## Unit: Earthquakes and Volcanoes

**Unit Objectives:**
- Recognize the interrelationship of science concepts
- Explain that ideas about science change, but that God never changes
- Preview the Unit and Chapter Content
- Identify some of the results of the constant changes on the earth’s surface
- Explain the theory of plate tectonics
- Infer that plate boundaries are unstable areas of the earth’s surface
- Interpret diagrams of the parts of the earth and the different kinds of faults
- Relate the movement of plates to faults and earthquakes
- Compare and contrast body waves and surface waves
- Explain the differences between the Mercalli scale and the Richter scale
- Describe disasters related to earthquakes
- Practice using the scientific method
- Model the effects of an earthquake on a building
- Design and construct a structure that can withstand a simulated earthquake
- Record and analyze information to form conclusions
- Identify variables
- Explain the causes of volcanic eruptions

**Unit Topics/Concepts:**
- Textbook Preview
- Plate Tectonics
- Causes of earthquakes, faults
- Seismic Waves
- Detecting Earthquakes
- Measuring Earthquakes
- Building for Earthquakes
- Earthquake Related Disasters
- Scientific Method
- Formulating Hypothesis
- Recording Data
- Constructing Models
- Structures that can withstand earthquakes
- Identifying and Controlling Variables
- Causes of Volcanoes
- Locations of Volcanoes
- Classifying Volcanoes
- Making a Model of a Volcano
- Effects of Volcanoes
- Dangers of Volcanoes
- Products of Volcanoes
- Equipment Used to Study Volcanoes (Design Project)
- Using graphic organizers to identify related concepts

**Process Skills:**
- Making and Using Models
- Inferring
- Measuring and Using Numbers
- Communicating
- Hypothesizing
- Collecting & Recording Data
- Identifying and Controlling Variables
- Predicting
- Experimenting
- Classifying
- Observing

**Unit Resources:**
- Student Text pp. 1-24
- Activity Manual pp. 1-20
- Teacher Text pp. 1-30
- Teacher’s Toolkit CD
- Student Diagrams
- Rubrics
- Earthquake Concept Web
- Volcano Concept Web
- Venn Diagram
- Web Links
- www.bjupress.com/resources

**Biblical Integration Concepts:**
- Creation under the curse of sin
- God’s omniscience
- Interrelationship of the parts of His creation
- God’s use of creation for His glory
- Mankind’s finite knowledge
- The Flood as God’s judgment on sin
- God’s omnipotence
- Christ as solid foundation for life
- Mankind’s God-given dominion
- Mankind’s demonstration of God’s love
- Christians as dependable workers
- Christians as faithful workers
- God as Master of creation
- God’s use of forces for Earth’s benefit

**Instructional Strategies:**
- Create a science notebook to develop organizational skills
- Design a map of the region that incorporates land features from the unit and includes areas of industry, residential areas, transportation, agriculture, businesses, communication, parks, and recreation.
- Discuss ancient stories about how earthquakes started to occur
- Discuss convocation currents and their affect on plates
- Discuss Pangea
- Discuss the New Madrid and San Francisco earthquakes
- Demonstration: Demonstrate how rocks move along faults
- Show ripples using an overhead projector
- Discuss a Chinese seismoscope
- Demonstration: Demonstrate different types of waves
- Discuss magnitude
- Discuss triangulation to find the center of an earthquake
- Discuss engineering buildings to withstand earthquakes
- Discuss the terms the ring of fire, volcano classifications, volcanic ash and bowl-shaped craters
- Map Study: Locating volcanic islands
- Discuss Mauna Loa, a Hawaiian volcano
- Math: Use fractions to calculate height of a volcano
- Activity: Chemical reaction of baking soda and vinegar
- Compare extrusive rock and intrusive rock
- Discuss the history of Yellowstone National Park
- Demonstration: How a geyser works
- Discuss the purpose of a tiltmeter
- Review game: Volcanic eruptions

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### Chapter 1: Earthquakes and Volcanoes

(Updated 7/10/18)
<table>
<thead>
<tr>
<th>Chapter 2: Weathering and Erosion (updated 7/10/18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Identify the parts of a volcano</td>
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<td>• Describe three ways volcanoes are classified</td>
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<td>• Design a model volcano based on one of the three kinds of volcanoes</td>
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<tr>
<td>• Construct a model of a volcano</td>
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<td>• Communicate the type of volcano made and the process used to make the volcano</td>
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<td>• Compare the model volcano to an actual volcano</td>
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<td>• Identify possible dangers of volcanoes</td>
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<tr>
<td>• List some of the meteorological effects of a volcanic eruption</td>
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<td>• Name some of the products of volcanoes</td>
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<td>• Describe other kinds of thermal eruptions</td>
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<td>• Identify the dangers and difficulties associated with exploring volcanoes</td>
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<td>• Design a piece of equipment that would help in volcano research</td>
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<tr>
<td>• Use graphic organizers to identify related concepts</td>
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<tr>
<td>• Recognize that graphic organizers have different purposes</td>
</tr>
<tr>
<td>• Recall concepts and terms from Chapter 1</td>
</tr>
<tr>
<td>• Apply knowledge to everyday situations</td>
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<tr>
<td>• Demonstrate knowledge of concepts taught in Chapter 1</td>
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<table>
<thead>
<tr>
<th>Unit Topics/Concepts</th>
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<tbody>
<tr>
<td>• Introduction to Weathering and Erosion</td>
</tr>
<tr>
<td>• The Rock Cycle</td>
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<tr>
<td>• Mechanical Weathering</td>
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<tr>
<td>• Chemical Weathering</td>
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<tr>
<td>• Caves</td>
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<tr>
<td>• Measuring Rocks (mass, volume, length)</td>
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<tr>
<td>• Soil</td>
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<td>▪ Soil Particle Size</td>
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<table>
<thead>
<tr>
<th>Interpreting Data</th>
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<tbody>
<tr>
<td>• Student Text pp. 25-50</td>
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<td>• Activity Manual pp. 21-40</td>
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<td>• Teacher Text pp. 31-60</td>
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<td>• Teacher's Toolkit CD: Chapter 2</td>
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<td>• Web Links</td>
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<td>▪ Kids Geozone</td>
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<td>▪ Rockhounding Arkansas</td>
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<td>▪ Rocksforkids.com</td>
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<tr>
<td>▪ Niagara Erosion</td>
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<tr>
<td>▪ Niagara Parks</td>
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<td>▪ Electricity at Niagara</td>
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<table>
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<tr>
<th>Biblical Integration Concepts:</th>
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<tbody>
<tr>
<td>• The Flood's effect on the earth</td>
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<tr>
<td>• Man as steward of God's creation</td>
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<td>• God's perfect design</td>
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<td>• God's use of forces for Earth's benefit</td>
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<td>• Christians as faithful workers</td>
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<tr>
<td>• Discuss the Grand Canyon and Burlingame Canyon</td>
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<td>• Discuss the rock cycle</td>
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<td>• Discuss uniformitarianism</td>
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<td>• Demonstrate: Demonstrate rock changes</td>
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<tr>
<td>• Activity: Demonstrate how sedimentary rocks can be changed by heat and pressure</td>
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<tr>
<td>• Discuss pollution problems around the world</td>
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</tbody>
</table>
Define and give examples of chemical weathering

