

Science 6, 5th Edition • Lesson Plan Overview

Chapter 1: Atoms and Molecules

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 1.1 Atomic Structure			
5–8	1.1.1 Describe the structure of an atom. 1.1.2 Compare protons, neutrons, and electrons. 1.1.3 Relate the terms <i>atom</i> and <i>element</i> . 1.1.4 Explain the role of models in science. <u>BWS</u> Limitations (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 1.1: <i>Atomic Structure—Reviewing Atomic Models</i> (p. 3) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>What’s the Matter?</i> Video: <i>Modeling the Atom</i> PPT Pres.: Section 01.1 Materials <ul style="list-style-type: none"> wall signs: atom, atomic mass, atomic number, electron, element, matter, neutron, nucleus beaker, 100 mL carbon, 12 g molecular modeling sets (or colored candies, colored tiles, or colored paper circles) 	Student Edition <ul style="list-style-type: none"> Section 1.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Checking Prior Knowledge</i> preassessment Assessments <ul style="list-style-type: none"> Section 1.1 Quiz
Section 1.2 The Periodic Table of Elements			
9–15	1.2.1 Explain what information can be found in each cell of the periodic table. 1.2.2 Describe the characteristics of an element on the basis of its location in the periodic table. 1.2.3 Create a model of a specific atom, using its atomic number and mass number. 1.2.4 Explain how elements can be used wisely to show good stewardship. <u>BWS</u> Dominion (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 1.2: <i>The Periodic Table of Elements—Using the Periodic Table</i> (pp. 5–6) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Alkali Metals</i> Video: <i>Alkaline-Earth Metals</i> Video: <i>Boron Family</i> Video: <i>Carbon Family</i> Video: <i>Chalcogen Family</i> Video: <i>Halogen Family</i> Video: <i>Noble Gas Family</i> Video: <i>Pnictogen Family</i> Video: <i>Transition Metals</i> Link: <i>Development of the Periodic Table</i> Link: <i>Periodic Table Organization</i> PPT Pres.: Section 01.2 Materials <ul style="list-style-type: none"> data tables (2–3 tables showing scientific information; to be given to students or displayed in class) 	Student Edition <ul style="list-style-type: none"> Section 1.2 Review Teacher Edition <ul style="list-style-type: none"> <i>Reading the Periodic Table of Elements</i> formative assessment Assessments <ul style="list-style-type: none"> Section 1.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 1.3 Molecules and Compounds			
16–20	1.3.1 Relate molecules and compounds. 1.3.2 Identify the type and number of atoms in a chemical formula. 1.3.3 Explain how the characteristics of atoms can change when different elements are chemically combined. 1.3.4 Develop a model to describe the atomic makeup of a molecule. 1.3.5 Evaluate the limitations of a model. BWS Limitations (evaluate) 1.3.6 Recall the key principles of the biblical ethics triad. BWS Ethics (recall)	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 1.3: <i>Molecules and Compounds—Building Molecules</i> (pp. 7–8) BJU Press Trove <ul style="list-style-type: none"> • Video: <i>The Biblical Ethics Triad</i> • Link: <i>Building a Molecule Simulation</i> • PPT Pres.: Section 01.3 Materials <ul style="list-style-type: none"> • wall signs: molecule, compound, chemical formula • molecular modeling set 	Student Edition <ul style="list-style-type: none"> • Section 1.3 Review Teacher Edition <ul style="list-style-type: none"> • <i>Molecules and Compounds</i> preassessment Assessments <ul style="list-style-type: none"> • Section 1.3 Quiz
Section 1.3 Activity Day Molecules and Compounds—Building Molecules			
ALM 7–8	1.3.1 Relate molecules and compounds. 1.3.2 Identify the type and number of atoms in a chemical formula. 1.3.3 Explain how the characteristics of atoms can change when different elements are chemically combined. 1.3.4 Develop a model to describe the atomic makeup of a molecule. 1.3.5 Evaluate the limitations of a model. BWS Limitations (evaluate)		
Lab 1 Scientific Investigations—Planning an Experiment			
ALM 163–68	L1.1 Differentiate between testable and untestable questions. L1.2 Develop a hypothesis and identify variables in a scientific experiment. L1.3 Analyze data to form a conclusion.		
Ethics Day Christian Ethics			
18–20	1.3.6 Recall the key principles of the biblical ethics triad. BWS Ethics (recall)		

Pages	Objectives	Resources	Assessments
Pine Street Post Day			
ALM 9–10			
Chapter 1 Review			
21–23	<ul style="list-style-type: none"> • Describe the structure of an atom. • Analyze the ways that models of atomic structure have changed over time. • Determine the characteristics of an element, using the periodic table of elements. • Explain how all matter is formed by a combination of elements. • Conduct an experiment to practice key science skills. (Lab 1) 		Student Edition <ul style="list-style-type: none"> • Chapter 1 Review
Chapter 1 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 1 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 1 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 1 Test Bank

Chapter 2: States of Matter and Thermal Energy

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 2.1 Energy			
25–29	2.1.1 Define <i>energy</i> . BWS Foundations (explain) 2.1.2 Relate thermal energy to kinetic energy. 2.1.3 Explain the conservation of energy.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 2.1: <i>Energy—Understanding Energy</i> (p. 11) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Energy</i> Link: <i>States of Matter—Basics</i> PPT Pres.: Section 02.1 Materials <ul style="list-style-type: none"> coins (1 nickel, 4 pennies) 	Student Edition <ul style="list-style-type: none"> Section 2.1 Review Assessments <ul style="list-style-type: none"> Section 2.1 Quiz
Section 2.2 States of Matter (2 Days)			
30–35	2.2.1 Relate states of matter to thermal energy. 2.2.2 Categorize examples of solids, liquids, and gases.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 2.2: <i>States of Matter—Categorizing Solids, Liquids, and Gases</i> (pp. 13–14) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 02.2 Materials <ul style="list-style-type: none"> clear container, large shallow pan marbles candles baking soda glass or clear plastic pitcher vinegar 	Student Edition <ul style="list-style-type: none"> Section 2.2 Review Assessments <ul style="list-style-type: none"> Section 2.2 Quiz
Section 2.3 Phase Changes			
36–41	2.3.1 Define <i>heat</i> . 2.3.2 Explain what happens during a phase change. 2.3.3 Interpret a phase change graph.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 2.3: <i>Phase Changes—Understanding Phase Changes</i> (p. 15) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 02.3 	Student Edition <ul style="list-style-type: none"> Section 2.3 Review Assessments <ul style="list-style-type: none"> Section 2.3 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Lab 2A Warm-Up Exercise—Inquiring into Thermal Energy Transfer (2 Days)			
ALM 169–71	L2A.1 Write a testable hypothesis about a factor that may affect thermal energy transfer. L2A.2 Conduct a test of the hypothesis. L2A.3 Evaluate the hypothesis on the basis of data collected during the test.	AKTLM <ul style="list-style-type: none"> Lab 2A Teacher Guide (pp. 172a–72b) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Factors Affecting Thermal Energy Transfer</i> 	
Section 2.4 Thermal Energy Transfer (2 Days)			
42–45	2.4.1 Explain the ways in which thermal energy can be transferred between objects. 2.4.2 Explain the factors that affect thermal energy transfer. 2.4.3 Predict how thermal energy will flow between objects in various scenarios. 2.4.4 Distinguish between insulators and conductors.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 2.4: <i>Thermal Energy Transfer—Recognizing Types of Thermal Energy Transfer</i> (pp. 17–18) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 02.4 Materials <ul style="list-style-type: none"> picture of wooden utility pole with ceramic insulator 	Student Edition <ul style="list-style-type: none"> Section 2.4 Review Teacher Edition <ul style="list-style-type: none"> <i>Thermal Energy or Heat?</i> formative assessment <i>Board Race</i> formative assessment Assessments <ul style="list-style-type: none"> Section 2.4 Quiz
Lab 2B Keep Your Cool!—Designing an Insulated Beverage Container (3 Days)			
ALM 173–77	L2B.1 Design an insulated container to minimize thermal energy transfer, using the engineering design process. L2B.2 Test the container under controlled conditions. L2B.3 Evaluate the effectiveness of the container in meeting design objectives.	AKTLM <ul style="list-style-type: none"> Lab 2B Teacher Guide (pp. 178a–78b) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Building a Better Thermos</i> 	Activities & Lab Manual <ul style="list-style-type: none"> Lab 2B Rubric BJU Press Trove <ul style="list-style-type: none"> Lab 2B Rubric
Pine Street Post Day			
ALM 19–20			

Pages	Objectives	Resources	Assessments
Chapter 2 Review			
46–49	<ul style="list-style-type: none"> • Relate the thermal energy of a substance to particle motion. • Predict the state of a substance on the basis of its heating curve. • Develop a model that predicts changes in matter when thermal energy is added or removed. • Summarize the process of thermal energy transfer. • Explore the factors that affect thermal energy transfer. (Lab 2A) • Design a device to minimize thermal energy transfer, using the engineering design process. (Lab 2B) 		Student Edition <ul style="list-style-type: none"> • Chapter 2 Review
Chapter 2 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 2 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 2 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 2 Test Bank

Chapter 3: Changes in Matter

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 3.1 Properties of Matter			
51–56	3.1.1 Describe the properties used to characterize matter. 3.1.2 Compare physical and chemical properties of matter. 3.1.3 Identify an unknown material on the basis of its physical properties.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 3.1: <i>Properties of Matter—Identifying Physical and Chemical Properties</i> (pp. 21–22) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Chemical Reactions</i> Link: <i>Colors</i> Link: <i>Density</i> Link: <i>Burning Iron</i> Link: <i>Burning Magnesium</i> PPT Pres.: Section 03.1 Materials <ul style="list-style-type: none"> wall signs: physical property, chemical property prism magnet beaker, plastic, 400 mL water, 300 mL pumice rock (other than pumice) plastic teaspoon calcium chloride, 2 tsp sodium bicarbonate, 1 tsp graduated cylinder, 10 mL water, 10 mL resealable sandwich bag goggles 	Student Edition <ul style="list-style-type: none"> Section 3.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Types of Properties</i> formative assessment Assessments <ul style="list-style-type: none"> Section 3.1 Quiz
Lab 3A Sink or Swim—Inquiring into Density (2 Days)			
ALM 179–82	L3A.1 Design an experiment to compare the densities of several objects. L3A.2 Calculate the density of an object from measured values. L3A.3 Relate the density of objects to other physical properties (material, size).	AKTLM <ul style="list-style-type: none"> Lab 3A Teacher Guide (pp. 182a–82c) 	

