissolving? • utilize the kinetic molecular theory to describe the properties and structure of the different states of matter? • describe the behavior of matter during phase changes? • classify changes as chemical or physical? 			

Unit 3: Atomic Structure

Unit Description

Utilizing inquiry processes and modeling techniques, students explore current atomic theory. Emphasis will be placed on utilizing the periodic table as a tool to understand periodic trends and chemical nomenclature. Through research and discussion, students will differentiate between fission and fusion and debate the issues relating to nuclear reactions and radiation.

Student Understandings

Atomic theory includes the understanding of subatomic particles and the structure of atoms, along with understanding the arrangement of the periodic table and the ability to explain periodic trends. Students should learn to name compounds and predict products from chemical reactions. Students should be able to differentiate between atomic fission and fusion and their end products.

Guiding Questions

Can students...

- list the major components of an atom and provide the charge for each?
- interpret models of atoms? (Thomson's Plum Pudding Model, Rutherford's model, Bohr Model, Electron Cloud Model)
- diagram a Bohr model for a given atom?
- use and interpret simple chemical symbols, formulas, and equations that scientists use to represent matter?
- identify patterns of the periodic table?
- explain the simple periodic tendencies and relationship between placement on the periodic table and bonding?
- model or interpret diagrams of simple organic compounds?
- describe radioactivity?
- differentiate between atomic fission and fusion?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • identify the 3 subatomic particles of an atom by location, charge, and relative mass. • determine the number of protons, neutrons, and electrons of elements using the periodic table. • identify isotopes. • identify the number of valence electrons of the 1st 20 elements. • classify elements as metals or nonmetals. • draw models of elements from 1 to 20. • distinguish among symbols for atoms, ions, molecules, and equations for chemical reactions. • name and write chemical formulas. • describe the results of loss/gain of electrons on charges of atoms. • name and write formulas for simple and covalent compounds. • name and predict the bond types between elements. • name and write formulas for ionic and covalent compounds. • evaluate the uses and effects of radioactivity. • compare fission and fusion. • explain fusion in the sun. • trace the movement and behavior of hydrogen atoms during fusion. 	<p>SI: 5, 7</p> <p>PS: 3*, 4*, 7*, 8*, 9*, 15, 16*, 17*, 18*</p> <p>ESS: 5*, 27*</p>	<p>LCC – Activity 6 LCC – Activity 7 LCC – Activity 8 LCC – Activity 9 LCC – Activity 10</p>	<p>Glencoe Vocabulary Puzzlemaker Software – Ch. 9, 19 & 21 Glencoe – Physical Science Chapter 9, 19, & Chapter 21 – p. 640-644</p>
<p>Teacher Reflection on Content Coverage Can students...</p> <ul style="list-style-type: none"> • list the major components of an atom and provide the charge for each? • interpret models of atoms? (Thomson's Plum Pudding Model, Rutherford's model, Bohr Model, Electron Cloud Model) • diagram a Bohr model for a given atom? • use and interpret simple chemical symbols, formulas, and equations that scientists use to represent matter? • identify patterns of the periodic table? • explain the simple periodic tendencies and relationship between placement on the periodic table and bonding? • model or interpret diagrams of simple organic compounds? • describe radioactivity? • differentiate between atomic fission and fusion? 			

Unit 4: Chemical Reactions

Unit Description

The pH of substances will be investigated using a variety of indicators. Chemical reactions will be classified and related to the law of conservation of matter and the balancing chemical equations. Chemical concepts will be applied to home environments.

Student Understandings

Students should observe a number of changes and predict the results of planned laboratory activities and investigations. Some chemical reactions are planned and controlled under conditions in the laboratory and others occur naturally. Many are useful in everyday life, and others occur unintentionally and have negative impacts. Students need to learn how reactions occur, how to identify signs of a chemical reaction, what expected products are, whether a reaction is endothermic or exothermic, and how to measure temperature changes, etc.

Guiding Questions

Can student...

