# Lesson Plan Overviews

# Science 6, 4th edition

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| **Chapter 1: Earthquakes and Volcanoes** | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** |
| 1 | 3–5 | 1-3 | 1 | **Unit and Chapter Opener**  • Recognize the interrelationship of science concepts  • Explain that ideas about science change, but that God never changes  • Preview unit and chapter content  *Creation under the curse of sin*  *God’s omniscience*  *Interrelationship of the parts of creation*  *God’s use of creation for His glory*  *Man’s finite knowledge* |  |
| 2 | 6–9 | 4–7 | 2–3 | **Earthquakes**  • 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  *The Flood as God’s judgment on sin*  *God’s omnipotence*  *God’s use of creation for His purposes* | Using models  Inferring |
| 3 | 10–13 | 8–11 | 3–6 | **Earthquake Waves**  • Compare and contrast body waves and surface waves  • Explain differences between the Mercalli scale and the Richter scale  • Describe disasters related to earthquakes  *Christ as solid foundation for life*  *Man’s God-given dominion*  *Man’s demonstration of God’s love* | Measuring and using numbers  Using models  Communicating |
| 4 | 14–15 |  | 7–8 | **Activity:** **Practice using a scientific method**  • Practice a scientific method | Hypothesizing  Recording data  Identifying variables |
| 5–6 | 16–17 | 12–13 | 9–10 | **Activity:** **Construction Site**  • 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  *Christians as dependable workers*  *Christians as faithful workers* | Predicting  Experimenting  Observing  Making and using models  Recording data  Identifying and controlling variables |
| 7 | 18–21 | 14–17 | 11–12 | **Volcanoes**  • Explain the causes of a volcanic eruption  • Identify the parts of a volcano  • Describe three ways volcanoes are classified | Classifying |
| 8-9 | 22–23 | 18–19 | 13–14 | **Activity:** **Create an Eruption**  • Design a model volcano based on one of the three kinds of volcanoes  • Construct a model volcano  • Communicate the type of volcano made and the process used to make the volcano  • Compare the model volcano to an actual volcano | Predicting  Making and using models  Measuring  Observing  Communicating |
| 10 | 24–26 | 20–22 | 15–16 | **Effects of Volcanoes; Other Thermal Eruptions**  • Identify possible dangers of volcanoes  • List some of the meteorological effects of a volcanic eruption  • Name some of the products of volcanoes  • Describe other kinds of thermal eruptions  *God as Master of creation*  *God’s use of forces for Earth’s benefit* | Using a model  Inferring |
| 11–12 | 27 | 23 | 17–18 | **Exploration:** **I.N.V.E.N.T.**  • Identify the dangers and difficulties associated with exploring volcanoes  • Design a piece of equipment that would help in volcano research | Communicating |
| 13 | 28–29 |  |  | **Graphic Organizers**  • Use graphic organizers to identify related concepts  • Recognize that graphic organizers have different purposes |  |
| 14 | 30 | 24 | 19–20 | **Chapter Review**  • Recall concepts and terms from Chapter 1  • Apply knowledge to everyday situations |  |
| 15 | 30 |  |  | **Chapter 1 Test**  • Demonstrate knowledge of concepts taught in Chapter 1 |  |
| **Chapter 2: Weathering and Erosion** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 16 | 31 | 25 | 21 | **Chapter Opener**  • Recognize that scientific inferences are not always accurate  • Preview the chapter content |  | |
| 17 | 32–35 | 26–29 | 22 | **Rock Cycle and Mechanical Weathering**  • Identify the three types of rocks and explain how they are formed  • Differentiate between mechanical and chemical weathering  • Define and give examples of mechanical weathering  *The Flood ‘s effect on the earth* | Making and using models  Inferring | |
| 18 | 36–39 | 30–33 | 23–24 | **Chemical Weathering and Caves**  • Define and give examples of chemical weathering  • Describe how acid rain forms  • Summarize how chemical weathering forms limestone caves  *Man as steward of God’s creation*  *God’s perfect design*  *God’s use of forces for Earth’s benefit* | Making and using models | |
| 19 | 40–41 |  | 25–26 | **Activity: Measurement**  • Measure length to the nearest millimeter  • Measure mass to the nearest gram  • Measure volume to the nearest milliliter  *Man’s demonstration of God’s love*  *Christians as faithful workers* | Measuring | |
| 20 | 42–44 | 34–36 | 27–28 | **Soil**  • Compare the different kinds of soil and their relative sizes  • Determine the factors that determine the composition of soil  • Illustrate and describe the five soil horizons  *God’s provision for man* | Inferring  Classifying  Interpreting data | |
| 21 | 45 | 37 | 29–30 | **Exploration:** **Soil Detective**  • Interpret the procedure of a flow chart  • Analyze a soil sample | Observing  Interpreting data | |
| 22–23 | 46–47 | 38–39 | 31–32 | **Activity:** **Retaining the Right Amount**  • Record observations  • Analyze experiment results  • Predict the amount of particles needed for a specific soil sample | Hypothesizing  Predicting  Measuring  Experimenting  Observing  Identifying variables  Recording data | |
| 24 | 48–51 | 40–43 |  | **Erosion**  • Differentiate between erosion and weathering  • Identify kinds of mass wasting  • Describe how sediments are carried and deposited by a stream  *God as Master of creation*  *God’s use of forces for Earth’s benefit*  *Man’s use of wisdom to serve his fellow man*  *Spirit-filled Christians* | Using models | |
| 25 | 52–53 | 44–45 | 33–34 | **Activity: Stream Erosion**  • Record and analyze data  • Measure volume, angles, and mass accurately  • Experiment to discover how the steepness of a slope affects erosion | Hypothesizing  Measuring  Experimenting  Observing  Identifying variables  Recording data | |
