Biology 6th Edition – Lesson Plan Overview

Chapter 1: The Living Creation (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 1.1 The Study of Life | | | | | |
| 5–11 | 1.1.1 Define **biology**.  1.1.2 Compare how naturalists and Christians view biology.  BWS Foundations (evaluate)  1.1.3 Explain the need for a worldview in the study of biology.  BWS Foundations (explain)  1.1.4 Summarize the six attributes of life.  BWS Foundations (recall)  1.1.5 Relate the six attributes of life to specific biological structures and functions.  1.1.6 Identify the sources of energy and information for a living organism. | Teacher Edition   * Section 1.1 Review Answers | BJU Press Trove\*   * Video: God’s World * Video: In the Beginning * PPT Pres.: Section 1.1 Slides | Student Edition  Section 1.1 Review  Teacher Edition  Formative Assessment: Observation or Worldview-Based Interpretation?  Assessments  Section 1.1 Quiz |
| 1.2 The Work of Biology | | | | | |
| 12–17 | 1.2.1 Explain the role of modeling in biology.  BWS Models (explain)  1.2.2 Compare the terms **theory**, **law**, and **hypothesis**.  1.2.3 Describe the process of scientific inquiry. | Teacher Edition   * Mini Lab: Peer Review * Section 1.2 Review Answers   Materials   * physical model (any subject) * miscellaneous building materials | BJU Press Trove   * PPT Pres.: Section 1.2 Slides | Student Edition  Section 1.2 Review  Assessments  Section 1.2 Quiz |
| Lab 1A A Method to This Madness—Scientific Inquiry | | | | | |
| LM 1–5 | Define **controlled experiment**.  Describe the process that scientists use to answer questions. |  |  | Lab Manual  Lab Report |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 1.3 The Balance of Life | | | | | |
| 17–22 | 1.3.1 Relate environmentalism with conservation.  1.3.2 Explain a scientist’s obligation to others and the environment.  BWS Ethics (explain)  1.3.3 Compare the positive and negative effects of tools used in the study of biology.  1.3.4 Summarize the process by which a Christian analyzes ethical issues.  BWS Ethics (explain)  1.3.5 Recall the biblical ethics triad.  BWS Ethics (recall)  1.3.6 Explain the principles of secular bioethics.  BWS Ethics (explain) | Teacher Edition   * Ethics: Christian Ethics and Biology * Ethics: The Principles of Bioethics * Section 1.3 Review Answers | BJU Press Trove   * Video: Christian Bioethics * Video: Secular Bioethics * PPT Presentation: Section 1.3 Slides | Student Edition  Section 1.3 Review  Assessments  Section 1.3 Quiz |
| Lab 1B More Than Meets the Eye—The Microscope | | | | | |
| LM 7–13 | Label the parts of a microscope.  Describe how to take care of a microscope.  Draw an image of a microorganism from a microscope slide. |  |  | Lab Manual  Lab Report |
| Ethics Day | | | | | |
| 20–22 | 1.3.2 Explain a scientist’s obligation to others and the environment.  BWS Ethics (explain)  1.3.4 Summarize the process by which a Christian analyzes ethical issues.  BWS Ethics (explain)  1.3.5 Recall the biblical ethics triad.  BWS Ethics (recall)  1.3.6 Explain the principles of secular bioethics.  BWS Ethics (explain) | Teacher Edition   * Ethics: Christian Ethics and Biology * Ethics: The Principles of Bioethics |  |  |
| Chapter 1 Review | | | | | |
| 23–25 | Summarize the attributes of living things.  Relate the study of biology to worldview.  Defend the necessity of a biblical worldview for making sound ethical decisions.  Describe the process that scientists use to answer questions. (Lab 1A)  Describe the care and use of a light microscope and identify its parts. (Lab 1B) | Teacher Edition   * Chapter 1 Review Answers |  | Student Edition  Chapter 1 Review |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| Chapter 1 Test | | | | | |
|  | Demonstrate knowledge of concepts from Chapter 1 by taking the test. |  | BJU Press Trove   * EV: Chapter 1 Test Bank | Assessments  Chapter 1 Test |

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

Chapter 2: The Chemistry of Living Things (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | | Objectives | Printed Resources  & Materials | Digital  Resources | | Assessments |
| --- | --- | --- | --- | --- | --- | --- |
| 2.1 Matter, Energy, and Life | | | | | | |
| 27–31 | 2.1.1 Compare the different types of energy.  2.1.2 Describe change in matter.  2.1.3 Compare ionic and covalent compounds.  2.1.4 Relate the terms matter, atom, element, proton, neutron, electron, compound, and molecule to one another. | | Teacher Edition   * Section 2.1 Review Answers   Materials   * index cards with vo­cabulary words * birthday candle (or other similar candle) * matches or lighter * watch glass, glass petri dish, or other small and flat glassware * electronic balance * periodic table of elements (classroom poster or individual copies) | | BJU Press Trove\*   * PPT Pres.: Section 2.1 Slides | Student Edition  Section 2.1 Review  Assessments  Section 2.1 Quiz |
| 2.2 The Chemical Processes of Life | | | | | | |
| 32–37 | 2.2.1 Compare chemical and physical changes.  2.2.2 Relate Brownian motion to diffusion and the dissolving process.  2.2.3 Compare what happens during exothermic and endothermic reactions.  2.2.4 Compare the actions of catalysts and inhibitors.  2.2.5 Explain how chemistry can be used to help living things, especially people.  BWS Foundations (explain) | | Teacher Edition   * Section 2.2 Review Answers   Materials   * beakers, glass (or other jars) (3) * food dye (1–2 colors) * table salt or Epsom salt * stirring rod or spoon * vegetable oil (any type) | | BJU Press Trove   * Link: Endothermic and Exothermic Reactions * Link: Frog Enzyme Analogy * PPT Pres.: Section 2.2 Slides | Student Edition  Section 2.2 Review  Teacher Edition  Formative Assessment: Exit Ticket  Assessments  Section 2.2 Quiz |
| Lab 2 Lost in the Woods—Designing a Water Treatment System | | | | | | |
| LM 15–18 | Explain the biological and theological importance of providing treated water.  Design a water treatment system that produces safe drinking water.  Test the water treatment system through a series of water quality tests. | | Teacher Lab Manual   * Lab 2 Teacher Guide * Instructional Aid: Lost in the Woods Rubric * Water Treatment System Project | |  | Teacher Lab Manual  Lost in the Woods Rubric |

| Pages | | Objectives | Printed Resources  & Materials | | | Digital  Resources | Assessments | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2.3 Biochemistry | | | | | | | | |
| 38–43 | 2.3.1 Relate the unique properties of water to its importance for living things.  2.3.2 Define organic compound.  2.3.3 Distinguish organic compounds from other kinds of compounds.  2.3.4 Compare the structures and functions of carbohydrates, lipids, proteins, and nucleic acids.  2.3.5 Analyze a model of biblical ethics regarding abortion.  BWS Ethics (explain) | Teacher Edition   * Case Study: Shield of Ice * Mini Lab: Starch and Fat Test (p. 44) * Ethics: Using the Biblical Triad (pp. 48–49) * Section 2.3 Review Answers   Materials   * vegetable oil (any kind) * table salt or Epsom salt * 4–6 fat food samples * 4–6 starch food samples * water * large brown paper bag * small cups * permanent marker * iodine * 2–3 food items with  nutrition labels (If  possible, choose one carbohydrate, one protein, and one fat/lipid.) | | | BJU Press Trove   * Video: The Complexity of Life * Video: The Biblical Triad * Link: Basilisk Lizards * Link: Asian House Gecko * Link: Why Does Ice Float in Water? * Link: Inside a Beaver Lodge * PPT Pres.: Section 2.3 Slides | | Student Edition  Section 2.3 Review  Assessments  Section 2.3 Quiz | |
| Ethics Day | | | | | | | | |
| 48–49 | 2.3.5 Analyze a model of biblical ethics regarding abortion.  BWS Ethics (explain) | | Teacher Edition   * Ethics: Using the Biblical Triad |  | | | |  |
| Chapter 2 Review | | | | | | | | |
| 45–49 | Describe the composition of living things.  Relate chemical processes to biological functions.  Analyze the functions of organic compounds.  Design a water treatment system to purify water and make it safe for human consumption. (Lab 2) | | Teacher Edition   * Chapter 2 Review Answers |  | | | | Student Edition  Chapter 2 Review |

| Pages | Objectives | Printed Resources  & Materials | | Digital  Resources | Assessments | |
| --- | --- | --- | --- | --- | --- | --- |
| Chapter 2 Test | | | | | | |
|  | Demonstrate knowledge of concepts from Chapter 2 by taking the test. | |  | BJU Press Trove   * EV: Chapter 2 Test Bank | | Assessments  Chapter 2 Test |