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 3.2 Physical and Chemical Changes			
57–61	3.2.1 Compare physical and chemical changes. 3.2.2 Describe the signs of a chemical change. 3.2.3 Describe the role of chemical bonds in a chemical reaction. 3.2.4 Compare ionic and covalent bonds.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 3.2: <i>Physical and Chemical Changes—Using Evidence to Form an Argument</i> (pp. 23–24) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Signs of Chemical Change</i> PPT Pres.: Section 03.2 Materials <ul style="list-style-type: none"> Mentos mint candies, 5–6 Coca-Cola soft drink, 2 L wall signs: physical change, chemical change tablespoon baking soda (sodium bicarbonate, NaHCO₃), 2 tbsp funnel balloon, 8 in. laboratory balance vinegar, 150 mL soft drink bottle, 16 oz chemical light stick molecular modeling set index cards with a printed e (24) 	Student Edition <ul style="list-style-type: none"> Section 3.2 Review Teacher Edition <ul style="list-style-type: none"> <i>Change</i> preassessment <i>Properties and Changes</i> formative assessment Assessments <ul style="list-style-type: none"> Section 3.2 Quiz
Section 3.3 Chemical Reactions (2 Days)			
62–69	3.3.1 Describe the components of a chemical equation. 3.3.2 Relate the flow of energy to different chemical reactions. 3.3.3 Distinguish between various types of chemical reactions. 3.3.4 Explain how chemical reactions make life processes sustainable. <u>BWS</u> Origins (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 3.3: <i>Chemical Reactions—Understanding Chemical Reactions</i> (pp. 25–26) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Fifteen Reactions</i> Link: <i>Everyday Reactions</i> Link: <i>Hindenburg Disaster</i> Link: <i>Reactions in Daily Life</i> Link: <i>Food Scientist</i> PPT Pres.: Section 03.3 Materials <ul style="list-style-type: none"> wall signs: reactants, products, large yield arrow laboratory burner chemical heat pack and chemical ice pack 	Student Edition <ul style="list-style-type: none"> Section 3.3 Review Teacher Edition <ul style="list-style-type: none"> <i>Reaction Types</i> formative assessment Assessments <ul style="list-style-type: none"> Section 3.3 Quiz

Pages	Objectives	Resources	Assessments
Worldview Investigation Day Recycling Batteries			
68			Assessments <ul style="list-style-type: none"> Worldview Investigation Presentation Rubric BJU Press Trove <ul style="list-style-type: none"> Worldview Investigation Presentation Rubric
Lab 3B Mix It Up—Examining Signs of a Chemical Reaction			
ALM 183–87	L3B.1 Collect and analyze data to determine whether a physical or chemical change has occurred. L3B.2 Identify a chemical reaction as an endothermic or exothermic reaction.	BJU Press Trove <ul style="list-style-type: none"> IA: <i>Grid Handout</i> (Lab 3B) 	
Section 3.4 Conservation of Matter			
70–72	3.4.1 Explain the law of conservation of matter. 3.4.2 Model the rearrangement of atoms in a simple chemical reaction. 3.4.3 Explain how burning wood follows the law of conservation of mass. 3.4.4 Compare the naturalistic and biblical perspectives on the origin of matter. <u>BWS</u> Origins (evaluate) 3.4.5 Explain the biblical importance of taking action to reduce harmful pollutants. <u>BWS</u> Ethics (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 3.4: <i>Conservation of Matter—Modeling the Conservation of Matter</i> (p. 27) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Conservation of Matter</i> Video: <i>Reducing Emissions</i> Link: <i>Reactions and Conservation of Matter</i> PPT Pres.: Section 03.4 Materials <ul style="list-style-type: none"> molecular modeling set 	Student Edition <ul style="list-style-type: none"> Section 3.4 Review Assessments <ul style="list-style-type: none"> Section 3.4 Quiz
Ethics Day Reducing Emissions			
73–75	3.4.5 Explain the biblical importance of taking action to reduce harmful pollutants. <u>BWS</u> Ethics (explain)	BJU Press Trove <ul style="list-style-type: none"> Video: <i>Reducing Emissions</i> 	
Pine Street Post Day			
ALM 29–30			

Pages	Objectives	Resources	Assessments
Chapter 3 Review			
76–79	<ul style="list-style-type: none"> • Describe a material on the basis of its physical and chemical properties. • Differentiate between physical and chemical changes. • Explain the role of chemical bonds in chemical reactions. • Develop a model to demonstrate the law of conservation of matter. • Answer a scientific question about density by developing an experiment. (Lab 3A) • Differentiate between physical and chemical changes on the basis of experimental data. (Lab 3B) 		Student Edition <ul style="list-style-type: none"> • Chapter 3 Review
Chapter 3 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 3 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 3 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 3 Test Bank

Chapter 4: Forces

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 4.1 Introduction to Forces			
83–88	4.1.1 Recall the definition of a force. 4.1.2 Relate force, energy, and work. 4.1.3 Determine whether the forces acting on an object are balanced or unbalanced. 4.1.4 Predict the motion of an object on the basis of the forces acting on it. 4.1.5 Explain the basis for predictability in motion. <u>BWS</u> Foundations (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 4.1: <i>Introduction to Forces—Identifying When Forces Are at Work</i> (pp. 31–32) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Forces and Motion</i> Link: <i>Forces and Motion—Basics</i> PPT Pres.: Section 04.1 Materials <ul style="list-style-type: none"> book stress ball 	Student Edition <ul style="list-style-type: none"> Section 4.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Introducing Forces and Motion</i> preassessment Assessments <ul style="list-style-type: none"> Section 4.1 Quiz
Section 4.2 Types of Forces (2 Days)			
89–93	4.2.1 Differentiate between contact and field forces. 4.2.2 Determine the types of forces at work on an object. 4.2.3 Create a force diagram to show the forces that are acting on an object.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 4.2: <i>Types of Forces—Classifying Forces</i> (pp. 33–34) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 04.2 Materials <ul style="list-style-type: none"> wooden blocks (2) ruler wall signs: normal force, tension, elastic force, friction/drag images of forces in action 	Student Edition <ul style="list-style-type: none"> Section 4.2 Review Assessments <ul style="list-style-type: none"> Section 4.2 Quiz
Section 4.3 Gravity			
94–98	4.3.1 Summarize the law of universal gravitation. 4.3.2 Explain the factors that affect the force of gravity acting on an object. 4.3.3 Predict how the force of gravity on an object will change in various parts of the solar system. 4.3.4 Evaluate the claim that gravity can be understood. <u>BWS</u> Limitations (evaluate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 4.3: <i>Gravity—Understanding Gravity</i> (p. 35) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Gravity Force Lab—Basics</i> PPT Pres.: Section 04.3 	Student Edition <ul style="list-style-type: none"> Section 4.3 Review Teacher Edition <ul style="list-style-type: none"> <i>Personal Gravity? Part 2</i> formative assessment Assessments <ul style="list-style-type: none"> Section 4.3 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Lab 4 Three, Two, One, Launch!—Relating Force and Mass to Changes in Motion			
ALM 189–94	L4.1 Relate changes in mass and force to changes in motion. L4.2 Draw simple free-body diagrams.		
Section 4.4 Electromagnetism			
99–103	4.4.1 Explain the relationship between electricity and magnetism. 4.4.2 Describe how an electric current can be generated. 4.4.3 Give examples of electromagnetic applications. <u>BWS</u> Dominion (explain) 4.4.4 Formulate a biblical position on the topic of electrofishing. <u>BWS</u> Ethics (evaluate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 4.4: <i>Electromagnetism—Generating Electricity</i> (p. 37) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Electromagnetism</i> Link: <i>Faraday’s Electromagnetic Lab</i> Link: <i>Build a Generator</i> PPT Pres.: Section 04.4 Materials <ul style="list-style-type: none"> hand-cranked generator with visible workings 	Student Edition <ul style="list-style-type: none"> Section 4.4 Review Assessments <ul style="list-style-type: none"> Section 4.4 Quiz
Ethics Day Electrifying Science			
104	4.4.4 Formulate a biblical position on the topic of electrofishing. <u>BWS</u> Ethics (evaluate)	BJU Press Trove <ul style="list-style-type: none"> Video: <i>Electrofishing</i> 	
Pine Street Post Day			
ALM 39–40			
Chapter 4 Review			
105–7	<ul style="list-style-type: none"> Relate the motion of an object to the forces acting on it. Diagram the contact and field forces acting on an object. Develop a model for determining the relative force of gravity acting on an object. Relate electricity and magnetism. Relate force and mass to changes in motion. (Lab 4) 		Student Edition <ul style="list-style-type: none"> Chapter 4 Review

Pages	Objectives	Resources	Assessments
Chapter 4 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 4 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 4 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 4 Test Bank