| 26 | 54–57 | 46–49 | 35–36 | **Wave, Wind, and Ice 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 kinds of erosion  • Describe how rocks are eroded by glaciers  *Man as steward of God’s creation*  *Man’s use of God’s resources*  *Man’s responsibility for his actions* | Using models  Inferring | |
| 27 | 58–59 |  | 37–38 | **PQ3R**  • Use the PQ3R method to read informational text |  | |
| 28 | 60 | 50 | 39–40 | **Chapter Review**  • Recall concepts and terms from Chapter 2  • Apply knowledge to everyday situations |  | |
| 29 | 60 |  |  | **Chapter 2 Test**  • Demonstrate knowledge of concepts taught in Chapter 2 |  | |
| **Chapter 3: Natural Resources** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 30 | 61 | 51 | 41 | **Chapter Opener**  • Explain how God’s wisdom and mercy are demonstrated in natural disasters  • Preview the chapter content  *God’s uses of forces for Earth’s benefit* |  | |
| 31 | 62–65 | 52–55 | 42 | **Nonrenewable Energy Resources**  • Differentiate between renewable and nonrenewable resources  • Explain how fossil fuels formed  • Identify the sources and uses of petroleum, natural gas, and coal  • Describe the benefits and problems related to the use of nuclear energy  *God’s provision for man*  *Man’s uses of God’s resources*  *The Flood’s effect on the earth* | Inferring | |
| 32 | 66–67 | 56–57 | 43–44 | **Activity: Clean Up the Spill**  • Explain the different methods of cleaning up an oil spill  • Predict the best method for removing the oil  • Use a model to demonstrate the different methods of cleanup  • Compare the methods used in this activity with the methods used in a real oil spill  *Man’s responsibility for his actions*  *Man’s demonstration of God’s love* | Hypothesizing  Predicting  Making a model  Observing  Inferring | |
| 33 | 68–71 | 58–61 | 45–46 | **Renewable Energy**  • Describe some renewable energy resources  • Compare and contrast renewable sources of energy | Using a model | |
| 34 | 72–75 | 62–65 | 47–48 | **Minerals and Soil**  • Name and identify the uses of several metals  • Recognize soil as a natural resource  • Identify several ways to conserve soil  • Defend the idea that people can change nature to meet their needs  *God’s Word as the only true source of guidance*  *God’s plan for worship*  *God’s refining in Christian’s lives*  *Man’s use of God’s resources*  *Man’s God-given dominion* | Inferring | |
| 35 | 76–77 | 66–67 | 49–50 | **Activity: Erosion Prevention**  • Make models of soil without erosion prevention and soil with erosion prevention  • Infer how certain materials prevent soil erosion | Observing  Making a model  Recording data  Inferring | |
| 36–37 | 78–83 | 68–73 | 51–52 | **Water Resources; Preserving Our Resources**  • Identify water as a natural resource  • Explain how the ocean is the source of most fresh water  • Identify locations of fresh water  • Describe the different kinds of ice  • Explain what it means to reuse, reduce, or recycle something  *God’s design for Earth’s resources*  *God’s provision for man*  *Man as a steward of God’s creation* |  | |
| 38 | 84–85 |  | 53–54 | **Exploration: Water Conservation**  • Compare the differences between water accessibility in Bible times and water accessibility now  • Identify several ways to conserve water  • Recognize Christ as the Living Water  *God’s gift of eternal life*  *Salvation through Christ* | Measuring and using numbers  Observing  Inferring  Collecting and recording data | |
| 39 | 86–87 | 74–75 | 55 | **Technology: Autonomous Underwater Vehicles**  • Identify examples of technology  • Explain what an autonomous underwater vehicle is  • Identify uses for AUVs  • Describe how the *Seaglider* functions  *Man’s use of wisdom to serve his fellow man*  *Man’s God-given dominion*  *Man’s God-given curiosity* |  | |
| 40 | 88 | 76 | 56 | **Chapter Review**  • Recall concepts and terms from Chapter 3  • Apply knowledge to everyday situations |  | |
| 41 | 88 |  |  | **Chapter 3 Test**  • Demonstrate knowledge of concepts taught in Chapter 3 |  | |
| **Chapter 4: Cells and Classification** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 42 | 91–93 | 77–79 | 57 | **Unit and Chapter Opener**  • Recognize the interrelationship of science concepts  • Recognize that God supplies the needs of every organism  • Preview the chapter content  *God’s perfect creation*  *God’s perfect design* | Classification | |
| 43 | 94–98 | 80–84 |  | **Cells and Organisms**  • Distinguish between living things and nonliving things  • Identify five characteristics of living things  • Identify men associated with the development of the microscope  • Describe the cell theory  *Creation under the curse of sin*  *Death and decay as a result of sin*  *Consequences of sin*  *God’s perfect creation*  *God’s plan for salvation*  *Man’s finite knowledge*  *New life in Christ* | Observing  Using models  Inferring  Classifying | |
| 44 | 99–100 |  | 58 | **Using a Microscope**  • Identify the parts of a microscope  • Explain how to use a microscope | Observing | |
| 45 | 101–3 | 85–87 | 59–62 | **Cells**  • Identify a cell as a living unit  • Discuss the relationship of cells, tissues, organs, and systems  • Identify cell structures  • Compare and contrast plant and animal cells | Inferring | |
| 46–47 | 104 | 88 |  | **Activity: Cell Model**  • Demonstrate knowledge of cell structure  • Construct a 3-D model of a cell  • Prepare a written report | Making and using a model  Communicating | |
| 48–49 | 105 | 89 | 63 | **Exploration: An Organized Cell**  • Correlate the function of cell structure to another organization  • Write and present a skit to compare a cell to an organization | Making and using a model  Communicating | |