Describe how acid rain forms

Summarize how chemical weathering forms limestone caves

Measure length to the nearest millimeter

Measure mass to the nearest gram

Measure volume to the nearest milliliter

Compare the different kinds of soil and their relative sizes

Describe the factors that determine the composition of soil

Describe the five soil horizons

Interpret a texture triangle diagram

Interpret the procedure of a flow chart

Analyze a soil sample

Record observations

Analyze experimental results

Predict the amount of particles needed for a specific soil sample

Differentiate between erosion and weathering

Identify kinds of mass wasting

Describe how sediment is carried and deposited by a stream

Record and analyze data

Measure volume, angles, and mass accurately

Experiment to discover how the steepness of a slope affects erosion

Demonstrate an understanding of the real-life problems of sand erosion and deposition

Summarize how water, wind, and ice cause erosion

Compare the effects of ice erosion with other...

### Chapter 3: Natural Resources

**Unit Topics/Concepts**
- Introduction to Natural Resources
- Energy Resources
  - Renewable vs. nonrenewable
  - Fossil Fuels
  - Petroleum
  - Natural Gas
  - Coal
- Nuclear Energy
- Clean Up the Spill - Oil (Activity)
- Renewable Energy
  - Hydroelectric
  - Geothermal
  - Wind
  - Solar
- Other Resources (Minerals, Metals)
  - Soil
  - Erosion Prevention (Activity)
  - Water
    - Water Cycle
    - Oceans
    - Fresh Water
    - Atmosphere
    - Frozen Water
  - Preserving Our Resources
  - Water in Israel
  - Autonomous Underwater Vehicles (technology)

**Process Skills**
- Inferring
- Hypothesizing
- Prediction
- Making & using a model
- Observing
- Collecting and recording data
- Measuring and using numbers

**Unit Resources**
- Student Text pp. 51-76
- Activity Manual pp. 41-56
- Teacher Text pp. 51-76
- Teacher's Toolkit CD - Chapter 3
- Web Links
  - Oceanside Clean Water Program.org
  - Energy.gov
  - Growing Crops in Desert
  - Minerals on Mars
- Videos
  - Activity (ST p. 56)
  - Centrallia Mine Fire
  - How the Hoover Dam Produces Electricity
  - Oconee Nuclear Power Plant
  - Oil Spills
  - The Hoover Dam
- Chapter 3 PowerPoint
- Chapter 3 Artwork

**Biblical Integration Concepts:**
- God's use of forces for Earth's benefit
- God's provision for mankind
- Mankind's use of God's resources
- The Flood's effect on the earth
- Man's responsibility for his actions
- Man's demonstration of God's love
- God's Word as the only true source of guidance
- God's plan for worship
- God's refining in Christians' lives
- Mankind's God-given dominion
- God's design for Earth's resources
- Man as a steward of God's creation
- God's gift of eternal life
- Salvation through Christ
- Man's use of wisdom to serve his fellow man
- Mankind's God-given curiosity

**Biblical Integration Strategies:**
- Some scientists believe that fossil fuels were formed as a result of the Flood
- Coal deposits demonstrate evidence of a worldwide flood as described in the Bible
- Read Genesis 1:26-28 about how we have dominion over the earth
- Discuss beneficial fires such as one in Yellowstone Park
- Compare exhaustible and nonexhaustible resources
- Compare crude and refined oil
- Make a petroleum collage
- Discuss coal, sulfur dioxide, and natural gas
- Map Study: Chernobyl effects
- Discuss cleaning up oil spills
- Discuss Hoover Dam
- Discuss America's first hydropower plant
- Discuss geothermal energy
- Demonstration: Demonstrate different energy sources
- Discuss water wheels
- Map Study: Geothermal energy locations
- Discuss windmills as energy
- Map study: Wind farm locations locally and around the world
- Discuss the technology of solar cells and their inventor, Charles Fritz
- Discuss the use of GPS in farming
- Discuss the terms transpiration, phytoplankton, and photosynthesis
- Discuss ocean currents and their effect on weather
- Discuss freshwater resources around the world
- Discuss ways to clean water
- Research and write about North Pole expeditions and who got there first
- Activity: Reuse items
- Math: Determine the weight of a gallon of water using the weight of a student
- Discuss underwater observatories
- Discuss uses for robotic vehicles
- Review Game: Mining for Gold
<table>
<thead>
<tr>
<th>Unit</th>
<th>Unit Objectives</th>
<th>Unit Topics/Concepts</th>
<th>Unit Resources</th>
<th>Biblical Integration Concepts</th>
<th>Instructional Strategies</th>
</tr>
</thead>
</table>
| Chapter 4: Cells and Classification (updated 7/10/18) | • Recognize the interrelationship of science concepts | **Unit Topics/Concepts**  
  - God’s Living Creation Overview  
  - Cells and Organisms  
  - Characteristics of Living Things  
  - Microscopes  
  - Using a Microscope  
  - Cells & Cell Structures  
  - Tissues  
  - Organs, Systems  
  - Animal Cells  
  - Plant Cells  
  - Organized Cell: Making a 3-D model of a cell | **Student Text pp. 77-100**  
**Activity Manual pp. 57-70**  
**Teacher Text pp. 91-116**  
**Teacher Toolkit CD - Chapter 4**  
**Web Links**  
  - Classification of Life  
  - Fun Facts About Fungi  
  - Cells Alive  
**Videos**  
  - Robert Hooke  
  - Taxonomist  
  - The Kingdoms of Living Things  
  - The Organized Cell  
  - Chapter 4 Artwork | • Discuss God’s provision for human beings with shelter, food, and water  
• Read Genesis 16, which references wells | **Quarter 2**  
**Discuss hydrothermal vents and chemosynthesis**  
**Discuss deep sea exploration**  
**Compare living and nonliving organisms**  
**Demonstration: Demonstrate the characteristics of living things**  
**Discuss who invented the microscope**  
**Research a short report about Robert Hooke, Zacharias Jansen, or Anton van Leeuwenhoek**  
**Math: Calculate the power of magnification available with a microscope**
**Process Skills**
- Classification
- Observing
- Making and Using Models
- Inferring
- Communicating