Chapter 5: Laws of Motion

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 5.1 Describing Motion			
109–16	5.1.1 Describe the motion of an object. 5.1.2 Relate speed, velocity, and acceleration. 5.1.3 Calculate the speed of a moving object. 5.1.4 Graph motion.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 5.1: <i>Describing Motion—Graphing Motion</i> (pp. 41–42) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Newton’s Laws</i> Link: <i>100 m Dash</i> Link: <i>Changing Motion</i> PPT Pres.: Section 05.1 Materials <ul style="list-style-type: none"> meterstick (1 for every 2 students) motion graphs (5–6) for display ruler or straightedge (1 per student) 	Student Edition <ul style="list-style-type: none"> Section 5.1 Review Teacher Edition <ul style="list-style-type: none"> <i>What Do Students Know?</i> preassessment <i>Motion Graphs</i> formative assessment Assessments <ul style="list-style-type: none"> Section 5.1 Quiz
Section 5.2 Newton’s First Law			
117–21	5.2.1 Summarize Newton’s first law of motion. 5.2.2 Relate mass and inertia. 5.2.3 Determine the forces that are causing an object’s motion to change. 5.2.4 Explain how we can use our understanding of Newton’s first law to reduce personal injuries in a collision. <u>BWS</u> Dominion (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 5.2: <i>Newton’s First Law—Identifying Forces</i> (pp. 43–44) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Isaac Newton</i> Link: <i>Newton’s First Law</i> Link: <i>Truck Ramp</i> Link: <i>Seat Belts</i> PPT Pres.: Section 05.2 Materials <ul style="list-style-type: none"> balls (pairs of balls that are the same size but have different masses; a pair of balls for each pair of students; examples of pairs of balls: golf ball and table tennis ball, tennis ball and baseball, basketball and bowling ball) 	Student Edition <ul style="list-style-type: none"> Section 5.2 Review Assessments <ul style="list-style-type: none"> Section 5.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 5.3 Newton's Second Law			
122–24	5.3.1 Explain how changes in an object's mass or the force applied to it will affect its acceleration. 5.3.2 Calculate the change in an object's motion due to an applied force. 5.3.3 Formulate a position on the importance of following speed limits. <u>BWS</u> Ethics (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 5.3: <i>Newton's Second Law—Predicting Motion with Newton's Second Law</i> (pp. 45–46) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Newton's Second Law</i> PPT Pres.: Section 05.3 	Student Edition <ul style="list-style-type: none"> Section 5.3 Review Assessments <ul style="list-style-type: none"> Section 5.3 Quiz
Lab 5A Water Bottle Bowling—Exploring Newton's First and Second Laws			
ALM 195–98	L5A.1 Analyze data to determine the relationships between mass, force, and acceleration. L5A.2 Determine the impact that force has on acceleration. L5A.3 Demonstrate the relationship between mass and inertia. L5A.4 Identify examples of Newton's first and second laws in a laboratory scenario.		
Ethics Day Speed Limit Safety			
125	5.3.3 Formulate a biblical position on the importance of following speed limits. <u>BWS</u> Ethics (formulate)	BJU Press Trove <ul style="list-style-type: none"> Video: <i>Safe Speed Limits</i> 	
Section 5.4 Newton's Third Law			
126–30	5.4.1 Describe an example of Newton's third law. 5.4.2 Identify an action-reaction pair in a simple scenario. 5.4.3 Explain how knowledge of Newton's third law can be used to create useful devices.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 5.4: <i>Newton's Third Law—Applying Newton's Third Law</i> (p. 47) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Newton's Third Law</i> PPT Pres.: Section 05.4 Materials <ul style="list-style-type: none"> office chairs (2, with wheels) 	Student Edition <ul style="list-style-type: none"> Section 5.4 Review Teacher Edition <ul style="list-style-type: none"> <i>Newton's Law Review</i> formative assessment Assessments <ul style="list-style-type: none"> Section 5.4 Quiz

Pages	Objectives	Resources	Assessments
Lab 5B Safety First!—Designing a Helmet Using Newton’s Third Law (3 Days)			
ALM 199–203	L5B.1 Design a helmet that can absorb energy from a collision and protect an egg during an egg drop test, using the engineering design process. L5B.2 Evaluate the effectiveness of different materials in absorbing or dissipating a reaction force. L5B.3 Evaluate how well a design meets the criteria and constraints of a project.	AKTLM <ul style="list-style-type: none"> Lab 5B Teacher Guide (pp. 204a–4b) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Helmet Safety</i> 	Activities & Lab Manual <ul style="list-style-type: none"> Lab 5B Rubric BJU Press Trove <ul style="list-style-type: none"> Lab 5B Rubric
Pine Street Post Day			
ALM 49–50			
Chapter 5 Review			
131–33	<ul style="list-style-type: none"> Use mathematical models to relate speed, force, and mass. Summarize Newton’s laws of motion. Identify how Newton’s laws of motion are at work in a collision. Explain how specific safety features work to prevent injury. Relate mass, force, and acceleration on the basis of experimental data. (Lab 5A) Create an effective helmet to protect an egg during a collision by using the engineering design process. (Lab 5B) 		Student Edition <ul style="list-style-type: none"> Chapter 5 Review
Chapter 5 Test			
	<ul style="list-style-type: none"> Demonstrate knowledge of concepts from Chapter 5 by taking the test. 		Assessments <ul style="list-style-type: none"> Chapter 5 Test BJU Press Trove <ul style="list-style-type: none"> Chapter 5 Test Bank

Chapter 6: Mechanical Energy

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 6.1 Kinetic Energy			
135–39	6.1.1 Give examples of kinetic energy. 6.1.2 Relate kinetic energy to the mass and speed of an object. 6.1.3 Predict changes in kinetic energy. 6.1.4 Interpret graphical representations of kinetic energy. 6.1.5 Create a graphical representation of kinetic energy.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 6.1: <i>Kinetic Energy—Comparing Kinetic Energies</i> (p. 51) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Kinetic and Potential Energy</i> Video: <i>KE and PE</i> Link: <i>Marshmallow Air Gun</i> PPT Pres.: Section 06.1 Materials <ul style="list-style-type: none"> small rock marshmallow golf ball baseball bowling ball shoebox 	Student Edition <ul style="list-style-type: none"> Section 6.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Squaring the Velocity</i> formative assessment Assessments <ul style="list-style-type: none"> Section 6.1 Quiz
Lab 6A Making an Impact—Visualizing Gravitational Potential Energy			
ALM 205–8	L6A.1 Test a hypothesis regarding the relationship between mass and gravitational potential energy. L6A.2 Test a hypothesis regarding the relationship between height and gravitational potential energy.		
Section 6.2 Potential Energy			
140–44	6.2.1 Recall the definition of potential energy. 6.2.2 Give examples of potential energy. 6.2.3 Predict how a change in position will affect the gravitational potential energy of an object.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 6.2: <i>Potential Energy—Mapping Potential Energy</i> (p. 53) BJU Press Trove <ul style="list-style-type: none"> Video: <i>KE and PE</i> PPT Pres.: Section 06.2 Materials <ul style="list-style-type: none"> small ball match snap mousetrap camera flash bowling ball shoebox 	Student Edition <ul style="list-style-type: none"> Section 6.2 Review Assessments <ul style="list-style-type: none"> Section 6.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Worldview Investigation Day Autonomous Cargo Drones			
145			Assessments <ul style="list-style-type: none"> Worldview Investigation Position Statement Rubric BJU Press Trove <ul style="list-style-type: none"> Worldview Investigation Position Statement Rubric
Section 6.3 Energy Transformations			
146–51	<p>6.3.1 Support the claim that potential energy can be transformed into kinetic energy.</p> <p>6.3.2 Summarize what happens to the kinetic energy, potential energy, and total energy during a transformation.</p> <p>6.3.3 Determine the kinds of energy transformations taking place in a given scenario.</p> <p>6.3.4 Formulate a biblical position explaining how understanding energy transformations is important for human thriving. <u>BWS</u> Dominion (formulate)</p>	Activities & Lab Manual <ul style="list-style-type: none"> Activity 6.3: <i>Energy Transformations—Putting Energy Transformations to Good Use</i> (pp. 55–56) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Carnival Swing Rides</i> Link: <i>Energy Transformations Basics</i> Link: <i>Energy Changes</i> PPT Pres.: Section 06.3 Materials <ul style="list-style-type: none"> perpetual motion machine 	Student Edition <ul style="list-style-type: none"> Section 6.3 Review Assessments <ul style="list-style-type: none"> Section 6.3 Quiz
Lab 6B Marble Madness!—Designing a Marble Run (3 Days)			
ALM 209–13	<p>L6B.1 Design and construct a marble run that demonstrates energy transformations, using the engineering design process.</p> <p>L6B.2 Test the marble run under controlled conditions.</p> <p>L6B.3 Evaluate the effectiveness of the marble run in meeting design objectives.</p>	AKTLM <ul style="list-style-type: none"> Lab 6B Teacher Guide (pp. 214a–14b) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Energy Transformations: Marble Run</i> 	Activities & Lab Manual <ul style="list-style-type: none"> Lab 6B Rubric BJU Press Trove <ul style="list-style-type: none"> Lab 6B Rubric
Pine Street Post Day			
ALM 57–58			

Pages	Objectives	Resources	Assessments
Chapter 6 Review			
153–55	<ul style="list-style-type: none"> • Relate forms of mechanical energy to examples. • Predict interactions between kinetic and potential energy. • Relate the Creation Mandate to energy transformations. • Analyze the factors related to gravitational potential energy. (Lab 6A) • Create a marble run by applying concepts of energy transformations and the engineering design process. (Lab 6B) 		Student Edition <ul style="list-style-type: none"> • Chapter 6 Review
Chapter 6 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 6 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 6 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 6 Test Bank