- differentiate among acid, base, and neutral substances?
- determine the pH of substances using indicators and classify the substances as acid, base, or neutral?
- differentiate among types of simple chemical reactions?
- explain the purpose for balancing equations?
- recognize the relationship between the mass of the products and the mass of the reactants in a chemical reaction?
- describe the effects of various factors on the rate of a chemical reaction?
- relate chemistry to everyday life?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • classify unknowns as acidic, basic, or neutral. • classify changes in matter as physical or chemical. • identify evidence of chemical changes. • identify reactions as decomposition, neutralization, or synthesis (combination). • balance simple chemical equations. • determine the effect of various factors on reaction rate. • illustrate the laws of conservation of matter through balancing chemical equations. 	<p>SI: 2, 5, 7, 9, 10, 14</p> <p>PS: 1, 21, 22, 23*, 24*, 25*, 26*, 28</p>	<p>LCC – Activity 1 LCC – Activity 2 LCC – Activity 3 LCC – Activity 4 LCC – Activity 5 LCC – Activity 6</p>	<p>Glencoe Vocabulary Puzzlemaker Software – Ch. 23, 24 & 25</p> <p>Glencoe – Physical Science Chapter 23, 24 & Chapter 25</p> <p>Glencoe – Physical Science p.743-746;</p>

Teacher Reflection on Content Coverage

Can student...

- differentiate among acid, base, and neutral substances?
- determine the pH of substances using indicators and classify the substances as acid, base, or neutral?
- differentiate among types of simple chemical reactions?
- explain the purpose for balancing equations?
- recognize the relationship between the mass of the products and the mass of the reactants in a chemical reaction?
- describe the effects of various factors on the rate of a chemical reaction?
- relate chemistry to everyday life?

Unit 5: Matter, Forces, and Motion

Unit Description

The understanding of how matter, motion, and forces are related, along with a comprehension of Newton's laws of motion and the effects of forces on objects will be developed. Two activities in this unit provide an earth science-based application of physical science principles. The earth sciences provide many real world opportunities to integrate the different science disciplines. These two activities could also be done as part of unit eight, which is dedicated to earth science applications.

Student Understandings

Beginning with the determination of mass and weight, and continuing investigations of forces, students design experiments to accurately test hypotheses about motion, speed, and direction. Newton's laws of motion will be thoroughly explored. Students will develop the ability to construct and interpret graphs of motion. Building on Newton's second law, the conservation of momentum in collisions is introduced at this level.

Guiding Questions

Can students...

- describe forces?
- differentiate between mass and weight?
- describe motion as constant, and determine speed, acceleration, and velocity?
- use Newton's laws of motion to analyze and describe how things move?
- describe or model how the net force affects the motion of an object?
- relate the application of some of the laws of motion to the order of the solar system?
- distinguish between the four main forces in nature: gravity, electromagnetic, strong and weak nuclear forces?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • differentiate between mass and weight. • compare the characteristics and strengths of forces in nature. • demonstrate Newton's three laws of motion. • measure the physical properties of different forms of matter. • gather and organize data in charts, tables, and graphs. • differentiate between mass and weight. 	<p>SI: 4, 5, 6, 7</p> <p>PS: 1*2, 29*, 30*, 31*, 32*, 33*, 34* & 35*</p>	<p>LCC – Activity 1 LCC – Activity 5 LCC – Activity 2 LCC – Activity 3 LCC – Activity 4</p>	<p>Glencoe Vocabulary Puzzlemaker Software – Ch. 2</p> <p>Glencoe – Physical Science Chapter 2; & p. 77-78</p>

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • model and explain how momentum is conserved during collisions. • compare the characteristics and strengths of forces in nature. • identify the relationship between orbital velocity and diameter. • use the nebular hypothesis to explain the formation of the solar system. 	<p>SI: 4, 5, 6, 7, 15</p> <p>PS: 37*, 2*, 30*,</p> <p>ESS: 28*, 29*, 16*</p>	<p>LCC – Activity 6</p> <p>LCC – Activity 7</p> <p>LCC – Activity 8</p> <p>LCC – Activity 9</p>	<p>Glencoe Vocabulary Puzzlemaker Software – Ch. 3</p> <p>Glencoe – Physical Science Chapter 3</p>
<p><i>Teacher Reflection on Content Coverage</i></p> <p>Can students...</p> <ul style="list-style-type: none"> • describe forces? • differentiate between mass and weight? • describe motion as constant, and determine speed, acceleration, and velocity? • use Newton's laws of motion to analyze and describe how things move? • describe or model how the net force affects the motion of an object? • relate the application of some of the laws of motion to the order of the solar system? • distinguish between the four main forces in nature: gravity, electromagnetic, strong and weak nuclear forces? 			

Unit 6: Energy, Work, and Motion

Unit Description

Investigations or activities involving simple and compound machines are used to test hypotheses. The relationship between energy, work, and power will be developed along with the concepts associated with energy, types of energy, and energy transformations including wave properties.. The electromagnetic spectrum will also be investigated.