| 50 | 106–7 | 90–91 |  | **Reproduction of cells**  • Describe the process of cell division—both mitosis and meiosis  • Recognize when mitosis occurs and when meiosis occurs  *God’s plan for heredity* |  | |
| 51 | 108 | 92 | 64 | **Activity: Classifying**  • Distinguish groups according to chosen criteria  • Complete a classification chart | Observing  Classifying  Communicating | |
| 52 | 109–13 | 93–97 | 65 | **Living Kingdoms**  • Name the six kingdoms  • Identify characteristics of each kingdom  • Explain how man is similar to and yet different from other living organisms  *Effects of a little sin*  *God’s perfect design*  *God’s provision for His creation*  *Man as God’s special creation* | Making and using models  Inferring  Classifying | |
| 53 | 114–15 | 98–99 | 66–68 | **Naming Organisms**  • Recognize that Carolus Linnaeus was responsible for the method of classification that we use  • List the levels of the classification system from the largest to smallest  • Compare the common names and scientific names of organisms  • Write a scientific name properly  *God’s orderly design*  *God’s variety in creation*  *God’s omniscience*  *Man as steward of God’s creation* |  | |
| 54 | 116 | 100 | 69–70 | **Chapter Review**  • Recall concepts and terms from Chapter 4  • Apply knowledge to everyday situations |  | |
| 55 | 116 |  |  | **Chapter 4 Test**  • Demonstrate knowledge of concepts taught in Chapter 4 |  | |
| **Chapter 5: Animal Classification** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 56 | 117 | 101 | 71 | **Chapter Opener**  • Recognize that studying animals helps us see God’s care for His creation  • Preview the chapter content  *God’s care for His creation*  *Man’s God-given dominion*  *Man’s responsibility for his actions*  *Man’s imitation of God’s creation* |  | |
| 57 | 118–21 | 102–5 | 72 | **Sponges, Stinging Animals, and Mollusks**  • Recognize *invertebrates* and *vertebrates* as broad categories to distinguish animals  • Recognize that unique animal characteristics allow classification  • Describe the unique characteristics of the phyla that include sponges, jellyfish, and mollusks  *God’s perfect design*  *God’s provision for His creation*  *God’s provision for man* | Observing  Classifying  Inferring | |
| 58 | 122–23 | 106–7 | 73 | **Technology: Fiber Optic Sponges**  • 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  *Man’s imitation of creation*  *God’s perfect design* | Making and using models  Inferring | |
| 59 | 124 | 108 | 74 | **Exploration: Snail Terrarium**  • Construct a terrarium  • Observe land snails  • Record observations | Observing  Recording data | |
| 60 | 125–27 | 109–11 | 72, 75 | **Echinoderms, Flatworms, Roundworms, Segmented Worms**  • Identify animals with radial symmetry and tube feet as echinoderms  • Describe 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 | Observing | |
| 61 | 128–31 | 112–15 | 76–78 | **Arthropods**  • Identify crustaceans, arachnids, centipedes, millipedes, and insects as arthropods  • Describe basic characteristics of each kind of arthropod  *God’s use of creation for His glory*  *Creation models biblical truth* | Observing  Inferring | |
| 62 | 132–33 | 116–17 | 79–80 | **Activity: Mealworm Movement**  • Observe the larval stage of complete metamorphosis  • Observe the pupal stage of complete metamorphosis  • Collect and record observation data | Experimenting  Observing  Identifying and controlling variables  Recording data | |
| 63 | 134–37 | 118–21 | 81 | **Fish and Amphibians**  • 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  • Recognize that fish and amphibians are both cold-blooded animals  • Describe the life cycle of most amphibians  *God’s provision for His creation*  *God’s perfect design* | Inferring  Classifying | |
| 64 | 138–41 | 122–25 | 82 | **Reptiles and Birds**  • Identify characteristics of reptiles  • Identify characteristics of birds  • Compare similarities and differences of birds and reptiles  *God’s power over sin*  *God’s perfect design*  *God’s provision for His creation*  *Creation models biblical truth* | Measuring and using numbers  Classifying | |
| 65–66 | 142–47 | 126–31 | 83–84 | **Mammals and Humans**  • Identify four characteristics of mammals  • Explain how marsupials and monotremes are different from other mammals  • Recognize how humans are different from mammals  *Man created in God’s image*  *Man as God’s special creation* | Classifying  Making and using models | |
| 67 | 148–49 | 132–33 | 85–86 | **Activity: Blubber Mitts**  • Write a hypothesis  • Record temperatures and observations  • Relate the effectiveness of shortening or lard as an insulator to the effectiveness of animal blubber | Predicting  Experimenting  Measuring  Inferring  Observing  Collecting and recording data | |
| 68–69 | 150–51 | 134–35 | 87 | **Exploration: Animal Robotics**  • Associate animal parts with mechanical tools  • Research to design a robotic animal  • Prepare a drawing and description of a robotic animal  *Man’s God-given dominion*  *Man’s God-given curiosity*  *Man’s imitation of God’s creation*  *Man’s responsibility to glorify God* | Inferring | |
| 70 | 152 | 136 | 88 | **Chapter Review**  • Recall concepts and terms from Chapter 5  • Apply knowledge to everyday situations |  | |
| 71 | 152 |  |  | **Chapter 5 Test**  • Demonstrate knowledge of concepts taught in Chapter 5 |  | |
| **Chapter 6: Plant Classification** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 72 | 153 | 137 | 89 | **Chapter Opener**  • Recognize that man’s knowledge must continually be re-evaluated  • Preview the chapter content  *Man’s finite knowledge*  *God’s orderly design*  *God as Master of creation* |  | |