Chapter 7: Mechanical Waves

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 7.1 Introduction to Waves			
157–65	<p>7.1.1 Explain how waves transfer energy.</p> <p>7.1.2 Identify the parts of a wave on a model.</p> <p>7.1.3 Relate the amplitude of a wave to the energy in a wave.</p> <p>7.1.4 Compare transverse and longitudinal waves.</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> Activity 7.1: <i>Introduction to Waves—Comparing Longitudinal and Transverse Waves</i> (pp. 59–60) <p>BJU Press Trove*</p> <ul style="list-style-type: none"> Video: <i>Waving Along</i> Link: <i>Wave Simulation</i> Link: <i>Sporting-Event Wave</i> Link: <i>A Tsunami Is Born</i> Link: <i>Tsunami Formation</i> Link: <i>Tsunami Warning</i> Link: <i>Particle Motion in a Wave</i> PPT Pres.: Section 07.1 <p>Materials</p> <ul style="list-style-type: none"> wall signs: crest (2), trough (2), wavelength (2), amplitude (2) image of a huge transverse wave with at least three full wavelengths (see the lower wave image on page 159) guitar 3/4 in. dowel, 12 in. long long spring or spring toy such as a Slinky 	<p>Student Edition</p> <ul style="list-style-type: none"> Section 7.1 Review <p>Assessments</p> <ul style="list-style-type: none"> Section 7.1 Quiz
Section 7.2 Wave Behavior			
166–71	<p>7.2.1 Explain how a change of medium affects the speed of a wave.</p> <p>7.2.2 Explain transmission, reflection, refraction, and absorption.</p> <p>7.2.3 Explain the Doppler effect.</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> Activity 7.2: <i>Wave Behavior—Showing How Waves Behave</i> (pp. 61–62) <p>BJU Press Trove</p> <ul style="list-style-type: none"> Video: <i>Waves</i> Link: <i>Wave Transmission in Springs</i> Link: <i>Wave Reflection</i> Link: <i>Echolocation</i> Link: <i>Doppler Effect</i> PPT Pres.: Section 07.2 <p>Materials</p> <ul style="list-style-type: none"> 3/4 in. dowel, 12 in. long timer a variety of materials that are translucent, transparent, or opaque (1 per student) long spring or spring toy such as a Slinky 	<p>Student Edition</p> <ul style="list-style-type: none"> Section 7.2 Review <p>Assessments</p> <ul style="list-style-type: none"> Section 7.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Lab 7A Keep It Down!—Designing Noise-Canceling Earmuffs (3 Days)			
ALM 215–19	<p>L7A.1 Design earmuffs that are able to absorb external sounds, using the engineering design process.</p> <p>L7A.2 Evaluate the effectiveness of different materials in absorbing energy from sound waves.</p> <p>L7A.3 Evaluate a design and make modifications to better meet the criteria and constraints of a project.</p>	<p>AKTLM</p> <ul style="list-style-type: none"> • Lab 7A Teacher Guide (pp. 220a–20b) <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Video: <i>Noise-Canceling Earmuffs</i> 	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Lab 7A Rubric <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Lab 7A Rubric
Section 7.3 Sound Waves			
173–76	<p>7.3.1 Relate the characteristics of a sound to wave frequency and amplitude.</p> <p>7.3.2 Create a model of a sound wave.</p> <p>7.3.3 Evaluate the impact of sound pollution on living things. BWS Ethics (evaluate)</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Activity 7.3: <i>Sound Waves—Understanding Characteristics of Sound</i> (p. 63) <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Link: <i>Sound</i> • Link: <i>Volume</i> • Link: <i>Decibel</i> • Link: <i>Range</i> • PPT Pres.: Section 07.3 <p>Materials</p> <ul style="list-style-type: none"> • guitar and other musical instruments • plastic cup • water • tuning fork • tuning fork hammer 	<p>Student Edition</p> <ul style="list-style-type: none"> • Section 7.3 Review <p>Assessments</p> <ul style="list-style-type: none"> • Section 7.3 Quiz
Worldview Investigation Day Noise Pollution			
175–76			<p>Assessments</p> <ul style="list-style-type: none"> • Worldview Investigation Presentation Rubric <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Worldview Investigation Presentation Rubric

Pages	Objectives	Resources	Assessments
Lab 7B The Sound of Music—Exploring the Relationship between Pitch and Frequency (2 Days)			
ALM 221–24	L7B.1 Analyze data to determine the relationship between pitch and frequency. L7B.2 Describe what determines the pitch of a musical instrument. L7B.3 Summarize how science can be used to make beautiful music.		
Pine Street Post Day			
ALM 65–66			
Chapter 7 Review			
177–79	<ul style="list-style-type: none"> • Model the components of a wave. • Relate the medium of a wave to its speed. • Explain how a sound wave will behave in various situations. • Create a pair of acoustic earmuffs by following the engineering design process. (Lab 7A) • Assess various applications of sound waves. (Lab 7B) 		Student Edition <ul style="list-style-type: none"> • Chapter 7 Review
Chapter 7 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 7 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 7 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 7 Test Bank

Chapter 8: Light

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 8.1 Electromagnetic Waves			
181–84	8.1.1 Compare electromagnetic (EM) waves to other types of waves. 8.1.2 Describe an EM wave.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 8.1: <i>Electromagnetic Waves—Understanding Electromagnetic Waves</i> (p. 67) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Electromagnetic Waves</i> PPT Pres.: Section 08.1 	Student Edition <ul style="list-style-type: none"> Section 8.1 Review Assessments <ul style="list-style-type: none"> Section 8.1 Quiz
Section 8.2 The Electromagnetic Spectrum			
185–93	8.2.1 Identify portions of the EM spectrum. 8.2.2 Relate the portions of the EM spectrum to wavelength and frequency. 8.2.3 Describe the characteristics of visible light. 8.2.4 Evaluate the effects of light pollution on humans and other living things. BWS Ethics (evaluate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 8.2A: <i>The Electromagnetic Spectrum—Puzzling Out the Spectrum</i> (pp. 69–71) Activity 8.2B: <i>The Electromagnetic Spectrum—Seeing Is Believing</i> (pp. 73–74) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Bending Light</i> Link: <i>Color Vision</i> PPT Pres.: Section 08.2 Materials <ul style="list-style-type: none"> electric lamp red light bulb blue light bulb triangular prism 	Student Edition <ul style="list-style-type: none"> Section 8.2 Review Teacher Edition <ul style="list-style-type: none"> <i>Spectrum Quick Check</i> formative assessment Assessments <ul style="list-style-type: none"> Section 8.2 Quiz
Ethics Day Light Pollution			
194	8.2.4 Evaluate the effects of light pollution on humans and other living things. BWS Ethics (evaluate)	BJU Press Trove <ul style="list-style-type: none"> Video: <i>Light Pollution</i> 	

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Lab 8A Seeing the Light—Designing a Device to See around an Obstacle (3 Days)			
ALM 225–29	<p>L8A.1 Design a device that will allow a person to see around an obstacle, using the engineering design process.</p> <p>L8A.2 Test a student-designed device for seeing around an obstacle.</p> <p>L8A.3 Evaluate the effectiveness of a device design at meeting design criteria.</p>	<p>AKTLM</p> <ul style="list-style-type: none"> • Lab 8A Teacher Guide (pp. 230a–30b) 	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Lab 8A Rubric <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Lab 8A Rubric
Section 8.3 Using Waves in Technology			
195–200	<p>8.3.1 Relate EM waves to their technological applications.</p> <p>8.3.2 Explain the differences between AM and FM radio formats.</p> <p>8.3.3 Differentiate between analog and digital signals.</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Activity 8.3: <i>Using Waves in Technology—Evaluating Analog and Digital Instruments</i> (pp. 75–76) <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Link: <i>Astronomical Images</i> • Link: <i>Types of Signals</i> • PPT Pres.: Section 08.3 	<p>Student Edition</p> <ul style="list-style-type: none"> • Section 8.3 Review <p>Assessments</p> <ul style="list-style-type: none"> • Section 8.3 Quiz
Lab 8B Trying to Communicate—Evaluating Analog and Digital Communication			
ALM 231–33	<p>L8B.1 Identify information as analog or digital.</p> <p>L8B.2 Evaluate the effectiveness of analog and digital communication systems.</p>	<p>BJU Press Trove</p> <ul style="list-style-type: none"> • IA: <i>Analog Message 1</i> • IA: <i>Analog Message 2</i> • IA: <i>Digital Message 1</i> • IA: <i>Digital Message 2</i> 	
Pine Street Post Day			
ALM 77–78			

Pages	Objectives	Resources	Assessments
Chapter 8 Review			
201–3	<ul style="list-style-type: none"> • Describe the characteristics of an electromagnetic (EM) wave. • List the properties of the portions of the EM spectrum. • Summarize the uses for various types of EM waves. • Create a device to see around obstacles, using the engineering design process. (Lab 8A) • Support the claim that digital signals are a more reliable way to encode and transmit information than analog signals. (Lab 8B) 		Student Edition <ul style="list-style-type: none"> • Chapter 8 Review
Chapter 8 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 8 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 8 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 8 Test Bank

Chapter 9: Cells

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 9.1 Characteristics of Living Things			
207–14	9.1.1 Describe the characteristics of living things. 9.1.2 Determine whether an object is living or non-living on the basis of its traits. 9.1.3 Compare unicellular and multicellular organisms.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 9.1: <i>Characteristics of Living Things—Using Microscopes to Study Cells</i> (p. 79) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Cells</i> Link: <i>Characteristics of Living Things</i> PPT Pres.: Section 09.1 Materials <ul style="list-style-type: none"> wall signs: alive, not alive 	Student Edition <ul style="list-style-type: none"> Section 9.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Alive or Not?</i> formative assessment Assessments <ul style="list-style-type: none"> Section 9.1 Quiz
Section 9.2 Cell Structure (3 Days)			
215–21	9.2.1 Describe the major organelles of an animal cell. 9.2.2 Explain the role of each organelle in the cell. 9.2.3 Create a model of a cell. BWS Limitations (formulate) 9.2.4 Compare plant and animal cells. 9.2.5 Explain the roles of chloroplasts, cell walls, and central vacuoles in plant cells. 9.2.6 Determine whether a cell belongs to a plant or an animal.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 9.2: <i>Cell Structure—The Cell Is Like . . .</i> (pp. 81–82) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Cell Size and Scale</i> Link: <i>Inside a Cell</i> Link: <i>Forensic Science</i> Link: <i>Organelle Matching Game (Option 1)</i> Link: <i>Organelle Matching Game (Option 2)</i> PPT Pres.: Section 09.2 Materials <ul style="list-style-type: none"> coffee bean grain of rice 	Student Edition <ul style="list-style-type: none"> Section 9.2 Review Teacher Edition <ul style="list-style-type: none"> <i>Cell Structure Exit Ticket</i> formative assessment Assessments <ul style="list-style-type: none"> Section 9.2 Quiz
Lab 9A It's a Small World—Using Microscopes to Observe Cells (2 Days)			
ALM 235–40	L9A.1 Identify plant and animal cells under a microscope. L9A.2 Describe the parts of a cell that can be seen under a microscope. L9A.3 Support the claim that all living things are made of cells.		