**Function of Cell Structures**
- Reproduction of Cells
  - Mitosis
  - Meiosis
- Classifying pasta according to chosen criteria
- Classification
  - Kingdom Eubacteria
  - Kingdom Archaeabacteria
  - Kingdom Protista
  - Kingdom Fungi
  - Kingdom Plantae
  - Kingdom Animalia
- Naming Organisms

**Chapter 4 PowerPoint**
- Effects of a little sin
- God's provision for His creation
- Mankind as God's special creation
- God's orderly design
- God's variety in creation
- God's omniscience
- Man as steward of God's creation

**Biblical Integration Strategies:**
- Read Gen. 2:16-17; Rom. 5:12, 19; and 1 Cor. 15:12 about the origin and remedy for sin.
- Some characteristics of living things are also characteristics of people that are spiritually alive in Christ; read the verses in the Teacher Book.
- Read Gen. 2:15, 19; Gen. 1: 11, 21, 24 about Adam's job of naming the animals, caring for the garden, etc.
- Discuss Carolus Linnaeus who believed that through nature human beings could learn more about God.

**Activity:** Making a microscope slide
- Discuss the terms *cells*, *chromosomes*, and *DNA*
- Discuss the terms *mitosis* and *meiosis*, along with other forms of reproduction
- Demonstration: Observe yeast growth
- Demonstration: Demonstrate the function of cell walls
- Activity: Classifying plants and animals
- Activity: Identify correctly written scientific names
- Review Game: Kingdom to Species

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**Activity: Classifying pasta according to chosen criteria**
- Classification
- Observing
- Making and Using Models
- Inferring
- Communicating

**Activity: Identify correctly written scientific names**
- Recall, apply, and demonstrate knowledge of cell structure.
Chapter 5: Animal Classification

(Updated 7/10/18)

- Recognize that studying animals helps us see God’s care for His creation
- Recognize invertebrates and vertebrates as a broad way to distinguish animals
- Recognize that unique animal characteristics allow classification
- Describe the unique characteristics of the phyla that include sponges, jellyfish, and mollusks
- Compare the spicules of a Rossella sponge with optic fibers
- Identify ways that studying a Rossella sponge may improve fiber-optic technology
- Recognize man’s duplication of God’s creation
- Construct a terrarium
- Observe land snails
- Record observations
- Identify characteristics of echinoderms
- Compare characteristics of flatworms, roundworms, and segmented worms
- Compare a free-living worm with a parasite
- Explain why worms can be both helpful and harmful to man
- Identify crustaceans, arachnids, centipedes, millipedes, and insects as arthropods
- Describe basic characteristics of each kind of arthropod
- Observe the larval stage of complete metamorphosis
- Observe the pupal stage of complete metamorphosis
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Unit Topics/Concepts

- Animal Classification
- Invertebrates
  - Sponges & Stinging Animals
  - Mollusks
  - Fiber Optic Sponges
  - Snail Terrarium
  - Echinoderms
  - Flatworms
  - Roundworms
  - Segmented Worms
  - Arthropods
  - Crustaceans
  - Arachnids
  - Insects
  - (metamorphosis)
  - Mealworm Movement
  - Vertebrates
  - Fish
  - Bony Fish
  - Cartilage Fish
  - Amphibians
  - Reptiles
  - Birds
  - Mammals
    - Monotremes
    - Marsupials
    - Rodents, rabbits, and moles
    - Bats
    - Hoofed Mammals
    - Carnivores
    - Marine Mammals
    - Primates
    - Humans
  - Blubber Mitts
  - Animal Robotics

- Student Text pp. 101-136
- Activity Manual pp. 71-88
- Teacher Text pp. 117-152
- Teacher Toolkit CD
- Chapter 5 Artwork
- Chapter 5 PowerPoint
- Web Links
  - The Animal Kingdom
  - Animal Information
  - Surprising Science
- Videos
  - Blubber Mitts
  - Fiber Optics
  - Fibonacci Spiral
  - Invertebrates
  - Leeches
  - Medicinal Uses of Leeches
  - Prosthetic Devices
  - Vertebrates

Biblical Integration Concepts:

- God’s care for His creation
- Man’s responsibility for His actions
- God’s perfect design
- God’s provision for His creation
- God’s use of creation for His glory
- Creation models biblical truth
- God’s power over sin
- Mankind created in God’s image
- Mankind as God’s special creation
- Mankind’s God-given curiosity
- Mankind’s responsibility to glorify God

Biblical Integration Strategies:

- Discuss snakes and the Garden of Eden and how snakes crawl on their bellies
- Read “A Narrow Fellow in the Grass” by Emily Dickinson
- Discuss the endangered species
- Math: Measure the outstretched arms of several students and compare them to the average wingspan of an albatross
- Compare North and South American marsupials
- Demonstration: Demonstrate water vapor condensing
- History: Use of dolphins to find mines
- Activity: Choose several animal parts and discuss the function of each
- Review Game: Vertebrate vs. Invertebrate

- Compare invertebrate and vertebrate
- Discuss how to find the age of coral reefs
- Activity: Examine sponges
- Discuss the history of farming snails
- Activity: Contrast spicules with manmade fibers
- Compare optical fibers with fiber-optic cables
- Demonstration: Demonstrate how an optical fiber transmits light
- Discuss filter feeders, echinoderm characteristics, and sea stars
- Compare flatworms, roundworms, and segmented worms
- Demonstration: Observe earthworms
- Discuss diseases that ticks carry
- Discuss spiders in mythology
- Discuss mealworm development
- Write a tall tale explaining a fish’s distinctive features
- Read “A Narrow Fellow in the Grass” by Emily Dickinson
- Discuss the endangered species
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- Activity: Choose several animal parts and discuss the function of each
- Review Game: Vertebrate vs. Invertebrate
- Collect and record observation data
- Identify fish as cold-blooded animals that breathe through gills
- Identify amphibians as cold-blooded animals that live part of their lives in water and part on land
- Describe the life cycle of most amphibians
- Identify two characteristics of reptiles
- Identify two characteristics of birds
- Compare similarities and differences of birds and reptiles
- Identify four characteristics of mammals
- Explain how marsupials and monotremes are different from other mammals
- Recognize how humans are different from mammals
- Formulate a hypothesis
- Model the insulating properties of animal blubber
- Experiment to test each model as an insulator
- Record temperatures and observations
- Associate animal parts with mechanical tools
- Research to design a robotic animal
- Create a drawing and description of a robotic animal
- Recall, apply, and demonstrate knowledge to everyday situations