Student Understandings

Using inquiry processes, students will demonstrate their understanding of simple and compound machines and will describe the relationships among energy, work, and power. The concepts of energy should be understood along a continuum, from the broadest two categories of potential and kinetic, to forms of energy to an analysis of energy transformations. An understanding of waves and wave properties is needed prior to focused study on the electromagnetic spectrum.

Guiding Questions

Can students...

- relate energy, work, and power?
- contrast simple and compound machines?
- determine the efficiency of a machine?
- describe the various forms of energy?
- differentiate between potential and kinetic energy?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
Students will: <ul style="list-style-type: none"> • choose appropriate models to explain scientific knowledge pass exams. • analyze diagrams to identify changes in potential and kinetic energy. 	SI: 7 PS: 38*	LCC – Activity 1 LCC – Activity 2	Glencoe Vocabulary Puzzlemaker Software – Ch. 4 Glencoe – Physical Science Chapter 4
Students will: <ul style="list-style-type: none"> • measure and calculate the relationships among energy, work, and power. • distinguish among thermal, chemical, electromagnetic, mechanical, and nuclear energy. • demonstrate energy transformation and conservation. 	SI: 5, 6, 7, 10 PS: 36*, 39*, 40*	LCC – Activity 3 LCC – Activity 4 LCC – Activity 5 LCC – Activity 6 LCC – Activity 7	Glencoe Vocabulary Puzzlemaker Software – Ch. 4 & 5 Glencoe – Chapter 4 & Chapter 5
Teacher Reflection on Content Coverage Can students... <ul style="list-style-type: none"> • relate energy, work, and power? • contrast simple and compound machines? • determine the efficiency of a machine? • describe the various forms of energy? • differentiate between potential and kinetic energy? 			

Unit 7: Light and Sound

Unit Description

This unit thoroughly examines the properties of visible light and the electromagnetic spectrum and sound. Two activities in this unit provide an earth science-based application of physical science principles. This activity could also be done as part of Unit 9, which is dedicated to earth science applications.

Student Understandings

Incorporating inquiry processes, students will examine and identify properties of waves as they relate to light and sound. The electromagnetic spectrum will be analyzed, and connections will be made among light, electricity, and magnetism. Students will be able to identify and explain the Doppler Effect.

Guiding Questions

Can students...

- describe the relationship between the wavelength and frequency of waves?
- describe the composition of white light?
- interpret and explain diagrams illustrating the laws of refraction and reflection?
- define waves and describe the properties of waves?
- identify and describe the Doppler effect?
- explain at least one application of the Doppler effect?
- relate waves to aspects of everyday life?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
Students will: <ul style="list-style-type: none"> • identify the parts and investigate properties of transverse and compression waves. • describe the relationship between wavelength and frequency. • compare properties of waves in the electromagnetic spectrum. 	SI: 5, 7 PS: 41*, 42*, 48*	LCC – Activity 1 LCC – Activity 2 LCC – Activity 3	Glencoe Vocabulary Puzzlemaker Software – Ch. 11 & 12 Glencoe – Chapter 11 & 12
Students will: <ul style="list-style-type: none"> • describe the Doppler effect on sound. • identify positive and negative effects of electromagnetic/mechanical waves on humans and human activities. 	SI: 5,6,7, 9, 14 PS: 48, 49*, 50* ESS: 23	LCC – Activity 4 LCC – Activity 7	Glencoe Vocabulary Puzzle maker Software – Ch. 11 & 12 Glencoe – Chapter 11 & 12
Students will: <ul style="list-style-type: none"> • Investigate and construct diagrams to illustrate the laws of reflection and refraction. • Compare properties of waves in the electromagnetic spectrum. • Identify positive and negative effects of electromagnetic/mechanical waves on humans and human activities. 	SI: 5, 6, 7 PS: 43*, 48, 50* ESS: 26, 30	LCC – Activity 5 LCC – Activity 6	Glencoe Vocabulary Puzzle maker Software – Ch. 14 Glencoe – Chapter 14

Teacher Reflection on Content Coverage

Can students...

- describe the relationship between the wavelength and frequency of waves?
- describe the composition of white light?
- interpret and explain diagrams illustrating the laws of refraction and reflection?
- define waves and describe the properties of waves?
- identify and describe the Doppler effect?
- explain at least one application of the Doppler effect?
- relate waves to aspects of everyday life?

Unit 8: Electricity and Magnetism

Unit Description

This unit thoroughly examines the properties of static electricity, electric circuits, magnetic fields, and the relationship between electricity and magnetism.