| 73 | 154–57 | 138–41 | 90–91 | **Nonvascular Plants; Seedless Vascular Plants**  • Describe differences between vascular and nonvascular plants  • Classify vascular plants as seed-bearing plants or seedless plants  • Identify kinds of seedless vascular plants  • Identify the parts of a fern  • Determine facts and opinions  *God’s love of beauty*  *God’s variety in creation* | Observing  Inferring | |
| 74 | 158–61 | 142–45 | 92–93 | **Gymnosperms**  • Classify seed-producing plants as gymnosperms and angiosperms  • Identify four kinds of gymnosperms  • Identify two kinds of conifers  • Describe ways that man uses conifers  *Christian’s dependence on God’s Word*  *Giving God the best* | Measuring and using numbers  Using Models  Observing  Inferring  Classifying | |
| 75 | 162–65 | 146–49 | 94 | **Angiosperms**  • Recognize that angiosperms include trees, shrubs, and flowering plants  • Distinguish among annuals, biennials, and perennials  • Name some ways that angiosperms are used  • Compare monocotyledons and dicotyledons  *Man’s God-given dominion*  *Man’s use of wisdom to serve his fellow man* | Observing  Inferring  Classifying | |
| 76 | 166 | 150 | 95–96 | **Activity: Classification Check**  • Create a visual illustrating how plants are classified | Observing  Classifying  Communicating | |
| 77 | 167 | 151 |  | **Exploration: Plant Products**  • Research products made from a given plant  • Prepare a display to demonstrate research results  • Present a display | Communicating | |
| 78 | 168–71 | 152–55 | 97–98 | **Plant Parts**  • Identify the two kinds of vascular tissue and their functions  • Summarize three main functions of a plant stem  • Compare and contrast herbaceous and woody stems  • Summarize three main functions of root system  • Compare and contrast taproots, fibrous roots, and aerial roots  *The Bible as final authority*  *Faith in the Word of God*  *God’s perfect design*  *God’s provision for His creation* | Using models  Inferring | |
| 79 | 172–73 | 156–57 | 99–100 | **Activity: How Big is My Tree**  • Measure the circumference, height, and crown of a tree  • Calculate the tree’s point value  • Create a graph to show relationships  • Interpret graphs  • Compare data | Measuring  Observing  Inferring  Communicating  Collecting, recording, and interpreting data | |
| 80 | 174 | 158 | 101–2 | **Chapter Review**  • Recall concepts and terms from Chapter 6  • Apply knowledge to everyday situations |  | |
| 81 | 174 |  |  | **Chapter 6 Test**  • Demonstrate knowledge of concepts taught in Chapter 6 |  | |
| **Chapter 7: Atoms and Molecules** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 82 | 177–79 | 159–61 | 103 | **Unit and Chapter Opener**  • Recognize the interrelationship of science concepts  • Recognize that man’s inferences are sometimes inaccurate  • Preview unit and chapter content  *God as master of creation*  *God’s creation of invisible forces*  *God’s holding all creation together*  *God’s omniscience*  *Man’s finite knowledge* |  | |
| 83 | 180–83 | 162–65 | 104 | **Atoms**  • Describe and label the size, charge, and location of each part of an atom  • Recognize that an element is made of only one kind of atom  • Differentiate between atomic mass and atomic number  *God as Master of creation*  *Man’s finite knowledge*  *Faith in the Word of God* | Making and using models | |
| 84 | 184–87 | 166–69 | 105–6 | **Elements**  • Recognize that the periodic table is a classification system  • Describe the process Mendeleev used for arranging the elements  • Identify the types of information provided for each element on the periodic table  • Identify the terms *period* and *group* as they relate to the periodic table  • Differentiate among categories on the periodic table  *God’s orderly design* | Classifying  Inferring  Making models | |
| 85 | 188 | 170 | 107–8 | **Exploration: Wanted: U or Your Element**  • Write about an element based on research  • Construct a visual aid | Communicating | |
| 86 | 189–91 | 171–73 | 109 | **Compounds, Chemical Formulas, Chemical Reactions**  • Explain that a chemical change occurs when atoms of different elements combine  • Demonstrate how to read and write a chemical formula  • Differentiate between synthesis and decomposition reactions | Observing  Predicting  Inferring | |
| 87 | 192–93 | 174–75 | 110 | **Atomic Bonds**  • Research products made from a given plant  • Prepare a display to demonstrate research results  • Present a display | Making and using models  Inferring | |
| 88 | 194–95 | 176–77 | 111–12 | **Activity: Hot or Cold**  • Evaluate whether a chemical reaction has occurred  • Collect data to identify a reaction as endothermic or exothermic | Predicting  Observing  Measuring  Experimenting  Collecting and recording data | |
| 89 | 196–99 | 178–81 | 113–14 | **Acids and Bases**  • Compare and contrast characteristics of acids and bases  • Describe the purpose of an indicator  • Identify products that are acids, bases, or salts  • Summarize how a salt forms  *God’s creation for man’s enjoyment* | Observation  Inferring  Experimenting | |
| 90 | 200–201 | 182–83 | 115–16 | **Activity: pH Indicator**  • Identify a solution as an acid or a base by using a pH indicator solution  • Observe the effects of an acid or a base on an indicator  • Estimate the strength of an acid or base solution by interpreting a table | Predicting  Measuring  Observing  Recording data | |
| 91 | 202–3 | 184–85 | 117–18 | **Activity: Which Antacid is Best?**  • Hypothesize about the effectiveness of several antacids  • Make and use a model of “upset stomach” acid  • Infer information from the model | Hypothesizing  Experimenting  Observing  Inferring  Recording data | |
| 92 | 204 | 186 | 119–20 | **Chapter Review**  • Recall concepts and terms from Chapter 7  • Apply knowledge to everyday situations |  | |