### Bibliography
- Student Text pp. 137-158
- Activity Manual pp. 89-102
- Teacher Text pp. 153-174
- Teacher Toolkit CD
- Chapter 6 Artwork
- Chapter 6 PowerPoint
- Videos

### Biblical Integration Concepts:
- Mankind's finite knowledge
- God's orderly design
- God as Master of creation
- Discuss mosses and hornworts
- Demonstration: Look at the parts of a fern
- Discuss uses for club mosses
- Discuss what a gymnosperm is
- Demonstration: Demonstrate how conifer leaves retain...
Classify vascular plants as seed-bearing plants or seedless plants. Identify kinds of seedless vascular plants. Identify the parts of a fern. Differentiate between facts and opinions. Classify seed-producing plants as gymnosperms or angiosperms. Identify four kinds of gymnosperms. Identify two kinds of conifers. Describe ways that man uses conifers. Identify characteristics and examples of angiosperms. Compare and contrast annual, biennial, and perennial plants. Name some ways that angiosperms are used. Compare monocotyledons and dicotyledons. Create a visual illustrating how plants are classified. Research products made from a given plant. Prepare a display to demonstrate research results. Present a display. Identify the two kinds of vascular tissue and describe their functions. Summarize three main functions of a plant stem. Compare and contrast herbaceous and woody stems. Summarize three main functions of root systems. Compare and contrast taproots, fibrous roots, and aerial roots. Measure the circumference, height, and crown of a tree and calculate the tree's point value. Create a graph to show...
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<tr>
<th>Chapter 7: Atoms and Molecules (updated 7/10/18)</th>
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<td><strong>Unit Topics/Concepts</strong></td>
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<tr>
<td>- Recognize the interrelationship of science concepts</td>
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<td>- Recognize that man's inferences are sometimes inaccurate</td>
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<tr>
<td>- Describe and label the size, charge, and location of each part of an atom</td>
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<tr>
<td>- Recognize that an element is made of only one kind of atom</td>
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<td>- Differentiate between atomic mass and atomic number</td>
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<tr>
<td>- Recognize that the periodic table is a classification system</td>
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<tr>
<td>- Describe the process Mendeleev used for arranging the elements</td>
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<td>- Identify the types of information provided for each element on the periodic table</td>
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<td>- Identify the terms period and group as they relate to the periodic table</td>
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<td>- Differentiate among categories on the periodic table</td>
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<td>- Write about an element based on research</td>
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<td>- Construct a visual aid</td>
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<td>- Explain that a chemical change occurs when atoms of different elements combine</td>
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<td>- Demonstrate how to read and write a chemical formula</td>
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<td>- Differentiate between synthesis and decomposition reactions</td>
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**Process Skills**
- Making and using models
- Classifying
- Inferring
- Communicating
- Observing
- Predicting
- Measuring
- Experimenting
- Collecting and Recording Data
- Hypothesizing
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<td>Chapter 8: Electricity and Magnetism</td>
<td>Recognize God’s use of man’s curiosity</td>
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<td><strong>Unit Resources</strong></td>
<td><strong>Biblical Integration Concepts:</strong></td>
<td><strong>Instructional Strategies:</strong></td>
</tr>
<tr>
<td>(updated 7/10/18)</td>
<td>Explain what causes static electricity</td>
<td>• Introduction to Electricity and Magnetism</td>
<td>• Student Text pp. 187-210</td>
<td>• Mankind’s finite knowledge</td>
<td>• Compare the discoveries of Galvani and Volta</td>
</tr>
<tr>
<td></td>
<td>Identify the two things needed for an electric current to flow</td>
<td>• Static Electricity</td>
<td>• Activity Manual pp. 121-136</td>
<td>• Mankind’s God-given curiosity</td>
<td>• Discuss the law of conservation of energy</td>
</tr>
<tr>
<td></td>
<td>Describe the characteristics of conductors, resistors, and insulators</td>
<td>• Current Electricity</td>
<td>• Teacher Text pp. 205-228</td>
<td>• Man as steward of God’s creation</td>
<td>• Demonstration: Demonstrate materials as conductors or insulators</td>
</tr>
<tr>
<td></td>
<td>Design and build an “unbreakable” circuit</td>
<td>• Conductors, switches, insulators, &amp; resistors</td>
<td>• Teacher Toolkit CD</td>
<td>• Mankind’s God-given dominion</td>
<td>• Discuss circuits in a house</td>
</tr>
<tr>
<td></td>
<td>Experiment to test hypotheses</td>
<td>• Experimenting to test hypothesis</td>
<td>Web Links</td>
<td>• God’s perfect design</td>
<td>• Activity: Identifying how electricity is used</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Building an unbreakable circuit</td>
<td>• A Lightning Primer</td>
<td>• God’s provision for His creation</td>
<td>• Math: Use a formula to show the relationship between units of electrical measurement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Series and parallel circuits</td>
<td>• How Lightning Works</td>
<td>• God’s perfect creation</td>
<td>• Compare wet and dry cells</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Measuring electricity</td>
<td>• Lightning Safety</td>
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<td>• Demonstration: Demonstrate</td>
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<tr>
<td>Unit Topics/Concepts</td>
<td>Biblical Integration Concepts:</td>
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<tr>
<td>- Introduction to Motion and Machines - Velocity and Acceleration - Newton's laws of motion - Demonstrating Newton's laws of motion</td>
<td>- Mankind's responsibility to glorify God - Christ as a Christian's reference point - Bible as final authority - Mankind's finite</td>
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</tbody>
</table>

**Chapter 9: Motion and Machines** (updated 7/10/18)

- Recognize that God values creativity
- Differentiate between speed and velocity
- Explain why a reference point is needed to observe motion
- Describe the relationship between speed and velocity

**Batteries**
- Magnetism
- Electromagnets
- Generators
- Researching and making a speech about an inventor or discovery
- Predicting and identifying ways to strengthen an electromagnet
- Recognizing another use for electromagnets
- Identifying advantages of electromagnetic technology
- Electronics
- Integrated circuits
- Computers