Chapter 3: Ecology (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Pages | | Objectives | | Printed Resources  & Materials | | Digital  Resources | Assessments | |
| 3.1 Our Living Planet | | | | | | | | |
| 51–55 | 3.1.1 Distinguish between ecosystems and the biosphere.  3.1.2 Explain how biotic and abiotic factors work together to sustain life.  BWS Design (explain) | | Teacher Edition   * Case Study: The Great Barrier Reef * Mini Lab: Who Is in the Community? * Section 3.1 Review Answers   Materials   * ecosystem photos * opaque bowl * colored marbles * sampling tools | | BJU Press Trove\*   * Video: Cleaner Fish * PPT Pres.: Section 3.1 Slides | | | Student Edition  Section 3.1 Review  Assessments  Section 3.1 Quiz |
| Lab 3A Tag!—Mark-and-Recapture Sampling and Population Size | | | | | | | | |
| LM 19–24 | Explain how mark and recapture can be used to estimate population size.  Collect data by mark and recapture to answer a scientific question.  Describe the limitations of the mark-and-recapture method of sampling. | |  | |  | | | Student Edition  Lab Report |
| 3.2 Biomes | | | | | | | | |
| 56–63 | 3.2.1 Explain the role of climate in determining biome types.  3.2.2 Classify biomes on the basis of their biotic and abiotic factors.  3.2.3 Compare biomes and vertical zonation. | | Teacher Edition   * Section 3.2 Review Answers   Materials   * sample climate data graphs | | BJU Press Trove   * PPT Pres.: Section 3.2 Slides | | | Student Edition  Section 3.2 Review  Assessments  Section 3.2 Quiz |
| Lab 3B Must You Be So Competitive?—Inquiring into Growth Rate | | | | | | | | |
| LM 25–26 | Design and conduct an experiment to evaluate the effect of a selected factor on the growth rates of plants.  Evaluate the experimental design on the basis of collected data. | | Teacher Lab Manual   * Lab 3B Teacher Guide | |  | | | Formal Lab Report |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Pages | | Objectives | | Printed Resources  & Materials | Digital  Resources | Assessments | |
| 3.3 Web of Life | | | | | | | | |
| 64–67 | 3.3.1 Create food webs and ecological pyramids to represent the relationships between producers and consumers within an ecosystem.  3.3.2 Give examples of neutralism, competition, predation, parasitism, commensalism, and mutualism.  3.3.3 Evaluate a statement on the probability that life exists on other planets.  BWS Design (evaluate, formulate) | | Teacher Edition   * Case Study: Tide Pool Ecology (p. 70) * Section 3.3 Review Answers   Materials   * images of animals | | BJU Press Trove   * Video: Web of Life * PPT Pres.: Section 3.3 Slides | | Student Edition  Section 3.3 Review  Assessments  Section 3.3 Quiz | |
| Chapter 3 Review | | | | | | | | |
| 68–71 | Relate the study of ecology within the larger context of biology and to other content areas of science.  Compare the workability of various models used in ecology.  Evaluate the claim that Earth is divinely designed to support life.  Estimate the size of a population of organisms using mark and recapture. (Lab 3A)  Design, conduct, and evaluate an experiment to assess the effect of a selected factor on the growth rates of plants. (Lab 3B) | | Teacher Edition   * Chapter 3 Review Answers | |  | | Student Edition  Chapter 3 Review | |
| Chapter 3 Test | | | | | | | | |
|  | Demonstrate knowledge of concepts from Chapter 3 by taking the test. | |  | | BJU Press Trove   * EV: Chapter 3 Test Bank | | Assessments  Chapter 3 Test | |

Chapter 4: Interacting with the Biosphere (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 4.1 Sustainability | | | | |
| 73–82 | 4.1.1 Trace the flow of materials through the biochemical cycles.  4.1.2 Describe the factors that limit or promote population growth and biodiversity.  4.1.3 Analyze data on a population growth chart.  4.1.4 Distinguish between primary and secondary succession.  4.1.5 Formulate a statement on the significance of the predictability and orderliness of ecosystems.  BWS Design (formulate) | Teacher Edition   * Case Study: Ferreting Out the Growth Rate * Mini Lab: Predation and Populations (p. 83) * Section 4.1 Review Answers   Materials   * beans * pipe cleaners * chalk | BJU Press Trove\*   * Link: Are Fires Actually Good for Forests? * PPT Pres.: Section 4.1 Slides | Student Edition  Section 4.1 Review  Assessment  Section 4.1 Quiz |
| Lab 4A Forest or Farm?—A Mathematical Model of Biodiversity | | | | |
| LM 27–32 | Carry out a field transect.  Analyze the diversity of an ecosystem using Simpson’s Diversity Index.  Interpret the meaning of the Simpson’s Diversity Index value for a particular ecosystem. |  |  | Lab Manual  Lab Report |
| Lab 4B Hale Hardwoods or Sickly Cedars?—Monitoring Forest Health | | | | |
| LM 33–38 | Demarcate a forest plot.  Measure tree circumference.  Derive characteristic data related to forest health.  Infer forest characteristics from indirect measurements. |  |  | Lab Manual  Lab Report |
| 4.2 The Human Niche (2 days) | | | | |
| 84–89 | 4.2.1 Explain the role that people play in managing the earth.  BWS Foundations (explain)  4.2.2 Evaluate arguments about changes in the environment.  BWS Modeling (evaluate)  4.2.3 Evaluate bias in the field of ecology  BWS Foundations (evaluate)  4.2.4 Relate different fields of science to ecology. | Teacher Edition   * Worldview Investigation: Creatures and Climate Change (p. 90) * Section 4.2 Review Answers | BJU Press Trove   * Link: Ecological Footprint Calculator * Links for Student Research * Instructional Aid: Worldview Investigation Rubric * PPT Pres.: Section 4.2 Slides | Student Edition  Section 4.2 Review  Teacher Edition  Worldview Investigation Rubric (Appendix F)  Assessment  Section 4.2 Quiz |
| Chapter 4 Review | | | | |
| 91–93 | Analyze the sustainability of populations in various ecosystems.  Evaluate various ecological claims from a biblical perspective.  Analyze the biodiversity in a local habitat by conducting a transect. (Lab 4A)  Evaluate the health of a forest using plot samples. (Lab 4B) | Teacher Edition   * Chapter 4 Review Answers |  | Student Edition  Chapter 4 Review |
| Chapter 4 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 4 by taking the test. |  | BJU Press Trove   * EV: Chapter 4 Test Bank | Assessment  Chapter 4 Test |

Chapter 5: Cytology (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 5.1 The Structure and Function of Cells | | | | |
| 97–105 | 5.1.1 Relate the modern cell theory to the changing nature of models.  BWS Foundations (evaluate)  5.1.2 Compare unicellular, multicellular, and colonial organisms.  5.1.3 Differentiate between prokaryotic and eukaryotic cell structures.  5.1.4 Illustrate a typical cell and describe the functions of its parts. | Teacher Edition   * Mini Lab: Scaling Up a Cell * Section 5.1 Review Answers   Materials   * metric ruler * metric tape measure * calculator | BJU Press Trove\*   * Video: Pattern of Life * PPT Pres.: Section 5.1 Slides | Student Edition  Section 5.1 Review  Assessments  Section 5.1 Quiz |
| Lab 5A Dwell on the Cell—Basic Cytology | | | | |
| LM 39–43 | Prepare wet mounts.  Create labeled sketches of cell structures seen under magnification.  Compare plant and animal cells. |  |  | Lab Manual  Lab Report |
| 5.2 The Cell Environment | | | | |
| 105–10 | 5.2.1 Describe how cells in a particular environment maintain homeostasis.  5.2.2 Compare how different solutions affect cells.  5.2.3 Explain how molecules are transported across the cell membrane.  5.2.4 Analyze the ethical model of bioethics regarding abortion.  BWS Ethics (evaluate) | Teacher Edition   * Case Study: Passive Transport and Kidney Stones * Section 5.2 Review Answers * Ethics: Using the  Principles of Bioethics Strategy (pp. 114–15) | BJU Press Trove   * PPT Pres.: Section 5.2 Slides | Student Edition  Section 5.2 Review  Teacher Edition  Formative Assessment: Transport Check  Assessments  Section 5.2 Quiz |
| Lab 5B The Pressure Is On—Investigating Osmosis | | | | |
| LM 45–47 | Explain the effect of solute concentration on osmosis.  Identify whether an osmotic system has reached equilibrium.  Make predictions about how other factors may affect osmosis. |  |  | Lab Manual  Lab Report |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| Chapter 5 Review | | | | |
| 111–15 | Compare the structures and functions of cells in unicellular and multicellular organisms.  Analyze cell processes for maintaining homeostasis.  Compare the structures of plant and animal cells. (Lab 5A)  Investigate the effects of solute concentration on osmosis. (Lab 5B) | Teacher Edition   * Chapter 5 Review Answers |  | Student Edition  Chapter 5 Review |
| Chapter 5 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 5 by taking the test. |  | BJU Press Trove   * EV: Chapter 5 Test Bank | Assessment  Chapter 5 Test |

Chapter 6: Energy & Information in the Cell (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 6.1 Metabolism | | | | |
| 117–19 | 6.1.1 Describe how metabolism maintains homeostasis.  6.1.2 Explain how energy is stored in ATP.  6.1.3 Track the flow of energy from ATP to ADP. | Teacher Edition   * Worldview Investigation: Signature in the Cell * Section 6.1 Review Answers   Materials   * play money  (various denominations) * fun-sized candy (or other shareable snack) | BJU Press Trove\*   * PPT Pres.: Section 6.1 Slides * Instructional Aid: Worldview Investigation Rubric | Student Edition  Section 6.1 Review  Teacher Edition  Worldview Investigation Rubric (Appendix F)  Assessments  Section 6.1 Quiz |
| Lab 6A No Swimming Today—Oxygen and Metabolism | | | | |
| LM 49–54 | Define biochemical oxygen demand (BOD).  Relate oxygen demand to cellular metabolism.  Measure BOD using a dissolved oxygen test kit.  Estimate the amount of organic pollution in a water sample using BOD. |  |  | Lab Manual  Lab Report |
| 6.2 DNA and Protein Synthesis | | | | |
| 120–27 | 6.2.1 Compare the structures of DNA and RNA.  6.2.2 Summarize the model of DNA replication.  6.2.3 Differentiate between transcription and translation.  6.2.4 Explain the role of DNA and RNA in protein synthesis.  6.2.5 Formulate a position on CRISPR technology using the biblical ethics triad.  BWS Ethics: formulate | Teacher Edition   * Mini Lab: Modeling DNA and RNA * Ethics: CRISPR Technology (p. 129) * Section 6.2 Review Answers | BJU Press Trove   * Link: DNA Replication * Video: DNA Structure * Video: CRISPR Technology * PPT Pres.: Section 6.2 Slides | Student Edition  Section 6.2 Review  Assessments  Section 6.2 Quiz |
| Ethics Day | | | | |
| 129 | 6.2.5 Formulate a position on CRISPR technology using the biblical ethics triad.  BWS Ethics: formulate | Teacher Edition   * Ethics: CRISPR Technology |  |  |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Lab 6B Hidden Code—Extracting DNA from Cells | | | | |
| LM 55–58 | Extract DNA from plant cells.  Observe DNA strands separated from the nucleus. |  |  | Lab Manual  Lab Report |
| Chapter 6 Review | | | | |
| 128–29 | Relate metabolism and energy in living organisms.  Describe the processes of DNA and protein synthesis.  Determine the biochemical oxygen demand of water samples over time. (Lab 6A)  Analyze DNA after extracting it from plant cells. (Lab 6B) | Teacher Edition   * Chapter 6 Review Answers |  | Student Edition  Chapter 6 Review |
| Chapter 6 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 6 by taking the test. |  | BJU Press Trove   * EV: Chapter 6 Test Bank | Assessments  Chapter 6 Test |