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Lab 9B A Model Cell—Modeling Cells (2 Days)			
ALM 241–44	L9B.1 Create a model of a cell. L9B.2 Describe the role and function of each organelle in a cell.		
Section 9.3 Levels of Organization			
221–23	9.3.1 Explain how living things are made of smaller components. 9.3.2 Arrange the levels of hierarchical organization in living things.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 9.3: <i>Levels of Organization—Levels of Organization Card Sort</i> (pp. 83–85) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 09.3 Materials <ul style="list-style-type: none"> human heart model preserved slide, cardiac muscle tissue (or image to display) preserved slide, smooth muscle tissue (or image to display) microscope digital microscope camera 	Student Edition <ul style="list-style-type: none"> Section 9.3 Review Assessments <ul style="list-style-type: none"> Section 9.3 Quiz
Section 9.4 The History of Cell Theory			
224–30	9.4.1 Explain how our understanding of cells has changed over time. 9.4.2 Summarize the principles of cell theory. 9.4.3 Formulate a biblical response to evolutionary assumptions about the development of life. BWS Foundations (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 9.4: <i>The History of Cell Theory—Learning about a Famous Scientist</i> (p. 87) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Cell Theory and Modeling a Cell</i> PPT Pres.: Section 09.4 	Student Edition <ul style="list-style-type: none"> Section 9.4 Review Assessments <ul style="list-style-type: none"> Section 9.4 Quiz
Pine Street Post Day			
ALM 89–90			

Pages	Objectives	Resources	Assessments
Chapter 9 Review			
231–33	<ul style="list-style-type: none"> • Identify an item as living or nonliving on the basis of its characteristics. • Describe the roles of major organelles in a cell. • Compare plant and animal cells. • Describe the organizational hierarchy of living things. • Evaluate how our understanding of cells has changed over time. • Use a compound microscope to observe plant and animal cells and identify various organelles in each. (Lab 9A) • Develop a model of a cell to demonstrate understanding of the roles and functions of various organelles. (Lab 9B) 		Student Edition <ul style="list-style-type: none"> • Chapter 9 Review
Chapter 9 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 9 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 9 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 9 Test Bank

Chapter 10: Heredity and Genetics

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 10.1 Heredity, Genes, and DNA			
235–42	10.1.1 Relate genes to traits. 10.1.2 Compare DNA with other types of coded information. 10.1.3 Define <i>heredity</i> . 10.1.4 Explain the role of DNA in heredity. 10.1.5 Compare views on the origins of biological information. BWS Origins (explain)	Teacher Edition <ul style="list-style-type: none"> IA: <i>Terrific Traits</i> Activities & Lab Manual <ul style="list-style-type: none"> Activity 10.1: <i>Heredity, Genes, and DNA—Hereditary Terms</i> (pp. 91–92) BJU Press Trove* <ul style="list-style-type: none"> IA: <i>Terrific Traits</i> Video: <i>Heredity</i> PPT Pres.: Section 10.1 	Student Edition <ul style="list-style-type: none"> Section 10.1 Review Assessments <ul style="list-style-type: none"> Section 10.1 Quiz
Section 10.2 Passing Down Traits (2 Days)			
243–49	10.2.1 Summarize the findings of Gregor Mendel regarding inheritance. 10.2.2 Differentiate between dominant and recessive traits. 10.2.3 Solve simple dominance inheritance problems using Punnett squares.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 10.2: <i>Passing Down Traits—Inheritance Patterns</i> (pp. 93–94) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Mendel</i> Video: <i>Punnett Squares</i> PPT Pres.: Section 10.2 Materials <ul style="list-style-type: none"> large bowl small bowl 	Student Edition <ul style="list-style-type: none"> Section 10.2 Review Assessments <ul style="list-style-type: none"> Section 10.2 Quiz
Lab 10 Paper Pet Genetics—Examining Inheritance			
ALM 245–48	L10.1 Use Punnett squares to predict genotypes. L10.2 Construct paper pets that are based on predicted genotypes.	BJU Press Trove <ul style="list-style-type: none"> IA: <i>Parental Genotype Cards 1</i> (Lab 10) IA: <i>Parental Genotype Cards 2</i> (Lab 10) 	

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 10.3 Human Impact (2 Days)			
250–56	10.3.1 Differentiate between artificial and natural selection. 10.3.2 Evaluate the compatibility of genetic engineering with a biblical worldview. <u>BWS</u> Ethics (evaluate) 10.3.3 Explain the process of cloning. 10.3.4 Evaluate the use of selective breeding. <u>BWS</u> Dominion (evaluate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 10.3: <i>Human Impact—Artificial Selection</i> (p. 95) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 10.3 Materials <ul style="list-style-type: none"> book of dog breeds 	Student Edition <ul style="list-style-type: none"> Section 10.3 Review Assessments <ul style="list-style-type: none"> Section 10.3 Quiz
Worldview Investigation Day Blood Parrot Cichlids			
252	10.3.4 Evaluate the use of selective breeding. <u>BWS</u> Dominion (evaluate)		Assessments <ul style="list-style-type: none"> Worldview Investigation Display Rubric BJU Press Trove <ul style="list-style-type: none"> Worldview Investigation Display Rubric
Pine Street Post Day			
ALM 97–98			
Chapter 10 Review			
257–59	<ul style="list-style-type: none"> Explain the inheritance of genetic information. Predict inheritance patterns using Mendelian genetics. Evaluate the use of artificial selection and cloning. Model simple dominance inheritance. (Lab 10) 		Student Edition <ul style="list-style-type: none"> Chapter 10 Review
Chapter 10 Test			
	<ul style="list-style-type: none"> Demonstrate knowledge of concepts from Chapter 10 by taking the test. 		Assessments <ul style="list-style-type: none"> Chapter 10 Test BJU Press Trove <ul style="list-style-type: none"> Chapter 10 Test Bank

Chapter 11: Plant Classification

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 11.1 Introduction to Classification			
261–71	11.1.1 Describe Linnaeus’s contributions to taxonomy. 11.1.2 Outline the taxa used to categorize species. 11.1.3 Differentiate between plant, animal, and fungi kingdoms. 11.1.4 Relate the work of classification to dominion. <u>BWS</u> Dominion (explain) 11.1.5 Evaluate the workability of our modern classification system. <u>BWS</u> Limitations (evaluate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 11.1: <i>Introduction to Classification—Understanding Levels of Organization</i> (pp. 99–100) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Classification</i> Video: <i>Classification of Plants</i> Link: <i>Amoebas</i> PPT Pres.: Section 11.1 Materials <ul style="list-style-type: none"> classroom items, assorted (10) microscopes prepared slides, assorted 	Student Edition <ul style="list-style-type: none"> Section 11.1 Review Assessments <ul style="list-style-type: none"> Section 11.1 Quiz
Lab 11 Guess Who?—Classifying an Unknown Organism			
ALM 249–52	L11.1 Describe the characteristics of an organism. L11.2 Classify a living thing according to its traits and features.		
Section 11.2 Introduction to Plants			
272–76	11.2.1 Identify the key features that plants share. 11.2.2 Analyze the effects of the plant kingdom on other living things. <u>BWS</u> Origins (explain)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 11.2: <i>Introduction to Plants—What Are Plants?</i> (p. 101) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 11.2 Materials <ul style="list-style-type: none"> interlocking building blocks 	Student Edition <ul style="list-style-type: none"> Section 11.2 Review Assessments <ul style="list-style-type: none"> Section 11.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 11.3 Nonvascular Plants and Ferns			
277–81	11.3.1 Compare vascular and nonvascular plants. 11.3.2 Explain the roles of nonvascular plants and ferns in their environment. 11.3.3 Classify different types of nonvascular plants.	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 11.3: <i>Nonvascular Plants and Ferns—Nonvascular vs. Seedless Vascular Plants</i> (pp. 103–4) BJU Press Trove <ul style="list-style-type: none"> • Video: <i>Ferns</i> • Video: <i>Horsetails</i> • Video: <i>Mosses and Ferns</i> • PPT Pres.: Section 11.3 Materials <ul style="list-style-type: none"> • sticky notes • plastic army soldier • image of moss lawn • white paper • fern frond, with spores • fruit seeds, assorted (e.g., apple, orange, cherry) • hand lens • microscope 	Student Edition <ul style="list-style-type: none"> • Section 11.3 Review Assessments <ul style="list-style-type: none"> • Section 11.3 Quiz
Section 11.4 Cone-Bearing Vascular Plants			
282–85	11.4.1 Describe the key characteristics of cone-bearing plants. 11.4.2 Explain the roles of cone-bearing plants in their environment.	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 11.4: <i>Cone-Bearing Vascular Plants—Classifying Plants</i> (pp. 105–6) BJU Press Trove <ul style="list-style-type: none"> • Video: <i>Cones</i> • Video: <i>Cycads</i> • Video: <i>Firs, Spruces, and Pines</i> • Video: <i>Ginkgoes</i> • Link: <i>Forest Fires</i> • PPT Pres.: Section 11.4 Materials <ul style="list-style-type: none"> • image of a pine needle cross-section 	Student Edition <ul style="list-style-type: none"> • Section 11.4 Review Assessments <ul style="list-style-type: none"> • Section 11.4 Quiz

