Biology 5th Edition Lesson Plan Overview

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| Chapter 1: The Living Creation | | | | | |
| 1–2 | 1A The Study of Life | * Evaluate the presuppositions about life that lie at the heart of the abortion debate. * Summarize the Creation narrative in their own words. * Summarize the six attributes of life in their own words. * Create a graphic organizer that relates the six attributes of life to specific biological structures and functions. * Diagram the sources of energy for a living organism. * Diagram the sources of information for a living organism. | 3–9 | Extra Content: Extra Case Study | * Sanctity of human life * Relationship between God’s Word and science * God and Creation (the event) * Fall of creation * Redemption of the world * Physical and spiritual life * God’s care for creation |
| 3–4 | 1B Views of Life | * Relate observations, interpretations, and models. * Compare the changing nature of science with the unchanging nature of God and His Word. * Determine when science is most useful despite its limitations. * Compare views of life and science that different people have. | 10–15 |  | * Science in light of a biblical worldview * Dominion through modeling |
| 5 | Lab 1A, A Method to This Madness | | | | |
| 6 | 1C Balance of Life | * Relate the work of conservation to obeying Genesis 1:28 and Matthew 22:39. * Explain the balance between preserving the earth’s resources and using them to help other people. * Compare the positive and negative ways that the tools of biology can be used. * Give examples of how the sciences can work together to fulfill the Creation Mandate. | 16–18 |  | * Using biology to practice dominion * Glorifying God through science |
| Chapter 1 Review | | | | |
| 7 | Lab 1B, More Than Meets the Eye | | | | |
| 8 | Chapter 1 Test | | | | |

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| Chapter 2: The Chemistry of Living Things | | | | | |
| 9–10 | 2A Matter, Energy, and Life | * Compare the different types of energy using examples. * Compare chemical and physical changes using examples. * Compare ionic and covalent compounds. * Create a hierarchy chart including the terms matter, atom, element, proton, neutron, electron, compound, and molecule. | 22–27 |  | * Sustaining power of God in nature * God’s role both in creating and sustaining life |
| 11 | Lab 2A, Lost in the Woods | | | | |
| 12 | 2B The Chemical Processes of Life | * Relate Brownian motion to diffusion and the dissolving process. * Label the activation energy, reactants, and products on an energy diagram of both exothermic and endothermic reactions. * Compare the actions of enzymes and inhibitors. * Give examples of how people can use chemistry to understand and help living things, especially people. | 28–33 |  | * Declaring God’s glory through good stewardship |
| 13–14 | 2C Biochemistry | * Demonstrate how water is essential to life’s design. * Define an organic compound in their own words. * Describe the difference between an organic compound and other kinds of compounds. * Give one example of a carbohydrate, protein, lipid, sugar, and nucleic acid, and describe how their chemical structures are different. | 34–39 |  |  |
| Chapter 2 Review | | | | |
| 15 | Lab 2B, Bubbles of Life | | | | |
| 16 | Chapter 2 Test | | | | |

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| Chapter 3: Ecology | | | | | |
| 17 | 3A Our Living Planet | * Distinguish between ecosystems and the biosphere. * Explain how biotic and abiotic factors work together to sustain life. | 45–49 |  | * God’s design of and care for living things * Fall of creation * Future complete redemption * Man’s responsibility to be good stewards of God’s creation |
| 18–19 | 3B Biomes | * Classify a biome on the basis of its biotic and abiotic factors. * Compare biomes and vertical zonation. | 50–55 | Extra Content: Kilimanjaro Climate Zones |
| 20 | 3C Web of Life | * Use a food web and an ecological pyramid to represent the relationships between producers and consumers in an ecosystem. * Give examples of neutralism, competition, predation, parasitism, commensalism, and mutualism. | 56–61 |  |
| 21 | Lab 3A, Tag! | | | | |
| Lab 3B, Must You Be So Competitive? | | | | |
| 22 | Chapter 3 Review | | | | |
| 23 | Chapter 3 Test | | | | |
| Chapter 4: Interacting with the Biosphere | | | | | |
| 24–25 | 4A Sustainability | * Trace the flow of materials through the water, oxygen, carbon, and nitrogen cycles. * List and give examples of the factors that either limit or encourage population growth and biodiversity. * Distinguish between primary and secondary succession. * Defend a biblical view of the predictability and orderliness of ecosystems. | 66–75 |  | * Dominion through modeling * Reference to the water cycle in the Bible |
| 26 | Lab 4A, Forest or Farm? | | | | |
| 27–28 | 4B The Human Niche | * Explain from a biblical worldview the role that people play in managing the earth. * Evaluate arguments about changes in the environment. * Identify evolutionary bias in the field of ecology. * Relate different fields of science to ecology. | 76–81 | Webquest Rubric | * Need for balance in man’s stewardship of the earth * God’s care and provision for His creation * A biblical look at ecological issues (greenhouse gases, ecological footprints, climate change, and extinction rates) * Man’s responsibility to be good stewards of God’s creation |
| Chapter 4 Review | | | | |
| 29 | Lab 4B, Hale Hardwoods or Sickly Cedars? | | | | |
| 30 | Chapter 4 Test | | | | |
| Chapter 5: Cytology | | | | | |
| 31–32 | 5A The Structure and Function of Cells | * Relate the modern cell theory to the changing nature of models. * Use a graphic organizer to compare unicellular, multicellular, and colonial organisms. * Differentiate between prokaryotic and eukaryotic cells. * Illustrate a typical cell and describe the functions of its parts. * Suggest ways to use the complexity of the cell to better help others. | 89–94 |  | * God’s role as Creator of all of life * Man’s role in obeying God and serving others * The purpose of science as modeling and not ultimate truth * Interpreting data on the basis of worldview |
| 33 | Lab 5A, Dwell on the Cell | | | | |
| 34 | 5B The Cell Environment | * Describe how cells in a particular cell environment maintain balance. * Compare the ways that solutions affect cells. * List and illustrate the different ways that molecules are transported across the cell membrane. | 95–101 |  | * Serving God as a medical researcher |
| 35 | Lab 5B, The Leaking Lab | | | | |
| Chapter 5 Review | | | | |
| 36 | Chapter 5 Test | | | | |
| Chapter 6: Energy and Information in the Cell | | | | | |
| 37 | 6A Metabolism | * Explain how energy is stored in ATP molecules. * Track the flow of energy from ATP to ADP. | 106–8 |  | * Evidence of design at the molecular level |
| 38 | Lab 6A, No Swimming Today | | | | |
| 39–40 | 6B DNA and Protein Synthesis | * Compare the structures of DNA and RNA. * Summarize the model of DNA replication. * Differentiate between transcription and translation. * Explain how a protein comes from DNA. | 109–15 | Webquest Rubric | * Using science to help others |
| Chapter 6 Review | | | | |
| 41 | Lab 6B, Hidden Code | | | | |
| 42 | Chapter 6 Test | | | | |