Chapter 7: Cell Processes (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 7.1 Photosynthesis | | | | |
| 131–36 | 7.1.1 Relate photosynthesis to life in the biosphere according to Genesis 1:29–31.  BWS Design (explain)  7.1.2 Give examples for exercising dominion using the process of photosynthesis.  BWS Foundations (explain)  7.1.3 Diagram the reactants and products of photosynthesis using a chemical equation.  7.1.4 Relate the roles of pigments, light, and chemical energy to the process of photosynthesis.  7.1.5 Describe what occurs during the light-dependent and light-independent phases of photosynthesis.  7.1.6 Give examples of factors that affect photosynthesis. | Teacher Edition   * Section 7.1 Review Answers | BJU Press Trove\*   * PPT Pres.: Section 7.1 Slides | Student Edition  Section 7.1 Review  Teacher Edition  Formative Assessment: Light-Dependent Phase Check  Assessments  Section 7.1 Quiz |
| Lab 7A Whatever Floats Your Leaf—Rates of Photosynthesis | | | | |
| LM 59–64 | Observe the results of photosynthesis in leaf disks.  Form a hypothesis about factors affecting photosynthesis.  Test a hypothesis about photosynthesis. |  |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 7.2 Cellular Respiration and Fermentation | | | | |
| 137–44 | 7.2.1 Trace the flow of energy from glucose in glycolysis to ATP in the electron transport chain.  7.2.2 List the amounts of ATP produced in each step of aerobic respiration.  7.2.3 Differentiate between aerobic and anaerobic respiration.  7.2.4 Explain the role of aerobic and anaerobic respiration in the environment.  7.2.5 Relate cellular respiration to its effects on the environment.  7.2.6 Reflect on how God’s care for creation is seen in cell processes.  BWS Design (apply) | Teacher Edition   * Case Study: Hydrothermal Vents * Mini Lab: The Effect of  Temperature on  Fermentation (p. 145) * Section 7.2 Review Answers   Materials   * large test tubes (3) * disposable pipettes (3) * washers (6) * scissors * tape * marking pen * yeast-sugar solution * cold water * room-temperature water * warm water * marshmallow * ignition source (e.g., match, laboratory burner) * rechargeable battery | BJU Press Trove   * Video: Cellular Respi­ration and Photo­synthesis * PPT Pres.: Section 7.2 Slides | Student Edition  Section 7.2 Review  Teacher Edition  Formative Assessment: Cellular Respiration Check  Assessments  Section 7.2 Quiz |
| Lab 7B On the Road to Alternative Fuels—Fermentation and Biofuels | | | | |
| LM 65–68 | Define fermentation.  Determine which of three feedstocks is the most effective for fermentation.  Describe the issues regarding ethanol production and use.  Explain how worldview affects one’s response to new technologies. |  |  | Lab Manual  Lab Report |
| Chapter 7 Review | | | | |
| 146–47 | Summarize the processes that a cell undergoes to obtain and use energy.  Describe the way an organism’s environment affects cellular processes.  Design and conduct an experiment to test a factor that may affect the rate of photosynthesis. (Lab 7A)  Determine which of three feedstocks is the best for fermentation. (Lab 7B) | Teacher Edition   * Chapter 7 Review Answers |  | Student Edition  Chapter 7 Review |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Chapter 7 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 7 by taking the test. |  | BJU Press Trove   * EV: Chapter 7 Test Bank | Assessments  Chapter 7 Test |

Chapter 8: Basic Genetics (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 8.1 Cell Division | | | | |
| 149–56 | 8.1.1 Differentiate between a gene and a chromosome.  8.1.2 Differentiate between a sex chromosome and an autosome.  8.1.3 Relate DNA to chromosomes.  8.1.4 Trace the growth and reproduction of a cell through the cell cycle.  8.1.5 Illustrate the phases of mitosis and meiosis.  8.1.6 Compare mitosis and meiosis. | Teacher Edition   * Section 8.1 Review Answers | BJU Press Trove\*   * Video: Mitosis and Meiosis * PPT Pres.: Section 8.1 Slides | Student Edition  Section 8.1 Review  Assessments  Section 8.1 Quiz |
| Lab 8A Let’s Split—Mitosis and Meiosis | | | | |
| LM 69–73 | Draw the stages of mitosis.  Explain the differences between cytokinesis in animal and plant cells.  Identify the stages of meiosis.  Explain the differences between mitosis and meiosis. |  |  | Lab Manual  Lab Report |
| 8.2 The Inheritance of Traits | | | | |
| 157–67 | 8.2.1 List the three genetic principles proposed by Mendel.  8.2.2 Differentiate between recessive and dominant traits.  8.2.3 Construct monohybrid and dihybrid crosses using Punnett squares.  8.2.4 Explain the differences between the kinds of genetic inheritance.  8.2.5 Evaluate the prevailing cultural views of race and gender in light of biological facts.  BWS Design (evaluate) | Teacher Edition   * Case Study: Experimenting with Animals * Case Study: Hemophilia (p. 175) * Mini Lab: Predicting Genotypes * Section 8.2 Review Answers | BJU Press Trove   * Video: Patterns of Inheritance * PPT Pres.: Section 8.2 Slides | Student Edition  Section 8.2 Review  Teacher Edition  Formative Assessment: Punnett Square Practice  Assessments  Section 8.2 Quiz |
| Lab 8B The Punnett Square Dance—Inheritance Patterns | | | | |
| LM 75–84 | Identify the different basic inheritance patterns.  Apply knowledge of inheritance patterns by making Punnett squares. |  |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 8.3 Gene Expression | | | | |
| 167–70 | 8.3.1 Explain how genes control cell development.  8.3.2 Relate the roles of DNA and the environment to gene expression.  8.3.3 Differentiate between embryonic and somatic stem cells. | Teacher Edition   * Case Study: Hope in Hox Genes (p. 174) * Section 8.3 Review Answers | BJU Press Trove   * Link: Nature versus Nurture * PPT Pres.: Section 8.3 Slides | Student Edition  Section 8.3 Review  Assessments  Section 8.3 Quiz |
| Chapter 8 Review | | | | |
| 171–75 | Describe the processes of mitosis and meiosis.  Summarize how traits are inherited within a species.  Analyze factors that influence gene expression.  Differentiate between mitosis and meiosis. (Lab 8A)  Analyze inheritance patterns using Punnett squares. (Lab 8B) | Teacher Edition   * Chapter 8 Review Answers |  | Student Edition  Chapter 8 Review |
| Chapter 8 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 8 by taking the test. |  | BJU Press Trove   * EV: Chapter 8 Test Bank | Assessments  Chapter 8 Test |

Chapter 9: Advanced Genetics (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 9.1 Population Genetics | | | | |
| 177–79 | 9.1.1 List the factors that affect a gene pool.  9.1.2 Describe the different sources of genetic variation.  9.1.3 Differentiate between genetic drift and genetic flow.  9.1.4 Evaluate the models of genetic change.  BWS Modeling: evaluate  9.1.5 Analyze how genetic load can affect the genetic variability within a population. | Teacher Edition   * Case Study: Citrus Greening * Section 9.1 Review Answers | BJU Press Trove\*   * Video: Genetic Load * PPT Pres.: Section 9.1 Slides | Student Edition  Section 9.1 Review  Assessments  Section 9.1 Quiz |
| Lab 9A Fix It!—Modeling Genetic Drift | | | | |
| LM 85–90 | Explain how genetic drift works.  Explain why genetic drift may be an inadequate means of fixing new traits within populations. |  |  | Lab Manual  Lab Report |
| 9.2 Mutations | | | | |
| 180–86 | 9.2.1 Describe the occurrence of gene mutations within DNA.  9.2.2 Classify the three types of point mutations.  9.2.3 Explain how a mutation can affect chromosomes.  9.2.4 Explain how nondisjunction affects chromosome number.  9.2.5 Give examples of the ways that a mutation can be expressed in an organism.  9.2.6 Refute the claim that mutation-based diseases are a challenge to the existence of God.  BWS Design: formulate | Teacher Edition   * Mini Lab: Point Mutations * Section 9.2 Review Answers | BJU Press Trove   * Video: Mutations * PPT Pres.: Section 9.2 Slides | Student Edition  Section 9.2 Review  Assessments  Section 9.2 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 9.3 Genetic Engineering | | | | |
| 187–91 | 9.3.1 Give support for the importance of gene sequencing.  9.3.2 Describe how a gene can be transferred from one organism to another.  9.3.3 Explain four ways that DNA can be manipulated. | Teacher Edition   * Worldview Investigation: Fighting Drought with Genetics (p. 192) * Case Study: Gene Therapy for SCID (p. 196) * Section 9.3 Review Answers | BJU Press Trove   * PPT Pres.: Section 9.3 Slides * Instructional Aid: Worldview Investigation Rubric | Student Edition  Section 9.3 Review  Teacher Edition  Worldview Investigation Rubric (Appendix F)  Assessments  Section 9.3 Quiz |
| Lab 9B Whodunit?—DNA Fingerprinting | | | | |
| LM 91–96 | Outline the process of DNA fingerprinting.  Explain how DNA fingerprinting is used to help solve criminal cases. |  |  | Lab Manual  Lab Report |
| Chapter 9 Review | | | | |
| 193–97 | Analyze factors that affect genetic variability.  Compare the different types of mutations that may occur within cells.  Explain how mutations affect the growth and reproduction of cells.  Explain how genetic engineering has influenced scientific study.  Evaluate the effectiveness of genetic drift as a mechanism for fixing new traits in populations. (Lab 9A)  Solve a crime scenario using DNA fingerprinting. (Lab 9B) | Teacher Edition   * Chapter 9 Review Answers |  | Student Edition  Chapter 9 Review |
| Chapter 9 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 9 by taking the test. |  | BJU Press Trove   * EV: Chapter 9 Test Bank | Assessments  Chapter 9 Test |