**Chapter 8 PowerPoint**

- Demonstrating Newton's laws of motion
- Designing and making a student project
- Math: Calculate force

**Demonstration:** Demonstrate magnetic fields

- Discussion: Discuss maglev technology and systems
- Demonstration: Demonstrate magnetic levitation
- Activity: Identify electronic devices
- Activity: Explore binary code combinations
- Activity: Practicing life without electricity
- Review Game: Complete the Circuit

**Process Skills**
- Experimenting
- Hypothesizing
- Predicting
- Identifying and controlling variables
- Making, measuring, and using models
- Observing
- Communicating
- Recording data

**Making a Battery**

**Magnetism**

**Electromagnets**

**Generators**

**Researching and making a speech about an inventor or discovery**

**Predicting and identifying ways to strengthen an electromagnet**

**Recognizing another use for electromagnets**

**Identifying advantages of electromagnetic technology**

**Electronics**

**Integrated circuits**

**Computers**

**Activity:** Identify electronic devices

**Activity:** Explore binary code combinations

**Activity:** Practicing life without electricity

**Review Game:** Complete the Circuit

**Biblical Integration Concepts:**
- Mankind's responsibility to glorify God
- Christ as a Christian's reference point
- Bible as final authority
- Mankind's finite

**Math:** Calculate average speed

**Amusement Park Physics**

**Surprising Science**

**Videos**

**Accelerometers**

**Accumulator**

**Demonstration:** Demonstrate magnetic levitation
### Chapter 10: Stars

**Unit Topics/Concepts**
- Introduction to the Stars
- Characteristics of Stars
- Colors of Stars
- Sizes and Distance of Stars
- Variable Stars

**Unit Activities**
- Student Text pp. 240-258
- Activity Manual pp. 157-170
- Teacher Text pp. 260-280
- Teacher Toolkit CD
- Videos
  - Binary Stars
  - Finding Constellations

**Biblical Integration Concepts:**
- God as Master of creation
- God's creation reflects His glory
- God's omnipotence

**Knowledge**
- God's omniscience
- God's orderly design
- God's design of man's body

**Process Skills**
- Using numbers
- Inferring
- Making and Using models
- Defining operationally
- Experimenting
- Observing
- Communicating
- Classifying
- Measuring
- Recording data

**Accident Reconstruction**
- Chapter 9 Artwork
- Chapter 9 PowerPoint

**Biblical Integration Strategies:**
- Discuss actions and reactions of Christ to suffering

**Activity: Conduct an arm wrestling competition**
- Test various levers
- Discuss pulleys
- Demonstration: Compare the amount of work done with pulleys
- History: Simple machines in Egypt
- Write about simple machines in ancient civilizations
- Review Game: Moving Along

**Math:** Calculate force
**Math:** Calculate a light year

**Literature:** God's omniscience
**Literature:** God's orderly design
**Literature:** God's design of man's body

**Scientific Method:** Discuss early astronomers
• Explain how stars produce their own light
• Distinguish between apparent magnitude and absolute magnitude of stars
• Identify classifications of stars according to color
• Explain ways distance is measured in space
• Interpret diagrams
• Differentiate between a pulsating variable star and an eclipsing variable star
• Describe the causes of novas and supernovas
• Describe how astronomers think neutron stars and black holes are formed
• Identify various constellations
• Defend why a Christian should not be involved in astrology
• Describe the difference between a reflecting telescope and a refracting telescope
• Identify instruments used to study the stars
• Make a model of a constellation
• Recognize and name several star groups and constellations
• Make a model of a constellation
• Plot points on a graph
• Relate the model to the relative distance of stars
• Identify how many stars are in a binary star group and in a multiple star group
• Differentiate between an open star cluster and a globular cluster
• Identify our galaxy as the Milky Way
• Recognize that our galaxy is part of a cluster of galaxies called the Local Group
• Describe asteroids,

• Novas
• Supernovas
• Neutron Stars
• Black holes
• Constellations
• Astrology
• Telescopes
• Spectroscopes
• Modeling constellation patterns (Pinhole Constellations)
• Modeling the distance of stars in a constellation
• Star groups
• Star clusters
• Galaxies
• The Local Group
• Asteroids, Meteoroids, Comets
• Reading a star chart
• Observing the night sky
• Observing the relationship between mass, height, and depth of craters
• Testing hypotheses

Process Skills:
• Measuring and using numbers
• Inferring
• Making and using models
• Experimenting
• Observing
• Communicating
• Classifying
• Measuring
• Recording data
• Identifying and controlling variables

• Legendary Stars
• Stargazing
• Web Links
• Zoom Astronomy
• Kidsastronomy.com
• Astronomy: Our Place in Space
• Astronomy Charts
• Chapter 10 Artwork
• Chapter 10 PowerPoint

• Faith in God's Word for guidance
• God’s Word as the only true source of guidance
• God's omniscience
• God's use of creation for His glory
• God's use of creation for His purpose
• God as only Creator

Biblical Integration Strategies:
• Read Psalm 147:4; if God numbers the stars, then we are important to Him
• Discuss how scientists have never seen the birth of a new star
• Discuss constellations mentioned in the Bible (Job 9:9; 38:31; 26:13)
• Discuss the church's response to astrology
• Research and write about an Earth crater from a Christian perspective

Math: Calculate a light year
Writing: Write a story about the reaction of people in a small village to the sight of a nova.
Demonstration: Demonstrate pulsating variable stars and eclipsing variable stars
Discuss the development of new instruments to measure gravitational waves
Discuss black holes
Demonstration: Demonstrate that the mass of a star is compacted
Activity: Making a constellation
Discuss telescopes and their invention
Activity: Using lenses
Demonstration: Demonstrate separating colors of light
Demonstration: Demonstrate that stretching affects how far apart objects are
Demonstration: Demonstrate binary stars
Activity: Understanding relative sizes
Review Game: Constellations
Chapter 11: Solar System

- Recognize that God's creation is orderly
- Explain how a rocket uses thrust to launch
- Describe characteristics of space exploration tools such as rockets, space shuttles, satellites, and probes
- Distinguish between a space shuttle and a probe
- Identify ways that living in space is different from living on Earth
- Describe some types of inflatable spacecraft
- Understand the basics of inflatable technology
- Explain the advantages of inflatable spacecraft
- Hypothesize how design affects the performance of a balloon rocket
- Construct a balloon rocket
- Demonstrate an understanding of Newton's third law of motion
- Identify the parts of the sun
- Describe the characteristics of a solar storm
- Describe the relationship between the sun and the planets