Pages	Objectives	Resources	Assessments
Section 11.5 Flowering Vascular Plants			
286–90	<p>11.5.1 Explain the key structures of flowering plants.</p> <p>11.5.2 Explain the importance of flowering plants both to their habitats and to human health. BWS Dominion (explain)</p> <p>11.5.3 Compare cone-bearing and flowering plants.</p> <p>11.5.4 Explain how assumptions affect our ideas about common design between organisms. BWS Foundations (explain)</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Activity 11.5: <i>Flowering Vascular Plants—Fact or Opinion?</i> (p. 107) <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Video: <i>Monocots and Dicots</i> • Link: <i>Arborists</i> • Link: <i>Plant Types and Structures</i> • PPT Pres.: Section 11.5 <p>Materials</p> <ul style="list-style-type: none"> • variety of packaged foods and snacks (10–20 items) • plant samples (4–5 species) • images of a series of paintings from the same artist (examples: <i>Starry Night</i>, <i>Cafe Terrace on the Place du Forum</i>, <i>Starry Night Over the Rhone</i>, <i>Wheat Field with Crows</i>, and <i>Cypress Against a Starry Sky</i> by Van Gogh) 	<p>Student Edition</p> <ul style="list-style-type: none"> • Section 11.5 Review <p>Assessments</p> <ul style="list-style-type: none"> • Section 11.5 Quiz
Pine Street Post Day			
ALM 109–10			
Chapter 11 Review			
291–93	<ul style="list-style-type: none"> • Evaluate the uses of our modern classification system. • Explain the key characteristics that different plant groups share. • Evaluate the roles of plant groups in their habitats. • Compare different groups of plants. • Design a new organism according to characteristics of various taxa. (Lab 11) 		<p>Student Edition</p> <ul style="list-style-type: none"> • Chapter 11 Review
Chapter 11 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 11 by taking the test. 		<p>Assessments</p> <ul style="list-style-type: none"> • Chapter 11 Test <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Chapter 11 Test Bank

Chapter 12: Animal Classification

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 12.1 Sponges, Cnidarians, and Mollusks			
295–301	12.1.1 Distinguish invertebrates from other groups of animals. 12.1.2 Describe the key characteristics of sponges, cnidarians, and mollusks. 12.1.3 Classify various examples of sponges, cnidarians, and mollusks. 12.1.4 Explain the roles of sponges, cnidarians, and mollusks in their environments.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 12.1: <i>Sponges, Cnidarians, and Mollusks—Invertebrates Part 1</i> (p. 111) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Classification of Animals</i> PPT Pres.: Section 12.1 Materials <ul style="list-style-type: none"> natural sponges corals seashells picture of common brown garden snail (<i>Cornu aspersum</i>) 	Student Edition <ul style="list-style-type: none"> Section 12.1 Review Assessments <ul style="list-style-type: none"> Section 12.1 Quiz
Section 12.2 Echinoderms and Worms			
302–6	12.2.1 Describe the key characteristics of echinoderms and worms. 12.2.2 Classify various examples of echinoderms and worms. 12.2.3 Explain the roles of echinoderms and worms in their environments.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 12.2: <i>Echinoderms and Worms—Invertebrates Part 2</i> (p. 113) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Marine Flatworm</i> PPT Pres.: Section 12.2 Materials <ul style="list-style-type: none"> echinoderms (e.g., sea stars, sea urchins, sand dollars) live planarians petri dish spring water hand lens preserved roundworm (<i>Ascaris lumbricoides</i>) tub of live earthworms 	Student Edition <ul style="list-style-type: none"> Section 12.2 Review Assessments <ul style="list-style-type: none"> Section 12.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 12.3 Arthropods			
307–13	12.3.1 Describe the key characteristics of arthropods. 12.3.2 Classify various examples of arthropods. 12.3.3 Explain the roles of arthropods in their environments.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 12.3: <i>Arthropods—Invertebrates Part 3</i> (pp. 115–16) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 12.3 Materials <ul style="list-style-type: none"> preserved arthropod set cooked whole shrimp and crayfish hand lens 	Student Edition <ul style="list-style-type: none"> Section 12.3 Review Assessments <ul style="list-style-type: none"> Section 12.3 Quiz
Lab 12 Mealworm Movement—Observing How a Mealworm Responds to Its Environment			
ALM 253–57	L12.1 Observe the larval stage of complete metamorphosis. L12.2 Observe the pupal stage of complete metamorphosis. L12.3 Collect and record observations of mealworm behavior.		
Section 12.4 Fish and Amphibians			
314–20	12.4.1 List the distinguishing features of vertebrates. 12.4.2 Describe the key characteristics of fish and amphibians. 12.4.3 Classify various examples of fish and amphibians. 12.4.4 Explain the roles of fish and amphibians in their environments. 12.4.5 Formulate a position on sustainable fishing. BWS Dominion (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 12.4: <i>Fish and Amphibians—Vertebrates Part 1</i> (p. 117) BJU Press Trove <ul style="list-style-type: none"> Link: <i>Aquarium Walking Tour</i> PPT Pres.: Section 12.4 	Student Edition <ul style="list-style-type: none"> Section 12.4 Review Assessments <ul style="list-style-type: none"> Section 12.4 Quiz

Pages	Objectives	Resources	Assessments
Section 12.5 Reptiles and Birds			
321–25	12.5.1 Describe the key characteristics of reptiles and birds. 12.5.2 Classify various examples of reptiles and birds. 12.5.3 Explain the roles of reptiles and birds in their environments.	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 12.5: <i>Reptiles and Birds—Vertebrates Part 2</i> (p. 119) BJU Press Trove <ul style="list-style-type: none"> • Video: <i>Serpentarium</i> • Link: <i>Flying Lizards?</i> • Link: <i>Snake Movement</i> • PPT Pres.: Section 12.5 Materials <ul style="list-style-type: none"> • turtle shell • terrarium • live lizard • live crickets • reptile field guides • mounted snake skeleton • feathers (flight feather, contour feather, down feather) 	Student Edition <ul style="list-style-type: none"> • Section 12.5 Review Assessments <ul style="list-style-type: none"> • Section 12.5 Quiz
Section 12.6 Mammals			
326–31	12.6.1 Describe the key characteristics of mammals. 12.6.2 Classify various examples of mammals. 12.6.3 Explain the roles of mammals in their environments. 12.6.4 Formulate a position on the domestication of livestock. BWS Ethics (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 12.6: <i>Mammals—Mammal Report</i> (pp. 121–22) BJU Press Trove <ul style="list-style-type: none"> • Video: <i>Livestock Domestication</i> • Link: <i>Hopping to Australia</i> • Link: <i>Fruit Bats</i> • Link: <i>Serengeti Wildebeest</i> • Link: <i>Dolphin Sonar</i> • PPT Pres.: Section 12.6 Materials <ul style="list-style-type: none"> • picture of a wolf (<i>Canis lupus</i>) • picture of a mountain lion (<i>Puma concolor</i>) • piece of reproduction scrimshaw 	Student Edition <ul style="list-style-type: none"> • Section 12.6 Review Assessments <ul style="list-style-type: none"> • Section 12.6 Quiz
Ethics Day Domesticating Animals			
332	12.6.4 Formulate a position on the domestication of livestock. BWS Ethics (formulate)		

Pages	Objectives	Resources	Assessments
Pine Street Post Day			
ALM 123–24			
Chapter 12 Review			
333–37	<ul style="list-style-type: none"> • Describe the key characteristics of various animal groups. • Classify various examples of animals. • Explain the roles of animals in their environments. • Formulate a position on the wise use of animal resources. • Relate the movement of mealworms to environmental conditions. (Lab 12) 		Student Edition <ul style="list-style-type: none"> • Chapter 12 Review
Chapter 12 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 12 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 12 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 12 Test Bank

Chapter 13: Reproduction and Adaptations of Organisms

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 13.1 Reproduction of Organisms			
339–44	<p>13.1.1 Compare asexual and sexual reproduction.</p> <p>13.1.2 Relate an organism’s method of reproduction to its lifespan and environment. BWS Origins (explain)</p> <p>13.1.3 Explain the impact of asexual and sexual reproduction on a population’s gene pool.</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> Activity 13.1: <i>Reproduction of Organisms—Comparing Types of Reproduction</i> (p. 125) <p>BJU Press Trove*</p> <ul style="list-style-type: none"> Video: <i>Plant and Animal Adaptations</i> Link: <i>Starfish Regeneration</i> PPT Pres.: Section 13.1 <p>Materials</p> <ul style="list-style-type: none"> dry beans timer pipe cleaners colored beads, variety coin die 	<p>Student Edition</p> <ul style="list-style-type: none"> Section 13.1 Review <p>Teacher Edition</p> <ul style="list-style-type: none"> <i>Exit Ticket</i> formative assessment <p>Assessments</p> <ul style="list-style-type: none"> Section 13.1 Quiz
Section 13.2 General Adaptations			
345–49	<p>13.2.1 Recall the term <i>adaptation</i>.</p> <p>13.2.2 Explain how organisms in similar habitats have developed similar adaptations to help them survive. BWS Foundations (explain)</p> <p>13.2.3 Relate adaptation to natural selection.</p> <p>13.2.4 Model how adaptations lead to a change in a population’s traits over time.</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> Activity 13.2: <i>General Adaptations—Summer Camp News</i> (pp. 127–28) <p>BJU Press Trove</p> <ul style="list-style-type: none"> Video: <i>Natural Selection vs. Evolution</i> Link: <i>Peppered Moths</i> Link: <i>Rock Pocket Mice</i> PPT Pres.: Section 13.2 <p>Materials</p> <ul style="list-style-type: none"> marbles or jellybeans, variety of colors image of a jaguar 	<p>Student Edition</p> <ul style="list-style-type: none"> Section 13.2 Review <p>Assessments</p> <ul style="list-style-type: none"> Section 13.2 Quiz
Section 13.2 Activity Day General Adaptations—Summer Camp News			
ALM 127–28			