Chapter 10: When Worldviews Collide (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 10.1 Darwin’s Theory of Evolution | | | | |
| 199–206 | 10.1.1 Define evolution.  10.1.2 Summarize the observations and ideas that contributed to Darwin’s theory of natural selection.  10.1.3 Explain what Darwin meant by “descent with modification.” | Teacher Edition   * Section 10.1 Review Answers | BJU Press Trove\*   * Video: Trilobites * PPT Pres.: Section 10.1 Slides | Student Edition  Section 10.1 Review  Assessments  Section 10.1 Quiz |
| Lab 10A In Darwin’s Own Words—Examining On the Origin of Species | | | | |
| LM 97–102 | Identify the main themes of Darwin’s On the Origin of Species.  Analyze Darwin’s ideas from a biblical worldview. |  |  | Lab Manual  Lab Report |
| 10.2 The Modern Theory of Evolution | | | | |
| 207–14 | 10.2.1 Summarize additional contributions to the Darwinian model.  10.2.2 Summarize current naturalistic views of the early earth, the origins of species, and the history of man.  10.2.3 Explain how evolutionists use various forms of evidence to support the modern synthesis theory. | Teacher Edition   * Section 10.2 Review Answers | BJU Press Trove   * PPT Pres.: Section 10.2 Slides | Student Edition  Section 10.2 Review  Assessments  Section 10.2 Quiz |
| 10.3 Evaluating Modern Evolutionary Theory | | | | |
| 215–25 | 10.3.1 Evaluate the workability of the modern synthesis model.  10.3.2 Explain how Christians attempt to reconcile the biblical account of Creation with evolution.   BWS (Foundations: evaluate) | Teacher Edition   * Mini Lab: Conflating Evolution and Natural Selection * Section 10.3 Review Answers   Materials   * wooden mousetraps (one intact, one disassembled) | BJU Press Trove   * Video: Circular Reasoning * PPT Pres.: Section 10.3 Slides | Student Edition  Section 10.3 Review  Assessments  Section 10.3 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Lab 10B Worldview Sleuthing—Evaluating Worldview in Popular Science Literature | | | | |
| LM 103–8 | Identify places in popular science literature in which a writer’s worldview is apparent.  Evaluate ideas in popular science literature.  Rebuild secular, naturalistic ideas in science literature according to a biblical worldview. |  |  | Lab Manual  Lab Report |
| 10.4 The Biblical Account | | | | |
| 225–31 | 10.4.1 Summarize the biblical Creation account.  10.4.2 Summarize how biblical creationists explain how life changes over time.  10.4.3 Compare the modern synthesis and biblical creation models.   BWS Modeling: evaluate  10.4.4 Defend the special status of mankind within the biblical creation model.   BWS Modeling: formulate | Teacher Edition   * Case Study: The Evolution­ary Roots of Planned Parenthood * Case Study: Experiment in Evolution (p. 235) * Section 10.4 Review Answers | BJU Press Trove   * Video: Alien Life * PPT Pres.: Section 10.4 Slides | Student Edition  Section 10.4 Review  Assessments  Section 10.4 Quiz |
| Chapter 10 Review | | | | |
| 232–35 | Summarize Darwin’s theory of evolution.  Compare Darwinian evolution and the modern synthesis.  Evaluate the workability of the modern synthesis model.  Compare biblical Creation and evolutionary theory.  Assess the main themes of On the Origin of Species from a biblical perspective. (Lab 10A)  Evaluate the worldviews presented in examples of popular science literature for their compatibility with biblical models of origins and change. (Lab 10B) | Teacher Edition   * Chapter 10 Review Answers |  | Student Edition  Chapter 10 Review |
| Chapter 10 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 10 by taking the test. |  | BJU Press Trove   * EV: Chapter 10 Test Bank | Assessments  Chapter 10 Test |

Chapter 11: Classifying Life (Foundational)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 11.1 Taxonomy | | | | |
| 239–44 | 11.1.1 Explain the importance of classifying living things.  11.1.2 Compare the characteristics of the three domains of life.  11.1.3 Identify traits and examples of organisms in the seven kingdoms.  11.1.4 Construct a scientific name. | Teacher Edition   * Case Study: Gopher Tortoise Burrows * Section 11.1 Review Answers | BJU Press Trove\*   * Video: Microorganisms and Plants * Video: Classification * PPT Pres.: Section 11.1 Slides | Student Edition  Section 11.1 Review  Assessments  Section 11.1 Quiz |
| Lab 11A The Key Concept—Using Dichotomous Keys | | | | |
| LM 109–20 | Define dichotomous key.  Explain the use of a dichotomous key.  Identify organisms using a dichotomous key. |  |  | Lab Manual  Lab Report |
| 11.2 Unity and Diversity | | | | |
| 245–51 | 11.2.1 Describe how systematics is used to classify organisms.  11.2.2 Differentiate between traditional and modern classification.  11.2.3 Respond to the evolutionary argument that systematics is used to support evolution.  BWS Foundations (formulate)  11.2.4 Create a plan for engaging others in a discussion about evolution.  BWS Foundations (apply)  11.2.5 Interpret a cladogram. | Teacher Edition   * Mini Lab: Inquiring into Baraminology * Case Study: Analyzing a Cladogram * Section 11.2 Review Answers | BJU Press Trove   * Link: How Could All the Animals Fit on the Ark? * PPT Pres.: Section 11.2 Slides | Student Edition  Section 11.2 Review  Assessments  Section 11.2 Quiz |
| Lab 11B All Myxed Up—A Case Study in Classification | | | | |
| LM 121–26 | Interpret scientific literature on classification.  Explain how the science of taxonomy has changed over the years.  Identify the worldviews of the authors of the works being read.  Explain how the works of the authors were affected by their worldviews.  Evaluate worldviews according to the current taxonomic status of myxozoans. |  |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Chapter 11 Review | | | | |
| 252–53 | Explain how organisms are classified and named.  Analyze how worldview affects how scientists classify life.  Identify organisms using a dichotomous key. (Lab 11A)  Analyze how the worldviews of scientists affect classification. (Lab 11B) | Teacher Edition   * Chapter 11 Review Answers |  | Student Edition  Chapter 11 Review |
| Chapter 11 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 11 by taking the test. |  | BJU Press Trove   * EV: Chapter 11 Test Bank | Assessments  Chapter 11 Test |

Chapter 12: Prokaryotes and Viruses (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 12.1 Prokaryotes | | | | |
| 255–62 | 12.1.1 Differentiate archaea from bacteria.  12.1.2 Classify organisms in domain Archaea.  12.1.3 Summarize the structures and functions of bacteria.  12.1.4 Describe the different ways that bacteria can transfer their DNA.  12.1.5 Explain the functions of bacteria in the environment.  12.1.6 Identify several diseases caused by bacteria. | Teacher Edition   * Section 12.1 Review Answers   Materials   * class poll response cards | BJU Press Trove\*   * Video: Prokaryotes * PPT Pres.: Section 12.1 Slides | Student Edition  Section 12.1 Review  Teacher Edition  Formative Assessment:  Bacterial Reproduction  Assessments  Section 12.1 Quiz |
| Lab 12A Squeaky Clean—Bacteria Growth and Handwashing | | | | |
| LM 127–34 | Analyze how the different parts of handwashing affect bacterial count.  Evaluate the effectiveness of handwashing in preventing disease. |  |  | Lab Manual  Lab Report |
| 12.2 Viruses | | | | |
| 263–68 | 12.2.1 Describe the structures and functions of viruses.  12.2.2 Describe how viruses replicate.  12.2.3 Differentiate between a lytic and a lysogenic infection.  12.2.4 Identify useful applications of and diseases caused by viruses.  12.2.5 Model the spread of COVID-19.  12.2.6 Evaluate responses to the spread of COVID-19.  BWS Modeling (evaluate] | Teacher Edition   * Mini Lab: Mapping Outbreaks * Case Study: Vials of Terror (p. 269) * Case Study: Comparing COVID-19 Cases (p. 273) * Section 12.2 Review Answers   Materials   * plague mask image | BJU Press Trove   * Video: Viruses * Chapter 12 Mini Lab Sample Graphs * PPT Pres.: Section 12.2 Slides | Student Edition  Section 12.2 Review  Assessments  Section 12.2 Quiz |
| Lab 12B One Slick Solution—Oil-Eating Bacteria | | | | |
| LM 135–42 | Analyze data of various chemicals on oil-eating bacteria.  Evaluate the effectiveness of bioremediation. |  |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Chapter 12 Review | | | | |
| 270–73 | Classify prokaryotes as archaea or bacteria.  Analyze the roles of bacteria in their environments.  Compare bacteria and viruses.  Assess the effectiveness of various handwashing regimens in preventing bacterial growth. (Lab 12A)  Evaluate the growth of oil-eating bacteria in different media. (Lab 12B) | Teacher Edition   * Chapter 12 Review Answers |  | Student Edition  Chapter 12 Review |
| Chapter 12 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 12 by taking the test. |  | BJU Press Trove   * EV: Chapter 12 Test Bank | Assessments  Chapter 12 Test |

Chapter 13: Protists and Fungi (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 13.1 Kingdom Protozoa | | | | |
| 275–81 | 13.1.1 Explain kingdom Protozoa’s place in classification.  13.1.2 Describe the structures and movements of common protozoans.  13.1.3 Explain the ways that protozoans reproduce.  13.1.4 Explain a protozoan’s function in its environment.  13.1.5 Respond to the evolutionary claim that multicellular organisms came from unicellular protists.  BWS Foundations (formulate) | Teacher Edition   * Case Study: African Sleeping Sickness (p. 295) * Section 13.1 Review Answers | BJU Press Trove\*   * Link: Theory of Endosymbiosis * Link: Endosymbiosis * PPT Pres.: Section 13.1 Slides | Student Edition  Section 13.1 Review  Assessments  Section 13.1 Quiz |
| Lab 13A Wee, Watery World—Exploring the Microscopic World of Protozoans | | | | |
| LM 143–50 | Compare various protozoans and protozoan phyla.  Identify examples of protists in pond water. |  |  | Lab Manual  Lab Report |
| 13.2 Kingdom Chromista | | | | |
| 281–84 | 13.2.1 Compare kingdoms Protozoa and Chromista.  13.2.2 Describe the structures and reproduction of chromists.  13.2.3 Describe how chromists contribute to life on Earth. | Teacher Edition   * Mini Lab: Managing Algae Growth (p. 285) * Case Study: HAB Alert (p. 295) * Section 13.2 Review Answers   Materials   * test tubes (4) * organic chlorella powder (1 tsp) * water, distilled (½ cup) * chlorine (1 cup) * pipettes, disposable, 5 mL (2) | BJU Press Trove   * PPT Pres.: Section 13.2 Slides | Student Edition  Section 13.2 Review  Assessments  Section 13.2 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 13.3 Kingdom Fungi | | | | |
| 286–92 | 13.3.1 Compare protists and fungi.  13.3.2 Describe the structures and reproduction of fungi.  13.3.3 Label the parts of a mushroom.  13.3.4 Explain the relationship of algae and fungi in lichens.  13.3.5 Suggest both beneficial and harmful ways that fungi interact with the environment. | Teacher Edition   * Case Study: Fighting Malaria with a Fungus * Section 13.3 Review Answers   Materials   * highlighters (2 colors) | BJU Press Trove   * Link: Something Is  Growing on Me * PPT Pres.: Section 13.3 Slides | Student Edition  Section 13.3 Review  Assessments  Section 13.3 Quiz |
| Lab 13B Fun with Fungi—Observing Fungi | | | | |
| LM 151–56 | Identify and describe fungal structures.  Differentiate among the three phyla of fungi.  Compare fungi with other organisms. |  |  | Lab Manual  Lab Report |
| Chapter 13 Review | | | | |
| 293–95 | Classify protists and fungi on the basis of their characteristics.  Explain the roles of protists and fungi in the environment.  Analyze the structures and movement of protozoans. (Lab 13A)  Analyze the structures used in classifying fungi. (Lab 13B) | Teacher Edition   * Chapter 13 Review Answers |  | Student Edition  Chapter 13 Review |
| Chapter 13 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 13 by taking the test. |  | BJU Press Trove   * EV: Chapter 13 Test Bank | Assessments  Chapter 13 Test |