| 93 | 204 |  |  | **Chapter 7 Test**  • Demonstrate knowledge of concepts taught in Chapter 7 |  | |
| **Chapter 8: Electricity and Magnetism** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 94 | 205 | 187 | 121 | **Chapter Opener**  • Recognize God’s use of man’s curiosity  • Preview chapter content  *Man’s finite knowledge*  *Man’s God-given curiosity* |  | |
| 95 | 206–9 | 188–91 | 122 | **Static Electricity; Current Electricity**  • Explain what causes static electricity  • Identify the two things needed for an electric current to flow  • Describe the characteristics of conductors, resistors, and insulators  *Man as steward of God’s creation*  *Man’s God-given dominion* | Experimenting  Inferring | |
| 96 | 210–11 | 192–93 | 123–24 | **Activity: An “Unbreakable” Circuit**  • Design and build an “unbreakable” circuit  • Experiment to test hypotheses | Hypothesizing  Predicting  Experimenting  Inferring  Identifying and controlling variables | |
| 97 | 212–15 | 194–97 | 125–28 | **Circuits; Measuring Electricity; Batteries**  • Differentiate between parallel circuits and series circuits  • Distinguish among the three basic units of electrical measurement: volt, ampere, and watt  • Explain how a battery works  *God’s perfect design*  *God’s provision for His creation* | Measuring and using numbers  Experimenting  Making and using models | |
| 98 | 216–18 | 198–200 | 129 | **Magnetism**  • Describe what happens to magnets at their poles  • Explain the relationship between magnetism and electricity  • Identify and describe the parts of a generator  • Explain how a generator works | Observing | |
| 99 | 219 | 201 | 130 | **Exploration: Famous Inventors**  • Research an inventor  • Present a speech honoring an inventor | Communicating | |
| 100 | 220–21 | 202–3 | 131–32 | **Activity: Build an Electromagnet**  • Identify ways to increase a wire’s magnetism  • Predict ways to strengthen an electromagnet  • Experiment to test predictions | Hypothesizing  Predicting  Experimenting  Observing  Inferring  Identifying and controlling variables  Recording data | |
| 101 | 222–23 | 204–5 | 133 | **Technology: Magnetic Levitation**  • Explain how electromagnets are used in maglev trains  • Identify some ways a maglev train may benefit the environment and transportation | Making and using models | |
| 102 | 224–27 | 206–9 | 134 | **Electronics**  • Explain the difference between electricity and electronics  • Identify the benefits of an integrated circuit  • Identify some of the parts of a computer  *God’s perfect creation* | Observing  Experimenting  Recording and interpreting data  Communicating | |
| 103 | 228 | 210 | 135–36 | **Chapter Review**  • Recall concepts and terms from Chapter 8  • Apply knowledge to everyday situations |  | |
| 104 | 228 |  |  | **Chapter 8 Test**  • Demonstrate knowledge of concepts taught in Chapter 8 |  | |
| **Chapter 9: Motion and Machines** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 105 | 229 | 211 | 137 | **Chapter Opener**  • Recognize that God values creativity  • Preview the chapter content  *Man’s responsibility to glorify God* |  | |
| 106 | 230–33 | 212–15 | 138 | **Motion**  • Differentiate between speed and velocity  • Explain why a reference point is needed to observe motion  • Describe the relationship of mass and velocity to momentum  *Christ as a Christian’s reference point*  *Bible as final authority* | Using numbers  Inferring | |
| 107 | 234–37 | 216–19 | 139–40 | **Laws of Motion**  • Identify Newton’s three laws of motion  • Explain that both gravity and friction work against inertia  *Man’s finite knowledge*  *God’s omniscience*  *Experimenting* | Inferring  Using numbers  Using models  Defining operationally | |
| 108 | 238–39 | 220–21 | 141–42 | **Activity: Mini Cars in Motion**  • Plan a demonstration to illustrate the laws of motion  • Experiment to show each of the laws of motion with toy cars  • Identify the laws of motion in real-life situations  *God’s orderly design* | Experimenting  Making and using models  Observing  Communicating | |
| 109 | 240 | 222 | 143–44 | **Exploration: Roller Coaster**  • Design and make a model roller coaster  • Discover relationships between slope, speed, and momentum | Making and using models  Inferring | |
| 110 | 241–43 | 223–25 | 145–46 | **Work; Simple Machines: Levers**  • Explain that work equals force times distance  • Describe a lever  • Identify several common levers  • Differentiate among the three classes of levers  *God’s design of man’s body* | Using numbers  Using models  Inferring  Classifying | |
| 111 | 244–47 | 226–29 | 147–51 | **Pulleys; Wheels and Axles; Inclined planes; Wedges; Screws; Compound Machines**  • Describe a pulley, wheel and axle, inclined plane, wedge, and screw  • Discern between a fixed pulley, a moveable pulley, and a block and tackle  • Explain what a compound machine is | Making and using models  Inferring  Observing  Classifying | |
| 112 | 248–49 | 230–31 | 152 | **Activity: How Much Force**  • Experiment to show that an inclined plane reduces the amount of force needed to do work  • Measure metrically in newtons and centimeters  • Define operationally the results of the activity | Measuring  Experimenting  Observing  Defining operationally  Recording data | |
| 113 | 250 | 232 | 153–56 | **Chapter Review**  • Recall concepts and terms from Chapter 9  • Apply knowledge to everyday situations |  | |
| 114 | 250 |  |  | **Chapter 9 Test**  • Demonstrate knowledge of concepts taught in Chapter 9 |  | |