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 13.3 Reproductive Adaptations in Plants			
350–56	<p>13.3.1 Explain how different plant adaptations increase the reproductive success of plants.</p> <p>13.3.2 Relate specific plant adaptations to the movement of plants.</p> <p>13.3.3 Analyze the role of animal behavior in plant reproduction.</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> Activity 13.3: <i>Reproductive Adaptations in Plants—Productive Pollinators</i> (pp. 129–30) <p>BJU Press Trove</p> <ul style="list-style-type: none"> Link: <i>The Life of an Oak</i> Link: <i>Pollinators</i> Link: <i>Seed Dispersal</i> PPT Pres.: Section 13.3 <p>Materials</p> <ul style="list-style-type: none"> typical flower (lily, tulip, daffodil, or similar) dissection kit 	<p>Student Edition</p> <ul style="list-style-type: none"> Section 13.3 Review <p>Assessments</p> <ul style="list-style-type: none"> Section 13.3 Quiz
Section 13.4 Reproductive Adaptations in Animals			
357–60	<p>13.4.1 Compare physical and behavioral adaptations.</p> <p>13.4.2 Explain how an adaptation can increase an organism’s ability to survive and reproduce.</p> <p>13.4.3 Evaluate how various animal adaptations lead to reproductive success.</p> <p>13.4.4 Formulate a biblical response to the evolutionary concept of adaptation. BWS Foundations (formulate)</p> <p>13.4.5 Evaluate a scientific statement and identify bias and assumptions made by the author. BWS Foundations (evaluate)</p> <p>13.4.6 Formulate a biblical position on the care of endangered species. BWS Ethics (formulate)</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> Activity 13.4: <i>Reproductive Adaptations in Animals—Evaluating Worldview in Scientific Articles</i> (pp. 131–32) <p>BJU Press Trove</p> <ul style="list-style-type: none"> Link: <i>Penguin Huddle</i> Link: <i>Pufferfish</i> Link: <i>The Secret of Zebra Stripes</i> Link: <i>Birds of Paradise</i> Link: <i>Sea Otters</i> PPT Pres.: Section 13.4 <p>Materials</p> <ul style="list-style-type: none"> natural-selection bingo cards 	<p>Student Edition</p> <ul style="list-style-type: none"> Section 13.4 Review <p>Assessments</p> <ul style="list-style-type: none"> Section 13.4 Quiz
Section 13.4 Activity Day Reproductive Adaptations in Animals—Evaluating Worldview in Scientific Articles			
ALM 131–32	<p>13.4.5 Evaluate a scientific statement and identify bias and assumptions made by the author. BWS Foundations (evaluate)</p>	<p>BJU Press Trove</p> <ul style="list-style-type: none"> Link: <i>A Naturalist’s View of Natural Selection</i> Link: <i>A Biblical View of Natural Selection</i> 	

Pages	Objectives	Resources	Assessments
Lab 13 Gummy Games—Observing Natural Selection			
ALM 259–65	L13.1 Analyze the impact that a changing habitat has on a population of organisms. L13.2 Explain why genetic variation can help a population survive.	BJU Press Trove <ul style="list-style-type: none"> • Additional Resource: <i>Gummy Games Scenarios</i> 	
Ethics Day Protecting Endangered Species			
361	13.4.6 Formulate a biblical position on the care of endangered species. BWS Ethics (formulate)	BJU Press Trove <ul style="list-style-type: none"> • Video: <i>Endangered Species</i> • Link: <i>IUCN Red List</i> 	
Pine Street Post Day			
ALM 133–34			
Chapter 13 Review			
362–65	<ul style="list-style-type: none"> • Compare the outcome of asexual and sexual reproduction on a population. • Explain how various adaptations increase an organism's ability to survive and reproduce. • Model how a population's traits can change over time in response to changes to the population's habitat. (Lab 13) 		Student Edition <ul style="list-style-type: none"> • Chapter 13 Review
Chapter 13 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 13 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 13 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 13 Test Bank

Chapter 14: Natural Resources

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 14.1 What Are Natural Resources?			
369–73	14.1.1 State examples of natural resources. 14.1.2 Differentiate between renewable and nonrenewable resources. 14.1.3 Relate natural resources to everyday items.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 14.1: <i>What Are Natural Resources?—Nonrenewable Energy</i> (pp. 135–36) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Natural Resources</i> Link: <i>Biomass</i> Link: <i>Arable Land</i> PPT Pres.: Section 14.1 Materials <ul style="list-style-type: none"> bag of chips or another sealed snack 	Student Edition <ul style="list-style-type: none"> Section 14.1 Review Assessments <ul style="list-style-type: none"> Section 14.1 Quiz
Lab 14A Natural Resources—Exploring the Resources God Has Provided			
ALM 267–70	L14A.1 Describe the characteristics of natural resources. L14A.2 Explain the uses of natural resources. L14A.3 Create a marketing promotion for a natural resource.		
Lab 14B It’s Only Natural—Inquiring into the Impacts of Natural Resource Production (2 Days)			
ALM 271–75	L14B.1 Summarize the available information regarding an economic, environmental, or sociocultural impact of natural resource production. L14B.2 Evaluate the value of natural resource production.	AKTLM <ul style="list-style-type: none"> Lab 14B Teacher Guide (pp. 276a–76b) 	Activities & Lab Manual <ul style="list-style-type: none"> Lab 14B Rubric BJU Press Trove <ul style="list-style-type: none"> Lab 14B Rubric

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 14.2 Location of Natural Resources			
374–84	<p>14.2.1 Identify some of the major sources of various natural resources.</p> <p>14.2.2 Relate the present distribution of natural resources to past geologic processes. BWS Limitations (evaluate)</p> <p>14.2.3 Formulate a biblical response to the secular explanation for the present distribution of natural resources. BWS Origins (formulate)</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Activity 14.2: <i>Location of Natural Resources—Mineral Resources</i> (pp. 137–38) <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Link: <i>Lionfish Invasion</i> • Link: <i>Recharging Aquifers</i> • Link: <i>AUV Technology</i> • Link: <i>Geothermal Energy</i> • Link: <i>ITER</i> • PPT Pres.: Section 14.2 <p>Materials</p> <ul style="list-style-type: none"> • raised relief map of the United States 	<p>Student Edition</p> <ul style="list-style-type: none"> • Section 14.2 Review <p>Assessments</p> <ul style="list-style-type: none"> • Section 14.2 Quiz
Section 14.3 Stewarding Our Natural Resources			
385–94	<p>14.3.1 Explain the importance of natural resources to human thriving.</p> <p>14.3.2 Give examples of wise use and unwise use of natural resources.</p> <p>14.3.3 Relate views of natural resource stewardship to worldview. BWS Foundations (evaluate)</p> <p>14.3.4 Formulate a position on the wise use of natural resources. BWS Dominion (formulate)</p>	<p>Activities & Lab Manual</p> <ul style="list-style-type: none"> • Activity 14.3: <i>Stewarding Our Natural Resources—Natural Resource Scavenger Hunt</i> (pp. 139–40) <p>BJU Press Trove</p> <ul style="list-style-type: none"> • Video: <i>Stewardship of Natural Resources</i> • Video: <i>Sewage Treatment</i> • Link: <i>Urban Deer Management</i> • Link: <i>Fracking</i> • Link: <i>Energy Game</i> • Link: <i>Recycled Uniforms</i> • PPT Pres.: Section 14.3 <p>Materials</p> <ul style="list-style-type: none"> • image of people standing on an old-growth redwood stump • image of a rainforest clear-cut • image of protesters chained to a tree 	<p>Student Edition</p> <ul style="list-style-type: none"> • Section 14.3 Review <p>Assessments</p> <ul style="list-style-type: none"> • Section 14.3 Quiz

Pages	Objectives	Resources	Assessments
Worldview Investigation Day Blazing Trails			
393	14.3.4 Formulate a position on the wise use of natural resources. <u>BWS</u> Dominion (formulate)		Assessments <ul style="list-style-type: none"> Worldview Investigation Display Rubric BJU Press Trove <ul style="list-style-type: none"> Worldview Investigation Display Rubric
Section 14.4 Synthetic Materials			
395–97	14.4.1 Relate synthetic materials to natural resources. 14.4.2 Give examples of common synthetic materials and their uses. 14.4.3 Summarize some processes used to make synthetic materials. 14.4.4 Formulate a position on the use of synthetic materials. <u>BWS</u> Ethics (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 14.4: <i>Synthetic Materials—Natural or Synthetic?</i> (p. 141) BJU Press Trove <ul style="list-style-type: none"> PPT Pres.: Section 14.4 Materials <ul style="list-style-type: none"> assorted natural materials along with their synthetic counterparts vocabulary cards (3 × 5 index cards) 	Student Edition <ul style="list-style-type: none"> Section 14.4 Review Assessments <ul style="list-style-type: none"> Section 14.4 Quiz
Ethics Day Should We Use Synthetic Materials?			
398	14.4.4 Formulate a position on the use of synthetic materials. <u>BWS</u> Ethics (formulate)	BJU Press Trove <ul style="list-style-type: none"> Video: <i>Synthetic Materials</i> 	
Pine Street Post Day			
ALM 143–44			
Chapter 14 Review			
399–401	<ul style="list-style-type: none"> Describe various natural resources, their sources, and their uses. Compare renewable and nonrenewable natural resources. Relate natural resource conservation to a biblical worldview. Justify the wise use of synthetic materials. Summarize the characteristics and uses of natural resources. (Lab 14A) Formulate a position on the value of natural resource production. (Lab 14B) 		Student Edition <ul style="list-style-type: none"> Chapter 14 Review

Pages	Objectives	Resources	Assessments
Chapter 14 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 14 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 14 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 14 Test Bank