Chapter 14: Plant Classification and Structure (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 14.1 Kingdom Plantae | | | | |
| 297–99 | 14.1.1 Differentiate plants from other organisms.  14.1.2 Differentiate between the four types of plants.  14.1.3 Relate plant size to tissue type. | Teacher Edition   * Section 14.1 Review Answers   Materials   * living stone plant (Lithops spp.) * plants, variety (optional) | BJU Press Trove\*   * PPT Pres.: Section 14.1 Slides | Student Edition  Section 14.1 Review  Assessments  Section 14.1 Quiz |
| Lab 14A Name That Plant—Identifying Plants | | | | |
| LM 157–61 | Identify plants using a field guide.  Categorize plants as seedless vascular, nonvascular, gymnosperms, dicot angiosperms, or monocot angiosperms.  Classify leaves as one of five types.  Develop a personal field journal. |  |  | Lab Manual  Lab Report |
| 14.2 The Structure of Plants | | | | |
| 300–308 | 14.2.1 Relate the different types of plant cells and tissues to their function in plant organs.  14.2.2 Analyze the structure of leaves, stems, and roots.  14.2.3 Explain the function of leaves, stems, and roots. | Teacher Edition   * Case Study: Redwood Roots * Mini Lab: Using Plant Parts * Section 14.2 Review Answers   Materials   * leaf collection * microscope(s) * prepared slides:  leaf cross-section,  monocot and dicot stem cross-sections, herb­aceous and woody stem cross-sections, onion root cross-section, onion root longitudinal section * tree trunk slice * hand lens * vocabulary flash card set | BJU Press Trove   * PPT Pres.: Section 14.2 Slides | Student Edition  Section 14.2 Review  Assessments  Section 14.2 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 14.3 The Life Cycles of Plants | | | | |
| 309–19 | 14.3.1 Describe the life cycles of bryophytes and ferns.  14.3.2 Compare gymnosperm and angiosperm reproduction.  14.3.3 Diagram the structure of a flower.  14.3.4 Diagram the structure of a seed.  14.3.5 Create a flow chart that illustrates the life cycle of an angiosperm.  14.3.6 Respond to the claim that since God created plants, we have the liberty to use them as we choose.   BWS Design (formulate) | Teacher Edition   * Case Study: Cannabis—The Good and the Bad (p. 323) * Section 14.3 Review Answers   Materials   * preserved fern frond with sori * pinecones (variety) | BJU Press Trove   * Video: Alternation of Generations * PPT Pres.: Section 14.3 Slides | Student Edition  Section 14.3 Review  Assessments  Section 14.3 Quiz |
| Lab 14B A Fruitful Lab—Exploring Flowers, Fruits, and Seeds | | | | |
| LM 163–69 | Identify and describe various structures of flowers.  Identify and describe various types of fruits.  Compare various kinds of flowers and fruits.  Identify the parts of a seed. |  |  | Lab Manual  Lab Report |
| Chapter 14 Review | | | | |
| 320–23 | Explain how plants are classified.  Analyze plant structure.  Compare modes of plant reproduction.  Create a field journal for collecting and identifying plant specimens. (Lab 14A)  Observe the reproductive structures of flowering plants. (Lab 14B) | Teacher Edition   * Chapter 14 Review Answers |  | Student Edition  Chapter 14 Review |
| Chapter 14 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 14 by taking the test. |  | BJU Press Trove   * EV: Chapter 14 Test Bank | Assessment  Chapter 14 Test |

Chapter 15: Plant Processes (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 15.1 Transporting Nutrients | | | | |
| 325–28 | 15.1.1 Summarize the theories for the movement of sap throughout a plant.  15.1.2 Trace the path of water and minerals through a plant.  15.1.3 Explain how nutrients from the soil enter a plant.  15.1.4 Apply the models of sap flow. | Teacher Edition   * Instructional Aid: Tissue Function and Flow An­ticipation Guide * Section 15.1 Review Answers   Materials   * large mixing bowl (glass or other transparent material) * food coloring * capillary tube or thin, clear straw * butcher paper (roll) | BJU Press Trove\*   * Instructional Aid: Tissue Function and Flow An­ticipation Guide * PPT Pres.: Section 15.1 Slides | Student Edition  Section 15.1 Review  Teacher Edition  Formative Assessment: Transporting Nutrients  Assessments  Section 15.1 Quiz |
| 15.2 Plant Responses | | | | |
| 329–34 | 15.2.1 Explain the effects that different hormones have on plants.  15.2.2 Relate plant growth to different stimuli in the environment.  15.2.3 Describe the different ways that light affects plants. | Teacher Edition   * Mini Lab: Demonstrating a Plant Response * Section 15.2 Review Answers   Materials   * Venus flytrap * thin pins (2) | BJU Press Trove   * Link: Phototropism Time Lapse * Link: Gravitropism Time Lapse * Link: Thigmotropism Time Lapse * Video: Tropisms * PPT Pres.: Section 15.2 Slides | Student Edition  Section 15.2 Review  Assessments  Section 15.2 Quiz |
| Lab 15A Plant Processes—Investigating Plant Hormones and Responses | | | | |
| LM 171–74 | Explain the difference in starch and sugar contents of ripe and unripe bananas.  Explain the role of ethylene gas in the ripening of bananas.  Explain how the Yang Cycle can be interpreted as evidence for a creationist worldview. |  |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 15.3 Using Plants Wisely | | | | |
| 335–39 | 15.3.1 Describe the different ways that plants can be produced vegetatively.  15.3.2 List several ways that people use plants.  15.3.3 Explain the importance of plants to biogeochemical cycles.  15.3.4 Formulate a position on genetic enhancements in food crops using the biblical ethics triad.  BWS Ethics (formulate) | Teacher Edition   * Worldview Investigation: Going Bananas * Case Study: Soil Erosion (p. 342) * Ethics: Genetically Modified Foods (p. 343) * Section 15.3 Review Answers | BJU Press Trove   * Link: Panama Disease * Instructional Aid: Worldview Investigation Rubric * Video: GMO Foods * PPT Pres.: Section 15.3 Slides | Student Edition  Section 15.3 Review  Teacher Edition  Worldview Investigation Rubric (Appendix F)  Assessments  Section 15.3 Quiz |
| Ethics Day | | | | |
| 343 | 15.3.4 Formulate a position on genetic enhancements in food crops using the biblical ethics triad. | Teacher Edition   * Ethics: Genetically Modified Foods | BJU Press Trove   * Instructional Aid: Ethics Essay Rubric | Teacher Edition  Ethics Essay Rubric (Appendix G) |
| Lab 15B Too Salty?—Experimentation and the Flood | | | | |
| LM 175–79 | Describe the parts of a scientific paper.  Evaluate the effects of salt water on seed germination.  Write a lab report in the style of a scientific paper. |  |  | Lab Manual  Lab Report |
| Chapter 15 Review | | | | |
| 340–43 | Describe how plants accomplish internal transport.  Trace the flow of nutrients in a vascular plant.  Describe the various responses of plants to internal and external stimuli.  Explain the role of plants in the environment.  Analyze the effects of ethylene gas used in the ripening process of bananas. (Lab 15A)  Create a lab report in standard scientific paper format. (Lab 15B) | Teacher Edition   * Chapter 15 Review Answers |  | Student Edition  Chapter 15 Review |
| Chapter 15 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 15 by taking the test. |  | BJU Press Trove   * EV: Chapter 15 Test Bank | Assessments  Chapter 15 Test |

