Lesson Plan Overviews

Science 6, 4th edition

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	