Unit Topics/Concepts
- Introduction to the Solar System
- Space exploration (rockets, space shuttle, satellites, probes, international space station)
- Technology: Inflatable Spacecraft
- Recognizing the benefits of inflatable technology
- Hypothesizing how design affects the performance of a balloon rocket
- Demonstrating Newton's third law of motion
- Parts of the sun
- Solar storms
- Seasons
- Inner Planets
  - Mercury, Venus, Mars
  - Earth and the moon
  - Project Apollo
- Solar and lunar eclipses
- Designing and building a solar oven
- Outer planets
  - Jupiter, Saturn, Uranus, Neptune
- Dwarf Planets
- Constructing a scale model of the solar system
- Researching and designing a travel brochure for a planet
- Student Text pp. 259-286
- Activity Manual pp. 171-190
- Teacher Text pp. 286-312
- Teacher Toolkit CD
- Chapter 11 Artwork
- Chapter 11 PowerPoint
- Videos
  - Chapter 11: Activity (ST p. 266)
  - Chapter 11: Science & Math (ST p. 262)
- Web Links
  - Space Weather Today
  - Air and Space
  - NEON

Biblical Integration Concepts:
- God's orderly design
- God's perfect design
- God's provision for His creation
- Man's brevity of life
- Mankind's responsibility to glorify God
- God's orderly creation
- God's provision for mankind
- God's omnipotence
- God's loving care
- God's great glory
- God's love for mankind
- God's vast universe

Biblical Integration Strategies:
- Relate truths from James 4:14 with information from Science in History
- Activity: Examine space discoveries from a Christian perspective
- Discuss scientist Wernher von Braun
- Discuss the technology needed to launch the Saturn rockets
- Write a paragraph on your opinion about whether the US should change to the metric system
- Discuss the pros and cons of space exploration
- Discuss Mars probes
- Math: Calculating cost of transporting cargo into orbit
- Activity: Make a rocket
- Math: Calculate the speed of light
- Demonstration: Demonstrate seasons
- Activity: Make a graphic organizer to make comparisons between Earth and Venus
- Discuss: Scientist Percival Lowell
- Discuss satellites, Earth's atmosphere, Moon's atmosphere, and Moon exploration
- Demonstration: Demonstrate why the same side of the moon always faces Earth
- Interview: Interview someone who was around during the first moon landing
- Activity: Illustrate how the moon appears to be larger than the sun during a solar eclipse
- Research the Apollo 13 mission and write a 4 person play between mission control and 3 astronauts
- Demonstration: Demonstrate
- Summarize why Earth experiences seasons
- Describe similarities among the inner planets
- Explain how people have gradually learned about the planets
- Identify characteristics of Mercury, Venus, and Mars
- Explain some ways God made Earth unique
- Describe why the same side of the moon always faces Earth
- Give details about the Apollo 11 mission
- Describe the causes of solar and lunar eclipses
- Construct a solar oven that will melt a marshmallow
- Infer the relationship between materials used and results
- Identify characteristics of each of the outer planets
- Define dwarf planet
- Explain why Pluto is classified as a dwarf planet
- Explain how we know information about the outer planets and the Kuiper Belt
- Construct a scale model of the solar system
- Gain a greater understanding of the vastness of our solar system
- Design a travel brochure for a planet
- Collect data
- Write from research
- Recall, Apply, and Demonstrate Knowledge

<table>
<thead>
<tr>
<th>Process Skills</th>
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<tbody>
<tr>
<td>Inferring</td>
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<td>Communicating</td>
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<td>Using numbers</td>
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<td>Experimenting</td>
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<td>Observing</td>
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<tr>
<td>Collecting and recording data</td>
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<tr>
<td>Measuring and using numbers</td>
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<tr>
<td>Identifying variables</td>
</tr>
</tbody>
</table>

- Math: Discuss how astronomers discovered Neptune using math.
- Write a paragraph congratulating scientists on the performances of Voyager 1 and 2, including facts about each
- Research: Assign each planet a student or group of students and have them present their research
- Demonstration: Demonstrate the relative sizes of the planets
- Demonstration: Demonstrate the relative distances of the planets’ orbits
- Review Game: The Solar System
### Chapter 12: Plant and Animal Reproduction

- Recognize the interrelationship of science concepts
- Recognize that man's inferences are sometimes faulty
- Identify each part of a flower and describe its function
- Differentiate between pollination and fertilization
- Explain how scientists classify fruits
- Describe the process of germination
- Measure the parts of a flower
- Identify the parts of a flower
- Explain how conifers reproduce
- Compare and contrast seeds and spores
- Identify some organisms that reproduce by spores
- Recognize that animals begin as a single cell
- Compare and contrast placental and marsupial development
- Generalize characteristics of eggs and where they are laid
- Explain benefits of the laying of many eggs by some animals
- Recognize the value that God places on life
- Summarize how God provides eternal life
- Identify some methods of asexual reproduction
- Set up an experiment to observe and compare the rate of growth of a seed and a plant cutting
- Recall, Apply, and Demonstrate Knowledge

### Unit Topics/Concepts

- **Introduction to Plant and Animal Reproduction**
- **Parts of a flower**
- **Pollination**
- **Types of fruit**
- **Parts of a seed**
- **Germination**
- **Examining the parts of a flower (activity)**
- **Seeds in cones**
- **Life cycle of a conifer**
- **Spores**
- **Life cycles of ferns and mosses**
- **Animal reproduction**
- **Placental development**
- **Marsupial development**
- **Eggs**
- **Parental care**
- **Recognizing the value God places on life (Exploration)**
- **Asexual reproduction**
- **Comparing the rate of growth of a seed and a plant cutting**

### Process Skills

- Communicating
- Recording data
- Inferring
- Observing
- Measuring
- Hypothesizing
- Defining operationally
- Classifying

- **Student Text pp. 287-308**
- **Activity Manual pg. 191-204**
- **Teacher Edition pg. 315-338**
- **Teacher Toolkit CD**
- **Web Links**
  - Luther Burbank Home and Gardens
  - Egg Facts
  - Chapter 12 Artwork
  - Chapter 12 PowerPoint