Chapter 16: Invertebrates (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 16.1 Kingdom Animalia | | | | |
| 347–54 | 16.1.1 Describe the general characteristics of all animals.  16.1.2 Compare the body systems of different groups of animals.  16.1.3 Compare endotherms and ectotherms.  16.1.4 Describe the different kinds of sexual reproduction in animals.  16.1.5 Identify different responses that animals have to their environments, including their social behaviors. | Teacher Edition   * Mini Lab: Identifying Animals * Section 16.1 Review Answers   Materials   * preserved specimens * hand lens | BJU Press Trove\*   * Video: Animals * Video: Descent or Design? * PPT Pres.: Section 16.1 Slides | Student Edition  Section 16.1 Review  Assessments  Section 16.1 Quiz |
| 16.2 Sponges and Cnidarians | | | | |
| 355–60 | 16.2.1 Describe the general characteristics of sponges and cnidarians.  16.2.2 Explain how sponges and cnidarians feed and reproduce.  16.2.3 Explain the role of sponges and cnidarians in their environments. | Teacher Edition   * Section 16.2 Review Answers   Materials   * natural sponges (3 per group) * artificial sponge (1 per group) | BJU Press Trove   * Invertebrate Character­istics Chart * PPT Pres.: Section 16.2 Slides | Student Edition  Section 16.2 Review  Assessments  Section 16.2 Quiz |
| Lab 16A The Immortals Next Door—Investigating Hydras | | | | |
| LM 181–86 | Describe the structure of a hydra.  Describe the responses of living hydras to various stimuli.  Explain the role of hydras in current medical research. |  |  | Lab Manual  Lab Report |
| 16.3 Worms | | | | |
| 361–64 | 16.3.1 Differentiate between flatworms, roundworms, and segmented worms.  16.3.2 Describe the general characteristics of worms.  16.3.3 Explain how the three phyla of worms feed and reproduce.  16.3.4 Give examples of how we can manage and use worm populations in the environment.  BWS (Design: formulate) | Teacher Edition   * Case Study: Guinea Worm * Section 16.3 Review Answers   Materials   * preserved worms (Ascaris, earthworm, bloodworm) * dissection pan * dissection tools | BJU Press Trove   * Video: Pompeii Worms * PPT Pres.: Section 16.3 Slides | Student Edition  Section 16.3 Review  Assessments  Section 16.3 Quiz |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| Lab 16B Fish Tank Fiend!—Investigating Planarians | | | | |
| LM 187–90 | Describe the motion of planarians.  Describe the responses of planarians to various stimuli.  Describe the structure and special characteristics of planarians.  Compare planarians with previously studied organisms. |  |  | Lab Manual  Lab Report |
| 16.4 Mollusks | | | | |
| 365–67 | 16.4.1 Describe the general characteristics of mollusks.  16.4.2 Differentiate between bivalves, gastropods, and cephalopods.  16.4.3 Explain how mollusks reproduce.  16.4.4 Give examples of how mollusks interact with their environments. | Teacher Edition   * Section 16.4 Review Answers   Materials   * cuttlebone * snail shell * citrus zester * small citrus fruit * mini suction cup pad | BJU Press Trove   * PPT Pres.: Section 16.4 Slides | Student Edition  Section 16.4 Review  Teacher Edition  Formative Assessment: Recalling Mollusk Structure  Assessments  Section 16.4 Quiz |
| 16.5 Echinoderms | | | | |
| 368–71 | 16.5.1 Describe the general characteristics of echinoderms.  16.5.2 Compare the five classes of echinoderms.  16.5.3 Explain how echinoderms reproduce.  16.5.4 Give examples of how echinoderms interact with their environments. | Teacher Edition   * Section 16.5 Review Answers   Materials   * preserved sea star * 3 × 5 note cards (5 per student) | BJU Press Trove   * PPT Pres.: Section 16.5 Slides | Student Edition  Section 16.5 Review  Assessments  Section 16.5 Quiz |
| Chapter 16 Review | | | | |
| 372–75 | Describe the characteristics of animals.  Compare sponges, cnidarians, worms, mollusks, and echinoderms.  Classify animals according to characteristics.  Describe interactions of animals in their environments.  Describe the structure and responses of hydras. (Lab 16A)  Describe the structure and responses of planarians. (Lab 16B) | Teacher Edition   * Chapter 16 Review Answers |  | Student Edition  Chapter 16 Review |
| Chapter 16 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 16 by taking the test. |  | BJU Press Trove   * EV: Chapter 16 Test Bank | Assessment  Chapter 16 Test |

Chapter 17: Arthropods (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 17.1 Arthropod Introduction and Chelicerates | | | | |
| 377–84 | 17.1.1 Describe the general characteristics of arthropods.  17.1.2 List the general characteristics of chelicerates.  17.1.3 Explain how chelicerates feed and reproduce.  17.1.4 Describe the role of chelicerates in their environment. | Teacher Edition   * Mini Lab: Discovering Arthropods * Section 17.1 Review Answers   Materials   * notebook * pencil * insect collection containers * natural area | BJU Press Trove\*   * Video: Arthropods * PPT Pres.: Section 17.1 Slides | Student Edition  Section 17.1 Review  Teacher Edition  Formative Assessment: Chelicerate Features  Assessments  Section 17.1 Quiz |
| 17.2 Crustaceans | | | | |
| 384–87 | 17.2.1 Differentiate crustaceans from other arthropods.  17.2.2 Describe how crustaceans feed and reproduce.  17.2.3 Explain how crustaceans exert influence on their environment. | Teacher Edition   * Section 17.2 Review Answers | BJU Press Trove   * Link: Krill * PPT Pres.: Section 17.2 Slides | Student Edition  Section 17.2 Review  Assessments  Section 17.2 Quiz |
| Lab 17A Take a Crack at Crayfish—Dissecting a Crayfish | | | | |
| LM 191–98 | Locate typical arthropod structures in a crayfish.  Identify the variety of appendages on a crayfish.  Identify the specialized internal parts of a crayfish. |  |  | Lab Manual  Lab Report |
| 17.3 Insects | | | | |
| 388–94 | 17.3.1 Describe the general characteristics of insects.  17.3.2 Explain how insects feed and reproduce.  17.3.3 Analyze ways to manage insects.  BWS Ethics (formulate) | Teacher Edition   * Case Study: Sailor Bug * Case Study: Trends in Honeybee Colonies (p. 397) * Section 17.3 Review Answers   Materials   * insect specimens showing stages of metamorphosis | BJU Press Trove   * Link: A World without Bugs * Link: Forensic Entomology * PPT Pres.: Section 17.3 Slides | Student Edition  Section 17.3 Review  Assessments  Section 17.3 Quiz |
| Lab 17B Cricket Caper—Inquiring into House Crickets | | | | |
| LM 199–200 | Develop a testable hypothesis regarding cricket behavior.  Design and successfully carry out an experiment to test a hypothesis.  Report findings in the form of a scientific paper. |  |  | Lab Manual  Lab Report |
| Chapter 17 Review | | | | |
| 395–97 | Compare the general characteristics of chelicerates, crustaceans, and insects.  Explain how chelicerates, crustaceans, and insects feed and reproduce.  Describe the roles of chelicerates, crustaceans, and insects in their environments.  Lab 17A: Differentiate between the different structures within crayfish.  Lab 17B: Develop an experiment on cricket behavior using scientific inquiry. | Teacher Edition   * Chapter 17 Review Answers |  | Student Edition  Chapter 17 Review |
| Chapter 17 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 17 by taking the test. |  | BJU Press Trove   * EV: Chapter 17 Test Bank | Assessments  Chapter 17 Test |

Chapter 18: Ectothermic Vertebrates (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 18.1 Chordate Introduction and Fish | | | | |
| 399–406 | 18.1.1 Describe the general characteristics of chordates.  18.1.2 Compare the classes of fish.  18.1.3 Trace the flow of oxygen through the circulatory system of a bony fish.  18.1.4 Identify the major organs of a bony fish’s body systems.  18.1.5 Describe the role of fish in their environment. | Teacher Edition   * Mini Lab: New Tank Syndrome (p. 407) * Section 18.1 Review Answers   Materials   * image of adult tunicate * image of lancelet * diagram of fish jaw evolution | BJU Press Trove\*   * Video: Mexican Tetras * PPT Pres.: Section 18.1 Slides | Student Edition  Section 18.1 Review  Assessments  Section 18.1 Quiz |
| Lab 18A Something Fishy Going On—Observing Bony Fish | | | | |
| LM 201–6 | Describe the external features of a fish.  Describe the behavior of a fish, especially with regard to its interactions with its environment and with other fish.  Discuss the ethics of fishkeeping as a hobby from a biblical worldview. |  |  | Lab Manual  Lab Report |
| 18.2 Amphibians | | | | |
| 409–13 | 18.2.1 Describe the general characteristics of amphibians.  18.2.2 Compare the different orders of amphibians.  18.2.3 Identify the major organs of a frog’s body systems.  18.2.4 Describe amphibian reproduction.  18.2.5 Explain how amphibians can be conserved.   BWS Ethics (formulate) | Teacher Edition   * Section 18.2 Review Answers | BJU Press Trove   * PPT Pres.: Section 18.2 Slides | Student Edition  Section 18.2 Review  Assessments  Section 18.2 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 18.3 Reptiles | | | | |
| 414–21 | 18.3.1 Describe the structures of an amniotic egg and their functions.  18.3.2 Compare the orders of reptiles.  18.3.3 Identify the major organs within reptilian body systems. | Teacher Edition   * Case Study: Those  Terrible Lizards * Case Study: Indicator Species (p. 425) * Section 18.3 Review Answers   Materials   * three signs, one each labeled Amphibians, Reptiles, and Both | BJU Press Trove   * Video: Leatherback Sea Turtles * PPT Pres.: Section 18.3 Slides | Student Edition  Section 18.3 Review  Teacher Edition  Formative Assessment: Amphibian or Reptile?  Assessments  Section 18.3 Quiz |
| Lab 18B Reptile Repasts—Inquiring into Reptile Methods of Locating Prey | | | | |
| LM 207–8 | Develop a testable hypothesis regarding a lizard’s ability to detect food.  Design an experiment to test a hypothesis.  Report findings in the form of a scientific paper. |  |  | Teacher Lab Manual  Grading Formal Lab Reports Rubric |
| Chapter 18 Review | | | | |
| 422–25 | Describe the characteristics of chordates.  Differentiate between fish, amphibians, and reptiles.  Describe the structures and reproduction of fish, amphibians, and reptiles.  Describe the external features and behavior of a bony fish. (Lab 18A)  Design and carry out an experiment to test a hypothesis regarding a lizard’s ability to detect food. (Lab 18B) | Teacher Edition   * Chapter 18 Review Answers |  | Student Edition  Chapter 18 Review |
| Chapter 18 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 18 by taking the test. |  | BJU Press Trove   * EV: Chapter 18 Test Bank | Assessment  Chapter 18 Test |

Chapter 19: Endothermic Vertebrates (Key)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 19.1 Birds | | | | |
| 427–36 | 19.1.1 Describe the general characteristics of birds.  19.1.2 Describe the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of birds.  19.1.3 Defend the claim that birds are designed for flight.  BWS Design (formulate)  19.1.4 Relate birds’ beaks, wings, and feet to their environments.  19.1.5 Describe the interactions of birds in their environments. | Teacher Edition   * Case Study: California Condor * Section 19.1 Review Answers   Materials   * feathers (contour and down) * microscope | BJU Press Trove\*   * Video: Macaws * Video: Bar-Tailed Godwits * Link: Migration * Link: How Does an Owl Fly So Silently? * Link: Wonders of Flight * Link: Audubon Migration Map * PPT Pres.: Section 19.1 Slides | Student Edition  Section 19.1 Review  Assessments  Section 19.1 Quiz |
| Lab 19A Our Fine, Feathered Friends—Creating a Bird Log | | | | |
| LM 209–13 | Estimate the number of birds in an area.  Estimate the diversity of birds in an area.  Estimate the relative abundance of each species of bird in a particular area. |  |  | Lab Manual  Lab Report |
| 19.2 Mammals | | | | |
| 437–46 | 19.2.1 Describe the general characteristics of mammals.  19.2.2 Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of mammals.  19.2.3 Compare the reproduction strategies of eutherians, monotremes, and marsupials.  19.2.4 Compare the major orders of mammals.  19.2.5 Describe the interactions of mammals in their environments.  19.2.6 Formulate a position on the use of evolutionary ecological studies.  BWS Foundations (formulate) | Teacher Edition   * Mini Lab: Comparing Uric Acid and Urea * Section 19.2 Review Answers   Materials   * urea, 4 g * uric acid, 4 g * water, distilled, 60 mL * test tubes (2) * graduated cylinder * stirring rod, glass * balance | BJU Press Trove   * PPT Pres.: Section 19.2 Slides | Student Edition  Section 19.2 Review  Assessments  Section 19.2 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Lab 19B Warming up to Research—Doing Preliminary Research | | | | |
| LM 215–16 | Conduct preliminary research on a particular scientific question.  Write a testable hypothesis on the basis of preliminary research. |  |  | Lab Manual  Lab Report |
| Chapter 19 Review | | | | |
| 447–49 | Describe the structures and characteristics of birds and mammals.  Compare the orders of endothermic vertebrates.  Explain how birds and mammals interact with their environments.  Evaluate the diversity and population of bird species within a particular location. (Lab 19A)  Formulate a testable hypothesis after conducting preliminary research on a scientific question. (Lab 19B) | Teacher Edition   * Chapter 19 Review Answers |  | Student Edition  Chapter 19 Review |
| Chapter 19 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 19 by taking the test. |  | BJU Press Trove   * EV: Chapter 19 Test Bank | Assessments  Chapter 19 Test |