| **Chapter 10: Stars** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 115 | 253–55 | 233–35 | 157 | **Unit and Chapter Opener**  • Recognize the interrelationship of science concepts  • Recognize how God’s glory is reflected in the vastness of the stars  • Preview unit and chapter content  *God as master of creation*  *God’s creation reflects His glory*  *God’s omniscience*  *God’s omnipotence* |  | |
| 116 | 256–59 | 236–39 | 158 | **Our Closest Star; Characteristics of Stars**  • 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  *God as only Creator*  *God’s omniscience*  *God’s use of creation for His glory*  *God’s use of creation for His purposes* | Measuring and using numbers  Making and using models  Inferring  Classifying | |
| 117 | 260–63 | 240–43 | 159–60 | **Kinds of Stars**  • 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 | Using models  Inferring  Observing | |
| 118 | 264–67 | 244–47 | 161 | **Observing the Heavens**  • 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  *Faith in God’s Word for guidance*  *God’s Word as the only true source of guidance*  *God’s omnipotence*  *God’s use of creation for His glory* | Classifying  Observing  Making and using models | |
| 119 | 268 | 248 |  | **Activity: Pinhole Constellations**  • Make a model of a constellation  • Recognize and name several star groups and constellations | Making and using models  Observing | |
| 120 | 269 | 249 |  | **Exploration: A Different Look**  • Make a model of a constellation  • Plot points on a graph  • Relate the model to the relative distances of stars | Measuring  Making and using models | |
| 121 | 270–75 | 250–55 | 162–64 | **Star Groups**  • 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, meteoroids, meteors, meteorites, and comets  *God’s omnipotence*  *God as Master of creation*  *God’s use of creation for His glory*  *God as only Creator* | Observing  Inferring  Using models | |
| 122 | 276–77 |  | 165–66 | **Exploration: Stargazing**  • Interpret and use a star chart  • Identify objects in the night sky  • Record observations | Observing  Recording data | |
| 123 | 278–79 | 256–57 | 167–68 | **Activity: Crater Creations**  • Measure mass and length  • Use a chart to record information  • Make and test predictions | Hypothesizing  Measuring  Observing  Recording data  Identifying and controlling variables  Communicating | |
| 124 | 280 | 258 | 169–70 | **Chapter Review**  • Recall concepts and terms from Chapter 10  • Apply knowledge to everyday situations |  | |
| 125 | 280 |  |  | **Chapter 10 Test**  • Demonstrate knowledge of concepts taught in Chapter 10 |  | |
| **Chapter 11: Solar System** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 126 | 281 | 259 | 171 | **Unit and Chapter Opener**  • Recognize that God’s creation is orderly  • Preview the chapter content  *God’s orderly design*  *God’s perfect design*  *God’s provision for his creation* |  | |
| 127 | 282–85 | 260–63 | 172 | **Space Exploration**  • Explain how a rocket uses thrust to launch  • Explain characteristics of different tools for space exploration: rockets, space shuttle, satellites, probes  • Distinguish between a space shuttle and a probe  • Identify ways that living in space is different from living on Earth  *Man’s brevity of life* | Inferring  Communicating | |
| 128 | 286–87 | 264–65 | 173–74 | **Technology: Inflatable Spacecraft**  • Describe some types of inflatable spacecraft  • Understand the basics of inflatable technology  • Explain the advantages of inflatable spacecraft  *Man’s responsibility to glorify God*  *God’s orderly creation* | Using numbers  Inferring  Making and using models | |
| 129 | 288–89 | 266–67 | 175–76 | **Activity: Rocket Race**  • Hypothesize how design affects the performance of a balloon rocket  • Construct a balloon rocket  • Demonstrate an understanding of Newton’s third law of motion | Hypothesizing  Measuring  Making and using models  Experimenting  Observing  Inferring  Recording data | |
| 130 | 290–93 | 268–71 | 177–75 | **The Sun and the Seasons**  • Identify the parts of the sun  • Describe the characteristics of a solar storm  • Explain why Earth experiences seasons  *God’s perfect design*  *God’s orderly design* | Inferring  Measuring and using numbers  Making and using models | |
| 131 | 294–97 | 272–75 | 179–80 | **The Planets**  • Describe similarities among the inner planets  • Explain how man has gradually learned about the planets  • Identify characteristics of Mercury, Venus, and Mars  *God’s provision for man* | Inferring | |
| 132 | 298–301 | 276–79 | 179–82 | **Earth; the Moon; Project Apollo; Eclipses**  • 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  *God’s provision for man*  *God’s omnipotence*  *God’s loving care* | Making and using models  Inferring  Communicating | |
| 133 | 302–3 | 280–81 | 183–84 | **Activity: Spare Parts Solar Oven**  • Construct a solar oven that will melt a marshmallow  • Infer the relationship between materials used and results | Observing  Inferring  Identifying variables  Recording data  Communicating | |
| 134 | 304–7 | 282–85 | 179–80, 185 | **The Outer Planets**  • Identify characteristics of each of the outer planets  • Define a dwarf planet  • Explain why Pluto is classified as a dwarf planet  • Explain how we know information about the outer planets and the Kuiper Belt  *God’s great glory*  *God’s omnipotence*  *God’s perfect design* | Inferring  Making and using models  Communicating | |
| 135 | 308–9 |  | 186 | **Exploration: Solar Walk**  • Construct a scale model of the solar system  • Gain a greater understanding of the vastness of our solar system  *God’s vast universe*  *God’s love for man*  *God’s omnipotence* | Measuring  Making and using models | |
| 136 | 310–11 |  | 187–88 | **Exploration: Travel Brochure**  • Design a travel brochure for a planet  • Collect data | Collecting and recording data  Communicating | |