Student Understandings

Incorporating inquiry processes, students will examine and identify properties and connections between electricity and magnetism. Students will investigate the production of static electricity, construct electrical circuits, map magnetic fields, and build an electromagnet.

Guiding Questions

Can students...

- create and define static electricity?
- construct a complete circuit?
- differentiate between parallel and series circuits?
- trace the flow of electrical energy on diagram of a complete circuit?
- describe a magnetic field?
- describe a relationship between electricity and magnetism?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
Students will: <ul style="list-style-type: none"> • illustrate the production of static electricity. • evaluate diagrams of series and parallel circuits. 	SI: 5, 6, 7, 9 PS: 44*, 45*	LCC – Activity 1 LCC – Activity 2 LCC – Activity 3	Glencoe Vocabulary Puzzlemaker Software – Ch. 7, Chapter 8 Glencoe – Chapter 7, Chapter 8
Students will: <ul style="list-style-type: none"> • explain how electricity and magnetism are related. • diagram a magnetic field. 	SI: 9, 7, 14 PS: 46, 47	LCC – Activity 4 LCC – Activity 5	Glencoe Vocabulary Puzzlemaker Software – Ch. 7, Chapter 8 Glencoe – Chapter 7, Chapter 8

Teacher Reflection on Content Coverage

Can students...

- create and define static electricity?
- construct a complete circuit?
- differentiate between parallel and series circuits?
- trace the flow of electrical energy on diagram of a complete circuit?
- describe a magnetic field?
- describe a relationship between electricity and magnetism?

Unit 9: Investigation of Physical and Earth Science

Unit Description

Applications of physical science concepts to additional science content areas aids students in making connections, transferring, and retaining knowledge and comprehension. In this unit applications that integrate Earth and space science concepts are featured.

Student Understandings

Students will develop the ability to illustrate and explain the reason for Earth's seasons and to apply physical science concepts in describing the relationship between the angle of radiation, seasonal changes, and the consequences for Earth's temperature. By investigating the characteristics of the different layers of Earth, students will understand the processes by which heat is transferred across the boundaries between layers. Students should develop an understanding of the physical processes driving lithospheric plates as they move.

Guiding Questions

Can students...

- describe or illustrate the changes in angle and intensity of solar radiation that causes seasons as Earth orbits the Sun?
- describe the consequences of overexposure to ultraviolet radiation?
- relate density, force, and pressure to processes in Earth's core, mantle, and crust?
- differentiate among forms of heat transfer, conduction, convection, and radiation?
- Identify how nuclear energy, from the Earth's core, is involved with lithospheric plate movements?

Teaching Objectives	GLEs	Recommended LCC Activities	Suggested Resources
<p>Students will:</p> <ul style="list-style-type: none"> • evaluate the uses of radioactivity in people's daily lives. • distinguish among thermal, chemical, electromagnetic, mechanical, and nuclear energy. • identify positive and negative effects of electromagnetic/mechanical waves on humans and human activities. • describe the relationship between seasonal changes in the angle of incoming solar radiation and its consequences to earth's temperature. 	<p>SI: 2,4,7, 8, 9, 12</p> <p>PS: 8*, 39*, 50*</p> <p>ESS: 4*, 6*</p>	<p>LCC – Activity 1 LCC – Activity 2</p>	<p>http://weather.cod.edu/sirvatka/1110/seasons.html</p> <p>http://earthguide.ucsd.edu/wav/index.html</p>
<p>Students will:</p> <ul style="list-style-type: none"> • compare the characteristics and strengths of forces in nature. • describe the processes that drive lithospheric plate movements. • relate lithospheric plate movements to volcanoes, earthquakes, mid-ocean ridge systems, and off-shore trenches. 	<p>SI: 8, 9</p> <p>PS: 30*, 39*</p> <p>ESS: 11*, 12*</p>	<p>LCC – Activity 3</p>	<p>http://www.digitalgeology.net/</p>
<p>Teacher Reflection on Content Coverage</p> <p>Can students...</p> <ul style="list-style-type: none"> • describe or illustrate the changes in angle and intensity of solar radiation that causes seasons as Earth orbits the Sun? • describe the consequences of overexposure to ultraviolet radiation? • relate density, force, and pressure to processes in Earth's core, mantle, and crust? • differentiate among forms of heat transfer, conduction, convection, and radiation? • Identify how nuclear energy, from the Earth's core, is involved with lithospheric plate movements. 			