Chapter 15: Weathering and Erosion

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 15.1 Weathering			
403–11	15.1.1 Describe the rock cycle. 15.1.2 Compare chemical and mechanical weathering. 15.1.3 Analyze geologic formations to determine what types of weathering have occurred. 15.1.4 Use a model to demonstrate how mechanical weathering occurs.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 15.1: <i>Weathering—Understanding Rocks and Weathering</i> (pp. 145–46) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Weathering and Erosion</i> Link: <i>The Rock Cycle</i> Link: <i>Sedimentary Rocks</i> Link: <i>Why Is the Statue of Liberty Green?</i> PPT Pres.: Section 15.1 Materials <ul style="list-style-type: none"> rock samples (sedimentary, hard igneous, and metamorphic) images of weathered landforms and structures (8–10) images of weathered statues (2) 	Student Edition <ul style="list-style-type: none"> Section 15.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Lady Liberty Part 2</i> formative assessment Assessments <ul style="list-style-type: none"> Section 15.1 Quiz
Section 15.2 Erosion and Deposition			
412–18	15.2.1 Explain how different types of erosion can change Earth’s surface. 15.2.2 Relate the processes of erosion and deposition. 15.2.3 Analyze the natural conditions that lead to mass erosion. 15.2.4 Explain how geologic processes can shape Earth’s features over long periods and short periods. 15.2.5 Formulate a biblical response to naturalistic interpretations of geologic processes. <u>BWS</u> Foundations (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> Activity 15.2: <i>Erosion and Deposition—Understanding How Sediment Moves</i> (pp. 147–48) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Rock Formations</i> Link: <i>Cliffside Homes</i> Link: <i>Floodplains</i> Link: <i>Canyons</i> Link: <i>Weathering</i> PPT Pres.: Section 15.2 Materials <ul style="list-style-type: none"> image of large, balancing boulder 	Student Edition <ul style="list-style-type: none"> Section 15.2 Review Assessments <ul style="list-style-type: none"> Section 15.2 Quiz

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Lab 15A Mass Transit—Inquiring into Mass Movement			
ALM 277–80	L15A.1 Create a hypothesis regarding the factors that influence mass movement. L15A.2 Develop an experiment to test the hypothesis about mass movement. L15A.3 Analyze data to determine whether the collected data supports the hypothesis.	AKTLM <ul style="list-style-type: none"> • Lab 15A Teacher Guide (pp. 280a–80b) 	
Lab 15B On the Move—Investigating Erosion and Deposition			
ALM 281–84	L15B.1 Summarize the relationship between weathering, erosion, and deposition. L15B.2 Observe how different agents of erosion affect the earth. L15B.3 Evaluate the effects of different agents of erosion on the earth.		
Section 15.3 Human Impact			
419–26	15.3.1 Discuss the impacts of weathering, erosion, and deposition on humans. 15.3.2 Evaluate the impact of human activity on the rates of weathering and erosion. BWS Dominion (evaluate) 15.3.3 Develop a plan to reduce negative human impact on the land. BWS Dominion (apply)	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 15.3: <i>Human Impact—People and Weathering, Erosion, and Deposition</i> (p. 149) BJU Press Trove <ul style="list-style-type: none"> • Link: <i>Cliffside Collapse</i> • Link: <i>Slowing Erosion through Recycling</i> • PPT Pres.: Section 15.3 Materials <ul style="list-style-type: none"> • beakers, glass, 50 mL (3) • soil sample, clay • soil sample, silt • soil sample, sand • graduated cylinders, 250 mL (3) • water, 300 mL • timer or stopwatch 	Student Edition <ul style="list-style-type: none"> • Section 15.3 Review Assessments <ul style="list-style-type: none"> • Section 15.3 Quiz
Pine Street Post Day			
ALM 151–52			

Pages	Objectives	Resources	Assessments
Chapter 15 Review			
427–29	<ul style="list-style-type: none"> • Analyze various types of weathering and erosion. • Use evidence to explain how geologic processes have changed Earth’s surface. • Relate geologic processes and human activity. • Design an experiment to determine what factors affect mass movement. (Lab 15A) • Evaluate the effect of wind, water, and ice as agents of erosion. (Lab 15B) 		Student Edition <ul style="list-style-type: none"> • Chapter 15 Review
Chapter 15 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 15 by taking the test. 		Assessments <ul style="list-style-type: none"> • Chapter 15 Test BJU Press Trove <ul style="list-style-type: none"> • Chapter 15 Test Bank

Chapter 16: Earthquakes and Volcanoes

AKTLM Activities Answer Key & Teacher Lab Manual ALM Activities & Lab Manual IA Instructional Aid PPT Pres. PowerPoint Presentation

Pages	Objectives	Resources	Assessments
Section 16.1 Earthquakes			
431–38	16.1.1 Explain the theory of plate tectonics. 16.1.2 Relate regions of seismic activity to plate boundaries. 16.1.3 Identify types of faults. 16.1.4 Describe how energy is transmitted during an earthquake. 16.1.5 Describe how earthquakes are measured.	Activities & Lab Manual <ul style="list-style-type: none"> Activity 16.1: <i>Earthquakes—Modeling Faults</i> (pp. 153–54) BJU Press Trove* <ul style="list-style-type: none"> Video: <i>Earthquakes and Volcanoes</i> Link: <i>Graham Cracker Crust</i> Link: <i>Faults</i> Link: <i>EEWS</i> PPT Pres.: Section 16.1 Materials <ul style="list-style-type: none"> graham crackers (2), broken into individual pieces icing plate 	Student Edition <ul style="list-style-type: none"> Section 16.1 Review Teacher Edition <ul style="list-style-type: none"> <i>Reviewing Faults</i> formative assessment Assessments <ul style="list-style-type: none"> Section 16.1 Quiz
Lab 16A Shaky Ground—Designing a Seismograph (2 Days)			
ALM 285–89	L16A.1 Create a working seismograph from commonly available materials, using the engineering design process. L16A.2 Test a student-created seismograph according to design parameters.	AKTLM <ul style="list-style-type: none"> Lab 16A Teacher Guide (pp. 290a–90b) BJU Press Trove <ul style="list-style-type: none"> Video: <i>Designing a Seismograph</i> 	Activities & Lab Manual <ul style="list-style-type: none"> Lab 16A Rubric BJU Press Trove <ul style="list-style-type: none"> Lab 16A Rubric

*Digital resources for homeschool users are available on Homeschool Hub.

Pages	Objectives	Resources	Assessments
Section 16.2 Volcanoes			
439–49	16.2.1 Identify the parts of a volcano. 16.2.2 Explain the mechanism of a volcanic eruption. 16.2.3 Relate regions of volcanic activity to plate boundaries and tectonics. 16.2.4 Classify volcanoes according to their structure and manner of eruption. 16.2.5 Describe the products of a volcanic eruption. 16.2.6 Identify other types of geothermal phenomena.	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 16.2: <i>Volcanoes—Classifying Volcanoes</i> (p. 155) BJU Press Trove <ul style="list-style-type: none"> • Link: <i>Ring of Fire 1</i> • Link: <i>Ring of Fire 2</i> • Link: <i>Hawai'i Volcanoes Webcams</i> • Link: <i>Eruption Types</i> • PPT Pres.: Section 16.2 Materials <ul style="list-style-type: none"> • 3 × 5 index cards (3 per student) • images of volcanoes of different shapes (6 or more) • igneous rock samples (examples: basalt, granite, pumice, obsidian, scoria, pegmatite) • map of past Yellowstone eruptions 	Student Edition <ul style="list-style-type: none"> • Section 16.2 Review Assessments <ul style="list-style-type: none"> • Section 16.2 Quiz
Lab 16B Flow Time!—Exploring Viscosity			
ALM 291–94	L16B.1 Define <i>viscosity</i> . L16B.2 Explain what makes lava viscous. L16B.3 Relate types of volcanic eruptions to the viscosities of magmas.		
Section 16.3 Human Impact			
450–55	16.3.1 Describe the effects that living in areas of seismic or volcanic activity has on people. 16.3.2 Explain how humans try to predict seismic and volcanic activity. 16.3.3 Defend the value of science in predicting seismic activity according to a biblical worldview. BWS Limitations (apply) 16.3.4 Analyze the effectiveness of measures taken to mitigate the damage caused by seismic and volcanic activity. 16.3.5 Formulate a position on living in seismically active areas. BWS Ethics (formulate)	Activities & Lab Manual <ul style="list-style-type: none"> • Activity 16.3: <i>Human Impact—Prepare in Advance</i> (pp. 157–58) BJU Press Trove <ul style="list-style-type: none"> • Link: <i>Seismic Engineering</i> • Link: <i>Sakurajima</i> • Link: <i>Kagoshima Leaflet</i> • PPT Pres.: Section 16.3 Materials <ul style="list-style-type: none"> • opaque container • colored candies (24 of one color and 1 of a different color) 	Student Edition <ul style="list-style-type: none"> • Section 16.3 Review Assessments <ul style="list-style-type: none"> • Section 16.3 Quiz

Pages	Objectives	Resources	Assessments
Ethics Day Living with Earthquakes			
456	16.3.5 Formulate a position on living in seismically active areas. <u>BWS</u> Ethics (formulate)	BJU Press Trove • Video: <i>Living with Earthquakes</i>	
Pine Street Post Day			
ALM 159–60			
Chapter 16 Review			
457–60	<ul style="list-style-type: none"> • Explain seismic and volcanic activity on the basis of plate tectonics. • Evaluate the impacts of seismic and volcanic activity on humans. • Formulate a position on the role of science in preventing damage from seismic activity. • Construct a device for measuring and recording seismic activity, using the engineering design process. (Lab 16A) • Explain why some volcanoes erupt more violently than others. (Lab 16B) 		Student Edition • Chapter 16 Review
Chapter 16 Test			
	<ul style="list-style-type: none"> • Demonstrate knowledge of concepts from Chapter 16 by taking the test. 		Assessments • Chapter 16 Test BJU Press Trove • Chapter 16 Test Bank
Ethics Capstone Project (2 Days)			
461	<p>ECP.1 Choose an ethical issue to research.</p> <p>ECP.2 Evaluate the ethical issue using biblical principles and biblical outcomes. <u>BWS</u> Ethics (evaluate)</p> <p>ECP.3 Apply a biblical view of ethics to present a position on an ethical issue. <u>BWS</u> Ethics (apply)</p>	BJU Press Trove • Video: <i>Choosing a Topic</i>	