| 137 | 312 | 286 | 189–90 | **Chapter Review**  • Recall concepts and terms from Chapter 11  • Apply knowledge to everyday situations |  | |
| 138 | 312 |  |  | **Chapter 11 Test**  • Demonstrate knowledge of concepts taught in Chapter 11 |  | |
| **Chapter 12: Plant and Animal Reproduction** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 139 | 315–37 | 287–89 | 191 | **Unit and Chapter Opener**  • Recognize the interrelationship of science concepts  • Recognize that man’s inferences are sometimes faulty  • Preview the unit and chapter content  *God’s perfect design*  *God’s plan for heredity*  *God’s plan for salvation*  *God’s gift of eternal life* |  | |
| 140 | 318–21 | 290–93 | 192 | **Plant Reproduction**  • Identify and describe each part of a flower and its function  • Differentiate between pollination and fertilization  • Explain how scientists classify fruits  • Describe the process of germination  *God’s love of beauty*  *God’s provision for His creation* | Classifying  Inferring  Observing | |
| 141 | 322–23 | 294–95 | 193–94 | **Activity: Flower Dissection**  • Measure the parts of a flower  • Identify the parts of a flower  *God’s perfect design* | Measuring  Observing  Recording data  Defining operationally | |
| 142 | 324–27 | 296–99 | 195–96 | **Seeds in Cones; Spores**  • Explain how conifers reproduce  • Compare and contrast seeds and spores  • Identify some organisms that reproduce by spores  *God’s perfect design* | Inferring  Observing | |
| 143 | 328–31 | 300–303 | 197 | **Animal Reproduction**  • 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 some animals laying many eggs  *Man as God’s special creation*  *Man created in God’s image*  *Man’s use of wisdom to serve his fellowman*  *Man as steward of God’s creation*  *God’s provision for His creation* | Inferring  Communicating | |
| 144 | 332–33 |  | 198 | **Exploration: What Value Does God Place on Life?**  • Recognize the value that God places on life  • Summarize how God provides eternal life  *God’s value of life*  *God’s plan for salvation*  *God’s gift of eternal life*  *God’s plan and provision for man*  *God’s omniscience*  *God’s omnipotence* | Inferring | |
| 145 | 334–37 | 304–7 | 199–202 | **Asexual Reproduction**  • Identify some methods of asexual reproduction  **Activity: It’s a Race**  • Set up an experiment to observe and compare the rate of growth of a seed and of a plant cutting | Hypothesizing  Measuring  Observing  Inferring  Recording data  Communicating | |
| 146 | 338 | 308 | 203–4 | **Chapter Review**  • Recall concepts and terms from Chapter 12  • Apply knowledge to everyday situations |  | |
| 147 | 338 |  |  | **Chapter 12 Test**  • Demonstrate knowledge of concepts taught in Chapter 12 |  | |
| **Chapter 13: Heredity and Genetics** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 148 | 339 | 309 | 205 | **Unit and Chapter Opener**  • Recognize that each human is uniquely planned and formed by God  • Preview the chapter content  *God’s plan for heredity*  *God’s knowledge of each individual*  *God’s perfect design* |  | |
| 149 | 340–42 | 310–12 | 206–8 | **Heredity**  • Describe the relationship among chromosomes, DNA, and genes  • Distinguish between learned and inherited traits  **Activity: It’s All in the Genes**  • Survey a sampling group  • Graph survey results  *God’s knowledge of each individual*  *Christians as a reflection of God* | Collecting data  Interpreting data  Communicating  Inferring | |
| 150 | 343–44 | 313–14 | 209–12 | **DNA: the Double Helix**  • Describe the structure of a DNA molecule  • Recognize James Watson and Francis as those who identified DNA structure  • Identify uses of DNA testing  • Create a model of a DNA molecule | Inferring  Using models | |
| 151 | 345 | 315 | 213–14 | **Exploration: DNA Extraction**  • Extract DNA from organic matter | Observing | |
| 152 | 346–49 | 316–19 | 215 | **Father of Genetics; Dominant and Recessive Genes**  • Describe Mendel’s experimental procedures  • Explain Mendel’s conclusions  • Interpret diagrams and charts  • Differentiate between dominant genes and recessive genes  *Man’s responsibility for his actions*  *Honesty* | Inferring | |
| 153 | 350–53 | 320–23 | 216–18 | **Punnett Squares; Pedigrees**  • Predict genetic probability using a Punnett square  • Interpret a pedigree chart  • Identify some traits as sex-linked  *Identified in Christ* | Inferring  Using models | |
| 154 | 354–55 | 324–25 | 219–20 | **Activity: Paper Pet Genetics**  • Use Punnett squares to predict genotypes  • Construct paper pets based on predicted genotypes | Making and using models  Inferring  Interpreting data  Communicating | |
| 155 | 356–59 | 326–29 | 221 | **Genetic Disorders and Diseases; Genetic Engineering**  • Identify and discuss some common genetic disease and disorders  • Explain why genetic diseases are not easy to cure  • Name examples of genetic engineering  *God as Master of creation*  *God’s knowledge of each individual*  *God’s perfect creation*  *Man’s fall*  *God’s provision for man*  *Man’s God-given curiosity*  *Man’s use of God’s resources* | Communicating  Inferring | |
| 156 | 360–61 | 330–31 | 222 | **Technology: A Useful Weed**  • Explain why thale cress is considered a model plant  • Describe how thale cress has been used in genetic engineering  • Recognize that scientists use the same basic methods that Mendel used | Controlling variables  Inferring | |
| 157 | 362 | 332 | 223–24 | **Chapter Review**  • Recall concepts and terms from Chapter 13  • Apply knowledge to everyday situations |  | |
| 158 | 362 |  |  | **Chapter 13 Test**  • Demonstrate knowledge of concepts taught in Chapter 13 |  | |