Chapter 20: Protection (Enrichment)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 20.1 The Study of You | | | | |
| 453–58 | 20.1.1 Compare humans with other living things.  BWS Design (explain)  20.1.2 Differentiate between the kinds of tissues found in the human body.  20.1.3 Summarize the function of each system in the human body.  20.1.4 Evaluate how believers should view the study of the body.  BWS Foundations (evaluate) | Teacher Edition   * Section 20.1 Review Answers | BJU Press Trove\*   * Video: Human Body * PPT Pres.: Section 20.1 Slides | Student Edition  Section 20.1 Review  Assessments  Section 20.1 Quiz |
| 20.2 The Integumentary System | | | | |
| 459–63 | 20.2.1 Describe the structure of the integumentary system.  20.2.2 Explain the functions of skin.  20.2.3 Explain how each body system presents itself in skin. | Teacher Edition   * Mini Lab: Skin Tone * Section 20.2 Review Answers | BJU Press Trove   * PPT Pres.: Section 20.2 Slides | Student Edition  Section 20.2 Review  Teacher Edition  Formative Assessment: Layers of the Skin  Assessments  Section 20.2 Quiz |
| Lab 20A Chill Out!—Inquiring Into the Skin’s Ability to Maintain Homeostasis | | | | |
| LM 217–18 | Formulate a hypothesis regarding the ability of different areas of the skin to recover temperature.  Design an experiment to test a hypothesis.  Present findings in a scientific paper or other form of presentation. | Teacher Lab Manual   * Chapter 20 Teacher Guide |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 20.3 The Lymphatic System and Immunity | | | | |
| 464–69 | 20.3.1 Describe the structures and function of the lymphatic system.  20.3.2 Compare passive and active immunity.  20.3.3 Summarize how lymph travels through the different systems of the body.  20.3.4 Differentiate between cell-mediated immunity and humoral immunity.  20.3.5 Explain the role of the lymphatic system in immunity and homeostasis.  20.3.6 Analyze the use of puberty blockers using the principles of bioethics.  BWS Ethics (evaluate) | Teacher Edition   * Case Study: Smallpox (p. 473) * Ethics: Puberty Blockers (pp. 474–75) * Section 20.3 Review Answers | BJU Press Trove   * Video: Immunity * Video: Puberty Blockers * PPT Pres.: Section 20.3 Slides | Student Edition  Section 20.3 Review  Assessments  Section 20.3 Quiz |
| Ethics Day | | | | |
|  | 20.3.6 Analyze the use of puberty blockers using the principles of bioethics.  BWS Ethics (evaluate) | Teacher Edition   * Ethics: Puberty Blockers |  |  |
| Lab 20B Are You Aware?—A Case Study in Advocacy | | | | |
| LM 219–21 | Give a biblical justification for advancing the study and treatment of diseases.  Identify some of the characteristics and limitations of health awareness campaigns.  Prioritize the giving of time and money to charitable causes on the basis of a biblical worldview. |  |  | Lab Manual  Lab Report |
| Chapter 20 Review | | | | |
| 470–75 | Compare the organ systems in the human body.  Describe the structures and function of the integumentary system.  Explain the role of the lymphatic system in protecting the body.  Design and run an experiment to test a hypothesis related to the skin’s ability to maintain homeostasis. (Lab 20A)  Formulate a position on the giving of time and resources to charitable causes related to health care from a biblical worldview. (Lab 20B) | Teacher Edition   * Chapter 20 Review Answers |  | Student Edition  Chapter 20 Review |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Chapter 20 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 20 by taking the test. |  | BJU Press Trove   * EV: Chapter 20 Test Bank | Assessment  Chapter 20 Test |

Chapter 21: Support and Movement (Enrichment)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 21.1 The Skeletal System | | | | |
| 477–81 | 21.1.1 Differentiate between the axial and appendicular skeletons.  21.1.2 Describe the structure of a bone.  21.1.3 Relate the different joint structures to their movements.  21.1.4 Explain how a bone forms and is remodeled.  21.1.5 Explain the role of the skeletal system in the human body. | Teacher Edition   * Case Study: Bone  Density (p. 491) * Section 21.1 Review Answers   Materials   * egg whites (4–6) * clear bowl or jar * spoon or glass stirring rod * model building material (optional) | BJU Press Trove\*   * Link: Whack a Bone * Link: Bone Biology * PPT Pres.: Section 21.1 Slides | Student Edition  Section 21.1 Review  Assessments  Section 21.1 Quiz |
| Lab 21A Dry Bones—Exploring the Skeletal System | | | | |
| LM 223–26 | Identify the microstructures and macrostructures of the skeletal system.  Name the various bones and joints of the human body. |  |  | Lab Manual  Lab Report |
| 21.2 The Muscular System | | | | |
| 482–88 | 21.2.1 Relate the main muscles of the muscular system to their size, shape, function, origin, and location.  21.2.2 Describe the three kinds of muscles and their roles.  21.2.3 Summarize the process of muscle movement on the cellular level.  21.2.4 Explain the role of the muscular system in the human body. | Teacher Edition   * Mini Lab: Muscle Trick * Section 21.2 Review Answers   Materials   * doorway * prepared muscle slides (skeletal, smooth, cardiac) * timer | BJU Press Trove   * Link: Poke a Muscle * Video: Muscle Movement * PPT Pres.: Section 21.2 Slides | Student Edition  Section 21.2 Review  Assessments  Section 21.2 Quiz |
| Lab 21B I’m So Tired—Investigating Muscular Function | | | | |
| LM 227–31 | Explain muscle fatigue.  Explain how muscle fatigue affects muscular function.  Describe how temperature affects muscular function. |  |  | Lab Manual  Lab Report |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Chapter 21 Review | | | | |
| 489–91 | Relate the structures of the skeletal and muscular systems to each other.  Relate the function of the skeletal and muscular systems to their roles in the human body.  Identify the structures and joints found within the skeletal system. (Lab 21A)  Analyze the effects of temperature and fatigue on muscle strength. (Lab 21B) | Teacher Edition   * Chapter 21 Review Answers |  | Student Edition  Chapter 21 Review |
| Chapter 21 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 21 by taking the test. |  | BJU Press Trove   * EV: Chapter 21 Test Bank | Assessments  Chapter 21 Test |

Chapter 22: Transport (Enrichment)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 22.1 The Respiratory System | | | | |
| 493–98 | 22.1.1 Describe the structure and function of the respiratory system.  22.1.2 Summarize the process of breathing.  22.1.3 Explain how gas is exchanged in the lungs.  22.1.4 Explain how breathing is controlled. | Teacher Edition   * Section 22.1 Review Answers   Materials   * lung function demonstrator | BJU Press Trove\*   * PPT Pres.: Section 22.1 Slides | Student Edition  Section 22.1 Review  Assessments  Section 22.1 Quiz |
| Lab 22A Relax and Take a Deep Breath—Exploring the Human Respiratory System | | | | |
| LM 233–38 | Measure lung capacity.  Differentiate between tidal volume, reserve volume, and vital capacity.  Describe the sounds made by different parts of the respiratory system.  Identify the structures of the respiratory system. |  |  | Lab Manual  Lab Report |
| 22.2 The Circulatory System | | | | |
| 499–506 | 22.2.1 Describe the structure and function of the circulatory system.  22.2.2 Differentiate between the flow of blood through an artery and through a vein.  22.2.3 Trace the flow of oxygen and carbon dioxide through the circulatory system.  22.2.4 Differentiate between systemic and pulmonary circulation. | Teacher Edition   * Mini Lab: Heart Rate * Case Study: Vaping * Case Study: The EKG (p. 509) * Section 22.2 Review Answers   Materials   * blood smear (image or prepared slide) * small piece of clay * toothpick * stopwatch * circulatory system signs | BJU Press Trove   * Video: Circulation * PPT Pres.: Section 22.2 Slides | Student Edition  Section 22.2 Review  Assessments  Section 22.2 Quiz |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| Lab 22B Feeling the Pressure—Investigating Blood Pressure and Hypertension | | | | |
| LM 239–42 | Take a blood pressure reading.  Explain what the numbers in a blood pressure reading indicate.  Explain the relationship between hypertension and stroke.  List some risk factors for hypertension.  Explain why Christians should be concerned about maintaining healthy blood pressure. |  |  | Lab Manual  Lab Report |
| Chapter 22 Review | | | | |
| 507–9 | Describe how the respiratory and circulatory systems work as transportation systems.  Explain how gas exchange occurs during respiration.  Relate the parts of the heart to the flow of blood.  Evaluate human lung capacity. (Lab 22A)  Investigate the relationship between hypertension and increased health risks. (Lab 22B) | Teacher Edition   * Chapter 22 Review Answers |  | Student Edition  Chapter 22 Review |
| Chapter 22 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 22 by taking the test. |  | BJU Press Trove   * EV: Chapter 22 Test Bank | Assessments  Chapter 22 Test |