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| Chapter 7: Cell Processes | | | | | |
| 43–44 | 7A Photosynthesis | * Relate photosynthesis to God’s provision for life. * Give examples for exercising good and wise dominion over the process of photosynthesis. * Diagram the reactants and products of photosynthesis using a chemical equation. * Relate the roles of pigments, light, and chemical energy to the process of photosynthesis. * Outline the steps of the light-dependent and light-independent reactions. * Give examples of factors that affect photosynthesis | 118–22 |  | * God’s provision and care for His creation |
| Lab 7A, Whatever Floats Your Leaf | | | | |
| 45–46 | 7B Cellular Respiration and Fermentation | * Trace the flow of energy from glucose in glycolysis to ATP in the electron transport chain. * List the amounts of ATP produced in each step of aerobic respiration. * Differentiate between aerobic respiration and fermentation. * Explain the roles of aerobic respiration and fermentation in the environment. * Relate cellular respiration to its effects on the environment. * Show how God’s care for creation is seen in the current models of cell processes. | 122–28 |  | * Dominion through modeling |
| 47 | Lab 7B, On the Road to Alternative Fuels | | | | |
| Chapter 7 Review | | | | |
| 48 | Chapter 7 Test | | | | |

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| Chapter 8 Basic Genetics | | | | | |
| 49 | 8A Cell Division | * Differentiate between a gene and a chromosome. * Differentiate between a sex chromosome and an autosome. * Relate DNA to chromosomes. * Trace the growth and reproduction of a cell through the cell cycle. * Draw the phases of mitosis and meiosis. * Compare mitosis and meiosis. | 132–37 |  | * Good stewardship of animal life |
| 50 | Lab 8A, Let’s Split | | | | |
| 51–52 | 8B The Inheritance of Traits | * List the three genetic principles proposed by Mendel. * Differentiate between recessive and dominant traits. * Set up monohybrid and dihybrid crosses with Punnett squares. * Explain the differences between the kinds of genetic inheritance. * Explain the worldview implications of correctly understanding the genetics of skin color. | 137–46 | Lab 8B, The Punnett Square Dance:  Part 1 Simple Dominance  Part 2 Incomplete Dominance  Part 3 Codominance  Extra Content: Branch Diagrams | * Evidence of God’s design at the molecular level * Effect of the Fall at the molecular level * Importance of understanding biblical principles as they apply to scientific issues * Ethical issues related to care for animal life |
| 53 | 8C Gene Expression | * Explain how genes control cell development. * Relate the environment to gene expression. * Differentiate between embryonic and somatic stem cells. * Give biblical support for ethically using animals to benefit people. | 148–51 | (Lab 8B, continued): Part 4 Multiple Alleles  Part 5 Polygenic Inheritance | * Using scientific discoveries to deal with the consequences of the curse * Evaluating research and technology in light of Scripture |
| 54 | Chapter 8 Review | |  | (Lab 8B, continued): Part 6 Sex-linked   Traits  Extra Content: Question 28 Genetic Graphic Organizer |  |
| 55 | Chapter 8 Test | | | | |