| **Chapter 14: Nervous System** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 159 | 365–67 | 333–35 | 225 | **Unit and Chapter Opener**  • Recognize the interrelationship of science concepts  • Recognize that man’s inferences are sometimes inaccurate  • Preview the unit and chapter content  *God as Master of creation*  *Man created in God’s image*  *God’s use of creation for His glory*  *God’s design for man’s body* | Inferring | |
| 160 | 368–71 | 336–39 | 226 | **The Central Nervous System**  • 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  *God’s design of man’s body*  *God’s perfect design* | Inferring  Making and using models  Observing | |
| 161 | 372–75 | 340–43 | 227–28 | **The Peripheral Nervous System**  • Identify the parts of a neuron  • Explain how the neurons send messages  • Compare the two parts of the peripheral nervous system  • Describe how a reflex occurs  *God’s perfect design* | Making and using models  Inferring  Observing | |
| 162 | 376–77 | 344–45 | 229–30 | **Activity: Reaction Time**  • Explore variables that affect reaction time  *Christians as a reflection of God*  *Man’s responsibility for his actions* | Predicting  Measuring  Inferring  Identifying and controlling variables  Recording and interpreting data | |
| 163 | 378–81 | 346–49 | 231 | **The Five Senses**  • 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  *God’s perfect design*  *Faith in the Word of God* | Observing  Inferring  Making and using models  Experimenting | |
| 164 | 382–83 | 350–51 | 232 | **Activity: Touch Tester**  • Predict and identify areas of the body that are the most sensitive to touch | Predicting  Measuring  Inferring  Recording data | |
| 165 | 384–87 | 352–55 | 233–36 | **Memory and Sleep**  • Differentiate between short-term memory and long-term memory  • Identify two categories of long-term memory  • Describe some characteristics of REM sleep and explain why sleep is important to the body  *God’s command to remember*  *God’s design of man’s body*  *Man’s responsibility to glorify God*  *Man’s finite knowledge*  *Godly wisdom*  *God’s perfect design* | Inferring  Classifying  Observing | |
| 166 | 388–91 | 356–59 | 237–38 | **The Endocrine System; Disorders and Drugs**  • Compare characteristics of the nervous system and the endocrine system  • Identify the function of some glands in the endocrine system  • Identify some common nervous system disorders  • Recognize some of the problems resulting from drug abuse  *God’s design of man’s body*  *Consequences of sin*  *Man’s body as God’s temple*  *Man’s responsibility to glorify God*  *Spirit-filled Christians* | Inferring  Observing | |
| 167 | 392–93 |  |  | **Exploration: Effects of Drug Abuse**  • Identify some common categories of drugs  • Explain how some types of drugs affect the nervous system  • List some biblical reasons for not taking drugs  *Man’s body as God’s temple*  *Man’s sinful nature* | Inferring | |
| 168 | 394 | 360 | 239–40 | **Chapter Review**  • Recall concepts and terms from Chapter 14  • Apply knowledge to everyday situations |  | |
| 169 | 394 |  |  | **Chapter 14 Test**  • Demonstrate knowledge of concepts taught in Chapter 14 |  | |
| **Chapter 15: Immune System** | | | | | | |
| **Lesson** | **TE pages** | **ST pages** | **AM pages** | **Objectives and Christian Worldview** | **Process Skills** | |
| 170 | 395 | 361 | 241 | **Chapter Opener**  • Recognize that man’s inferences are sometimes inaccurate  • Preview the chapter content  *God as Great Physician*  *God’s omnipotence* |  | |
| 171 | 396–99 | 362–65 | 242 | **Diseases**  • Recognize that disease is a consequence of Adam’s sin  • Explain how diseases are classified  • Identify four common pathogens  • List some diseases caused by each pathogen  *Consequences of sin*  *God’s omnipotence*  *God’s protection of His people* | Inferring | |
| 172 | 400–403 | 366–69 | 243–44 | **Pathogens and Noncommunicable Diseases**  • Identify and explain several ways that pathogens are spread  • Differentiate between communicable diseases and noncommunicable diseases  • Explain some of the jobs of an epidemiologist  *God as Master of creation*  *God’s omniscience*  *God’s knowledge of each individual* | Making and using models  Inferring  Observing  Communicating | |
| 173 | 404–5 | 370–71 |  | **Activity: Of Epidemic Proportions**  • Recognize how quickly pathogens can spread  • Infer the source of contamination | Making and using models  Observing  Inferring  Recording data  Communicating | |
| 174 | 406–9 | 372–75 | 245 | **The Immune System**  • Identify several 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  *God’s plan for man’s body*  *Consequences of sin*  *God’s mercy*  *God’s perfect design* | Inferring | |
| 175 | 410–13 | 376–79 | 246–49 | **Immunity; Antibodies and Antibiotics; Malfunctions of the Immune System**  • 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  *Man’s sinful nature*  *God’s power over sin*  *Faith in the Word of God*  *God’s omniscience*  *God’s omnipotence* | Inferring | |
| 176 | 414–15 | 380–81 | 250 | **Technology: Robotic Surgery**  • Compare robotic surgery with traditional surgery  • Describe some advantages and disadvantages of long-distance robotic surgery  *God’s love for man*  *Man’s demonstration of God’s love* | Inferring | |
| 177 | 416 | 382 |  | **Activity: Defend and Capture**  • Model the interactions between the immune system and pathogens | Observing  Communicating  Defining operationally | |
| 178 | 417 | 383 |  | **Exploration: Extra, Extra, Read All About It**  • Research and write an article about a medical discovery | Communicating | |
| 179 | 418 | 384 | 251–52 | **Chapter Review**  • Recall concepts and terms from Chapter 15  • Apply knowledge to everyday situations |  | |
| 180 | 418 |  |  | **Chapter 15 Test**  • Demonstrate knowledge of concepts taught in Chapter 15 |  | |