### Biblical Integration

- **Concepts:**
  - God's perfect design
  - God's plan for heredity
  - God's plan for salvation
  - God's gift of eternal life
  - God's love of beauty
  - God's provision for His creation
  - Mankind as God's special creation
  - Mankind created in God's image
  - Man's use of wisdom to serve his fellow man
  - Man as steward of God's creation
  - God's provision for His creation
  - God's value of life
  - God's plan and provision for mankind
  - God's omniscience
  - God's omnipotence

- **Strategies:**
  - Read John 3 and discuss God's plan to save His people
  - Read Mark 4:3-8 and discuss how God's Word falls on different types of soil (hearts)
  - God created man to have dominion over the animals
  - Discuss abortion, euthanasia, and assisted suicide from a Christian perspective

### Chapter 13: Heredity and Genetics

- Recognize that each human is uniquely planned and formed by God
- Describe the

### Unit Topics/Concepts

- **Introduction to Heredity and Genetics**
- **Heredity**
- **Surveying about**

- **Student Text pp. 309-332**
- **Activity Manual pp. 205-224**
- **Teacher Text pp. 339-362**
- **Teacher Toolkit CD**
- **Chapter 13 PowerPoint**

### Biblical Integration

- **Concepts:**
  - God's plan for heredity
  - God's knowledge of each individual

- **Strategies:**
  - Demonstration: Demonstrate surveying sample groups
  - Discuss scientist Rosalind Franklin
  - Compare types of DNA
  - Discuss scientist Gregor Mendel

### Additional Resources

- **Chapter 12 Artwork**
- **Chapter 12 PowerPoint**
- **Biblical Integration Concepts**
- **Biblical Integration Strategies**
- **Discuss scientist Francesco Redi**
- **Discuss flower pollination, petals, and carpels**
- **Discuss fruit name classification**
- **Demonstration: Identify the parts of a seed**
- **Demonstration: Examine types of cones**
- **Compare fern and moss gametophytes and sporophytes**
- **Demonstration: Demonstrate how to make spore prints**
- **Discuss mammal classification**
- **Write about how an animal cares for its young**
- **Discuss types of reproduction - asexual, fragmentation, layering, stem reproduction, vegetative reproduction, root, stem, and leaf cuttings**
- **Review Game: Busy Pollinators**
<table>
<thead>
<tr>
<th><strong>Relationship among</strong> chromosomes, DNA, and genes</th>
<th><strong>Structure of DNA</strong></th>
<th><strong>Process Skills</strong></th>
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</thead>
<tbody>
<tr>
<td>- Distinguish between learned and inherited traits</td>
<td>- Patterns of DNA</td>
<td>- Collecting data</td>
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<tr>
<td>- Survey a sample group</td>
<td>- Extracting DNA from organic matter</td>
<td>- Interpreting data</td>
</tr>
<tr>
<td>- Graph survey results</td>
<td>- Dominant and recessive genes</td>
<td>- Communicating</td>
</tr>
<tr>
<td>- Describe the structure of a DNA molecule</td>
<td>- Punnett squares</td>
<td>- Inferring</td>
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<tr>
<td>- Recognize James Watson and Francis Crick as those who identified DNA structure</td>
<td>- Pedigrees</td>
<td>- Using Models</td>
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<tr>
<td>- Identify uses of DNA testing</td>
<td>- Sex-linked traits</td>
<td>- Controlling variables</td>
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<tr>
<td>- Create a model of a DNA molecule</td>
<td>- Predicting genotypes (Paper Pet Genetics)</td>
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<tr>
<td>- Extract DNA from organic matter</td>
<td>- Genetic disorder and diseases</td>
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<tr>
<td>- Describe Mendel's experimental procedures</td>
<td>- Sickle cell anemia, cystic fibrosis, Down syndrome</td>
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<tr>
<td>- Explain Mendel's conclusions</td>
<td>- Genetic engineering</td>
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<tr>
<td>- Interpret diagrams and charts</td>
<td>- Recognizing that scientists still use the same basic methods that Mendel used</td>
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<tr>
<td>- Differentiate between dominant genes and recessive genes</td>
<td>- Recognizing that simple weed can be useful to scientists</td>
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<tr>
<td>- Predict genetic probability using a Punnett square</td>
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<tr>
<td>- Interpret a pedigree chart</td>
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<td>- Identify some traits as sex-linked</td>
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<tr>
<td>- Use Punnett squares to predict genotypes</td>
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<td>- Construct paper pets based on predicted genotypes</td>
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<tr>
<td>- Identify and discuss some common genetic diseases and disorders</td>
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<tr>
<td>- Explain why genetic diseases are not easy to cure</td>
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<tr>
<td>- Name examples of genetic engineering</td>
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<tr>
<td>- Explain why thale cress is considered a model plant</td>
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<tr>
<td>- Describe how thale cress has been used in genetic engineering</td>
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<tr>
<td>- Recognize that scientists use the same</td>
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</tbody>
</table>

**Videos**
- Colorblindness
- Genetic Engineering
- Hemophilia
- Rosalind Franklin

**Christian Perspective**
- Christians as a reflection of God
- Man's responsibility for his actions
- Honesty
- God as Master of creation
- God's perfect creation
- The fall of mankind
- God's provision for man
- Mankind's God-given curiosity
- Mankind's use of God's resources

**Process Skills**
- Collecting data
- Interpreting data
- Communicating
- Inferring
- Using Models
- Controlling variables

**Demonstration**
- Practice Punnett squares
- Discuss sickle cell anemia
- Discuss genetic diseases such as Down syndrome and Huntington's Disease
- Research how genetic diseases got their names
- Discuss changing the genes of zebra fish
- Activity: Controlling growing variables
- Review Game: Sketch a Face

**Discussion**
- Discuss scientist Reginald Punnett
- Discuss sickle cell anemia
- Discuss genetic diseases such as Down syndrome and Huntington's Disease
- Research how genetic diseases got their names
- Discuss changing the genes of zebra fish
- Activity: Controlling growing variables
- Review Game: Sketch a Face
### Chapter 14: Nervous System

- Recognize the interrelationship of science concepts
- Recognize that man’s inferences are sometimes inaccurate
- Identify the two main parts of the nervous system
- Explain how the parts of the central nervous system work together
- Describe the four lobes of the cerebrum
- Differentiate among the functions of the three parts of the brain
- Identify the parts of a neuron
- Explain how neurons send messages
- Compare the two parts of the peripheral nervous system
- Describe how a reflex occurs
- Explore variables that affect reaction time
- Recognize how the five senses interact with the nervous system
- Interpret diagrams for information
- Identify the nerves associated with hearing, sight, and smell
- Explain how the different senses communicate with the brain
- Predict and identify areas of the body that are the most sensitive to touch
- Differentiate between short-term memory and long-term memory
- Identify the two categories of long-term memory
- Describe some