Chapter 23: Energy (Enrichment)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 23.1 The Digestive System | | | | |
| 511–19 | 23.1.1 Relate the structure of the digestive system to the process of digestion.  23.1.2 Describe the roles of the six nutrients that the body needs.  23.1.3 Relate the role of the digestive system to maintaining homeostasis in the human body. | Teacher Edition   * Mini Lab: Modeling Digestion * Case Study: Exercise * Case Study: Nutrition Facts Labels (p. 525) * Section 23.1 Review Answers   Materials   * aspirin pill, uncoated * aspirin pill, enteric-coated * plastic cups, clear (2) * vinegar, 8 oz * water, 4 oz * baking soda, 6 g * salt * snack foods, assorted, with nutrition labels | BJU Press Trove\*   * Video: Human Digestion * PPT Pres.: Section 23.1 Slides | Student Edition  Section 23.1 Review  Assessments  Section 23.1 Quiz |
| Lab 23A Calorimetry in a Can—Measuring the Energy in Food | | | | |
| LM 243–46 | Calculate the energy content of snack foods using data obtained from a soda can calorimeter.  Compare the energy densities of different snack foods.  Evaluate the accuracy of a soda can calorimeter. |  |  | Lab Manual  Lab Report |
| 23.2 The Urinary System | | | | |
| 520–23 | 23.2.1 Describe the structure and function of the organs in the urinary system.  23.2.2 Explain how the kidneys filter and recycle the materials in excretion.  23.2.3 Describe the organs from other body systems that are involved in excretion.  23.2.4 Explain why drinking water helps the body maintain homeostasis.  23.2.5 Analyze the use of artificial nutrition and hydration using the principles of bioethics.  BWS Ethics (evaluate) | Teacher Edition   * Ethics: Artificial Nutri­tion and Hydration (pp. 526–27) * Section 23.2 Review Answers | BJU Press Trove   * Video: Artificial Nutrition * PPT Pres.: Section 23.2 Slides | Student Edition  Section 23.2 Review  Assessments  Section 23.2 Quiz |
| Ethics Day | | | | |
| 526–27 | 23.2.5 Analyze the use of artificial nutrition and hydration using the principles of bioethics.  BWS Ethics (evaluate) | Teacher Edition   * Ethics: Artificial Nutrition and Hydration | BJU Press Trove   * Video: Artificial Nutrition * Instructional Aid: Ethics Essay Rubric | Teacher Edition  Ethics Essay Rubric (Appendix G) |
| Lab 23B What a Waste!—Modeling Dialysis | | | | |
| LM 247–50 | Determine what kinds of solutes do and do not pass through a semipermeable membrane.  Describe how the kidneys employ dialysis to remove wastes from the blood. |  |  | Lab Manual  Lab Report |
| Chapter 23 Review | | | | |
| 524–27 | Describe the structures and processes involved in the digestive and urinary systems.  Relate the function of the digestive system to nutrition.  Explain how the urinary system removes waste from the body.  Evaluate the amount of energy contained in a variety of snack foods. (Lab 23A)  Analyze the ability of solutes to pass through semipermeable membranes. (Lab 23B) | Teacher Edition   * Chapter 23 Review Answers |  | Student Edition  Chapter 23 Review |
| Chapter 23 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 23 by taking the test. |  | BJU Press Trove   * EV: Chapter 23 Test Bank | Assessments  Chapter 23 Test |

Chapter 24: Communication (Enrichment)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 24.1 The Nervous System | | | | |
| 529–37 | 24.1.1 Describe the structure and function of the nervous system.  24.1.2 Relate the central nervous system and the peripheral nervous system.  24.1.3 Describe the parts of the brain.  24.1.4 Trace the movement of a nerve impulse through a neuron.  24.1.5 Explain how neurons transmit information.  24.1.6 Analyze the role of the nervous system in the human body. | Teacher Edition   * Mini Lab: Reaction Time * Section 24.1 Review Answers   Materials   * any video about how nerve impulses form and travel * brain model * 8.5 × 11 in. paper sheets (3), one crumpled * computer with internet access | BJU Press Trove\*   * Video: Nervous System * PPT Pres.: Section 24.1 Slides | Student Edition  Section 24.1 Review  Assessments  Section 24.1 Quiz |
| 24.2 The Sensory Organs | | | | |
| 538–45 | 24.2.1 Describe the structure of the sensory organs.  24.2.2 Relate the sensory organs to their functions in the body.  24.2.3 Relate the importance of sensing the world to a person’s growth and development. | Teacher Edition   * Section 24.2 Review Answers   Materials   * pair of binoculars | BJU Press Trove   * PPT Pres.: Section 24.2 Slides | Student Edition  Section 24.2 Review  Teacher Edition  Formative Assessment: Label It!  Assessments  Section 24.2 Quiz |
| Lab 24A Sensational!—Exploring the Sensory Organs | | | | |
| LM 251–56 | Perform simple sensory tests. |  |  | Lab Manual  Lab Report |
| 24.3 The Endocrine System | | | | |
| 545–50 | 24.3.1 Differentiate between the speed of the nervous system and that of the endocrine system.  24.3.2 Relate the function of the different glands to the hormones they secrete.  24.3.3 Explain how glands help maintain homeostasis.  24.3.4 Relate hormones to physical and spiritual responses.  BWS Ethics (apply) | Teacher Edition   * Case Study: Type 2 Diabetes * Section 24.3 Review Answers | BJU Press Trove   * PPT Pres.: Section 24.3 Slides | Student Edition  Section 24.3 Review  Teacher Edition  Formative Assessment: Summaries  Assessments  Section 24.3 Quiz |
| Lab 24B Rat Recap—Dissecting a Rat | | | | |
| LM 257–66 | Identify basic mammalian anatomical features.  Explain the function of certain rat anatomical structures. |  |  | Lab Manual  Lab Report |
| Chapter 24 Review | | | | |
| 551–53 | Relate the structures of the nervous system to their functions in the body.  Describe the organs responsible for processing sensory information.  Analyze the structure and function of the endocrine system in the body.  Assess the capabilities of human sensory organs. (Lab 24A)  Identify the structures and functions of basic mammalian features. (Lab 24B) | Teacher Edition   * Chapter 24 Review Answers |  | Student Edition  Chapter 24 Review |
| Chapter 24 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 24 by taking the test. |  | BJU Press Trove   * EV: Chapter 24 Test Bank | Assessments  Chapter 24 Test |

Chapter 25: Reproduction, Growth, and Health (Enrichment)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PPT Pres. PowerPoint Presentation | LM Lab Manual | TLM Teacher Lab Manual | EV ExamView |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| 25.1 The Reproductive System | | | | |
| 555–61 | 25.1.1 Describe the structure and function of the male and female reproductive organs.  25.1.2 Explain how an ovum is produced, fertilized, and transported from an ovary to the uterus.  25.1.3 Explain how the Fall has affected the culture’s view of love and human sexuality.  BWS Design (evaluate) | Teacher Edition   * Case Study: Sexual Abuse (p. 576) * Section 25.1 Review Answers | BJU Press Trove\*   * PPT Pres.: Section 25.1 Slides | Student Edition  Section 25.1 Review  Assessments  Section 25.1 Quiz |
| 25.2 Human Growth and Development | | | | |
| 562–68 | 25.2.1 Describe the development of an embryo from implantation to birth.  25.2.2 Describe the changes in a person’s body associated with puberty.  25.2.3 Compare the different developmental and growth stages of the body.  25.2.4 Associate the changes in puberty with the function of the endocrine system. | Teacher Edition   * Case Study: Gender Identity * Section 25.2 Review Answers | BJU Press Trove   * Video: Human Body Design * PPT Pres.: Section 25.2 Slides | Student Edition  Section 25.2 Review  Assessments  Section 25.2 Quiz |
| Lab 25A Unusual Development—Modeling the Amazing Growth of Robert Wadlow | | | | |
| LM 267–71 | Plot growth rates when given tabular data on height and mass.  Make a prediction that is based on extrapolating data.  Assess the health of an individual by calculating his or her BMI. |  |  | Lab Manual  Lab Report |

| Pages | Objectives | Printed Resources  & Materials | Digital  Resources | Assessments |
| --- | --- | --- | --- | --- |
| 25.3 Balanced Living | | | | |
| 569–73 | 25.3.1 Describe substances that affect the body’s homeostasis.  25.3.2 Explain how exercise, sleep, and hygiene are linked to maintaining homeostasis.  25.3.3 Relate the importance of mental health and healthy relationships to physical health.  25.3.4 Evaluate whether the decisions that people make regarding health are based on God’s Word.  25.3.5 Analyze the use of assisted suicide using the biblical ethics triad and the principles of bioethics.  BWS Ethics (formulate)  25.3.6 Compare and contrast the conclusions, foundation, and logical consequences of the two frameworks of ethics for this issue.  BWS Ethics (apply) | Teacher Edition   * Mini Lab: Researching  the Impact of Our Thoughts * Ethics: Assisted Suicide (p. 577) * Section 25.3 Review Answers   Materials   * computer with internet access | BJU Press Trove   * Video: Assisted Suicide * PPT Pres.: Section 25.3 Slides | Student Edition  Section 25.3 Review  Assessments  Section 25.3 Quiz |
| Lab 25B Fast Food Fact-Finding—Exploring the Perception of Fast Food versus Reality | | | | |
| LM 273–80 | Analyze a meal for its nutrient content.  Compare the nutrient contents of fast foods to the dietary guidelines provided by the USDA.  Self-assess fast food habits. |  |  | Lab Manual  Lab Report |
| Ethics Day | | | | |
| 577 | 25.3.5 Analyze the use of assisted suicide using the biblical ethics triad and the principles of bioethics.   BWS Ethics (formulate)  25.3.6 Compare and contrast the conclusions, foundation, and logical consequences of the two frameworks of ethics for this issue.   BWS Ethics (apply) | Teacher Edition   * Ethics: Assisted Suicide | BJU Press Trove   * Instructional Aid: Ethics Essay Rubric | Teacher Edition  Ethics Essay Rubric (Appendix G) |
| Chapter 25 Review | | | | |
| 574–77 | Describe the structure and function of the reproductive system.  Describe the stages of human growth.  Explain how the body maintains homeostasis.  Compare normal growth rate with that of a person with acromegaly. (Lab 25A)  Create strategies to maintain healthy eating habits. (Lab 25B) | Teacher Edition   * Chapter 25 Review Answers |  | Student Edition  Chapter 25 Review |
| Chapter 25 Test | | | | |
|  | Demonstrate knowledge of concepts from Chapter 25 by taking the test. |  | BJU Press Trove   * EV: Chapter 25 Test Bank | Assessments  Chapter 25 Test |