### Unit Topics/Concepts

- Introduction to the Nervous System
- Structure of the nervous system
- The brain
- The spinal cord
- Peripheral nervous system
- Neurons
- Somatic nervous system
- Autonomic nervous system
- Reflexes
- Exploring variables that affect reaction time
- The five senses
- Identify areas of the body that are sensitive to the touch
- Memory
- Sleep
- Endocrine system
- Disorders and drug abuse
- Identify common categories of drugs
- Explaining how some types of drugs affect the nervous system (Effects of Drug Abuse)

### Process Skills

- Inferring
- Making and using models
- Observing
- Predicting
- Measuring
- Identifying and controlling variables
- Recording and interpreting data
- Experimenting
- Classifying

### Student Text pp. 333-360
- Activity Manual pp. 225-240
- Teacher Text pp. 365-394
- Teacher’s Toolbox CD
- Chapter 14 Artwork
- Chapter 14 PowerPoint
- Videos
  - A Poem About the Brain
  - Memory
  - Reaction Time
  - Touch Tester
- Web Links
  - NIDA for Teens
  - Drug Abuse Resources
  - Explore the Brain and Spinal Cord
  - The Brain Is the Boss
  - Caffeine

### Biblical Integration Concepts:

- God as Master of creation
- Mankind created in God’s image
- God’s use of creation for His glory
- God’s design for man’s body
- God’s perfect design
- Faith in the Word of God
- God’s command to remember
- Mankind’s responsibility to glorify God
- Mankind’s finite knowledge
- Godly wisdom
- Consequences of sin
- Man’s body as God’s temple
- Spirit-filled Christians
- Mankind’s sinful nature

### Biblical Integration Strategies:

- Discuss the lobes of the brain including the hidden one - insula
- Demonstration: Demonstrate how cerebrospinal fluid protects the brain
- Activity: Make a bead neuron
- Demonstration: Demonstrate how impulses travel
- Compare the autonomic and somatic nervous system
- Discuss cochlear implants
- Activity: Hearing and locating sounds (Marco Polo)
- Demonstration: Demonstrate how the eye sees things upside down
- Activity: Discerning with senses
- Discuss how the brain stores memories and memory loss
- Compare giants and dwarfs
- Discuss drugs that impair our choices
- Review Game: 1, 2, 3

- Discuss the creator of all things including our brain to control the functions of our bodies
- Discuss Christ-like reactions
- Read Ephesians 5:17-19 and discuss how God should be in control of what we do and say
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<th>Unit Topics/Concepts</th>
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<tbody>
<tr>
<td>- Recognize that man’s inferences are sometimes inaccurate</td>
<td>- Introduction to the Immune System</td>
<td>- God as the Great Physician</td>
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<tr>
<td>- Recognize that disease is a consequence of Adam’s sin</td>
<td>- Diseases</td>
<td>- God’s omnipotence</td>
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<tr>
<td>- Explain how diseases are classified</td>
<td>- Types of pathogens</td>
<td>- Consequences of sin</td>
</tr>
<tr>
<td>- Identify four common pathogens</td>
<td>- How pathogens are spread</td>
<td>- God’s protection of His people</td>
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<tr>
<td>- List some diseases caused by each pathogen</td>
<td>- Noncommunicable diseases</td>
<td>- God as Master of creation</td>
</tr>
<tr>
<td>- Identify and explain several ways that pathogens are spread</td>
<td>- Epidemiology</td>
<td>- God’s omniscience</td>
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<td>- Differentiate between communicable diseases and non communicable diseases</td>
<td>- Recognizing how quickly pathogens spread</td>
<td>- God’s knowledge of each individual</td>
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<td>- Explain some of the jobs of an epidemiologist</td>
<td>- Inferring the source of contamination</td>
<td>- God’s plan for man’s body</td>
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<tr>
<td>- Recognize how quickly pathogens can spread</td>
<td>- Parts of the immune system</td>
<td>- God’s mercy</td>
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<tr>
<td>- Infer the source of contamination</td>
<td>- How the immune system works</td>
<td>- God’s perfect design</td>
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<tr>
<td>- Identify several</td>
<td>- Immunity</td>
<td>- Man’s sinful nature</td>
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<td></td>
<td>- Antibodies and antibiotics</td>
<td>- God’s power over sin</td>
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<td></td>
<td>- Allergies</td>
<td>- Faith in the Word of God</td>
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<td>- Transfusions and transplants</td>
<td>- God’s love for mankind</td>
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<td></td>
<td>- Autoimmune diseases</td>
<td>- Man’s demonstration of God’s love</td>
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<td></td>
<td>- Technology: Robotic Surgery</td>
<td>Biblical Integration Strategies:</td>
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<tr>
<td></td>
<td>- Compare robotic</td>
<td>- Discuss leprosy in the Bible</td>
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<td></td>
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<td>- Discuss Louis Pasteur</td>
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<td>- Discuss the history of handwashing</td>
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<td>- Discuss types of airborne diseases and other transmitted diseases</td>
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<td>- Demonstration: Demonstrate airborne pathogens</td>
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<td>- Activity: Model spreading pathogens by contact</td>
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<td>- Map Study: Pick 10 countries and find the health/immunization recommendations to travel to those countries</td>
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<td>- Discuss the defenses of the body</td>
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<td>- Compare B and T cells</td>
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<td>- Discuss the use of vaccines</td>
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<td>- Discuss the production of antibiotics</td>
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<td>- Discuss the first organ transplants</td>
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<td>- Discuss long distance surgery, the first transatlantic surgery, and the first robotic brain telesurgery</td>
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<td>- Review Game: Pathogen Attack</td>
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</tbody>
</table>
defensive barriers of the body
- List two of the body’s nonspecific defenses
- Identify the body’s specific defense against pathogens
- Explain some functions of white blood cells during the immune response
- Explain three ways that the body can obtain immunity
- Compare and contrast antibiotics and antibodies
- Identify problems that can occur when the immune system malfunctions
- Compare robotic surgery with traditional surgery
- Describe some advantages and disadvantages of long-distance robotic surgery
- Model the interaction between the immune system and pathogens
- Research and write an article about a medical discovery
- Recall, apply, and demonstrate knowledge

Process Skills
- Inferring
- Making and using models
- Observing
- Communicating
- Recording data
- Defining operationally

Compare leprosy to sin