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| Chapter 9 Advanced Genetics | | | | | |
| 56 | 9A Population Genetics | * List the factors that affect the gene pool. * List the different sources of genetic variation. * Differentiate between genetic drift and gene flow. * Evaluate the models of genetic change from a biblical viewpoint. * Analyze how genetic load can affect the genetic variability of a population. | 157–60 |  | * Using research and biotechnology to serve people * Variety in creation as part of God’s design for it * Christian worldview in understanding changes in populations |
| 57–58 | 9B Mutations | * Differentiate between chromosome and gene mutation. * Create a model that illustrates the three types of point mutations. * Explain how a gene mutation can affect a cell. * Explain how nondisjunction affects the chromosome number. * Give examples of the ways that a mutation can be expressed in an organism. | 162–67 |  | * Stewardship in agriculture * Population growth as an aid to dominion * Value of all human life * Using technology to improve human life |
| 59 | Lab 9A, Fix It! | | | | |
| 60 | 9C Genetic Engineering | * Give support for the importance of gene sequencing. * Diagram how a gene can be transferred from one organism to another. * List and explain four ways that DNA can be manipulated. * Evaluate the benefits and dangers of DNA manipulation. | 168–73 | Webquest Rubric | * Evaluating research in the light of the Bible * Using scientific discoveries to glorify God and help others |
| 61–62 | Lab 9B, Whodunit? | | | | |
| Chapter 9 Review | | | | |
| 63 | Chapter 9 Test | | | | |

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| Chapter 10 When Worldviews Collide | | | | | |
| 64–65 | 10A The Origins Question | * Summarize the history of evolutionary thinking. * List and define the three primary supports for modern evolutionary theory. * Evaluate popular nonliteral interpretations of the Creation account. * Recognize the two main differences between biblical creation and evolution. | 178–87 | Lab 10A, In Darwin’s Own Words | * Biblical worldview versus naturalistic worldview * Supremacy and inerrancy of Scripture * Importance of and support for a literal interpretation of Scripture * Results of believing evolutionary theory * Death as a result of the Fall * Catastrophic results of the Flood * Role of the Flood in fossil formation * God’s creation of all life * Need for faith in Christ * Creationist presuppositions versus evolutionist presuppositions |
| 66–67 | 10B Change in Nature | * Explain the different ways that populations of organisms can change. * Differentiate between adaptation and evolution. * Evaluate the different supports for evolution in light of a biblical worldview. | 187–200 | Webquest Rubric | * Infallibility of the Bible * Scripture as the ultimate, unchanging standard * God’s Word versus man’s wisdom * Relevance of the literal Creation account to the Christian faith * Intelligent design and biblical creationism * God’s design and efficiency in creation * Response to nonliteral interpretations of Creation * God’s merciful plan of redemption * Special creation of man and God’s care for him * God’s glory in creation |
| 68 | Chapter 10 Review | | | Lab 10B, Worldview Sleuthing |  |
| 69 | Chapter 10 Test | | | | |

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| Chapter 11 Classifying Life | | | | | |
| 70–71 | 11A Taxonomy | * Discuss the importance of classifying living things. * Associate classification with the model-making nature of biology. * List the eight levels of taxonomy. * Create a graphic organizer illustrating the identifying traits and examples of the seven kingdoms. * Construct a scientific name. | 207–12 | Lab 11A, The Key Concept | * God’s design in creation * Use of knowledge and opportunity as a means of practicing good dominion * Creationist view of speciation * Importance of evaluating things on the basis of Scripture and its worldview |
| 72–73 | 11B Unity and Diversity | * Differentiate between traditional and modern classification. * Respond to the evolutionary argument that classification can be used to support evolution. | 213–17 | Lab 11B, All Myxed Up | * God’s design in creation * Variety as an expression of God’s creativity |
| Chapter 11 Review | | | | |
| 74 | Chapter 11 Test | | | | |
| Chapter 12 Prokaryotes and Viruses | | | | | |
| 75–76 | 12A Prokaryotes | * Distinguish archaea from bacteria. * Draw the structure of a bacterium. * Summarize the different ways that bacteria can transfer their DNA. * Explain the function of bacteria in the environment. * Identify several diseases caused by bacteria. | 221–27 |  | * Creationist presuppositions versus evolutionist presuppositions * Similarity in form or function as an evidence of God’s design * Success of pathogenic organisms as a result of the Fall and Curse |
| Lab 12A, Squeaky Clean | | | | |
| 77–78 | 12B Viruses | * Identify viruses as carriers of genetic information. * Compare viruses to bacteria. * Label the structures of a virus. * Differentiate between a lytic and a lysogenic infection. * Identify useful applications of and diseases caused by viruses. | 228–33 |  | * Advances in biotechnology as a means of caring for people * Disease as a result of sin |
| 79 | Lab 12B, One Slick Solution | | | | |
| 80 | Chapter 12 Review | | | | |
| 81 | Chapter 12 Test | | | | |

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| Chapter 13: Protists and Fungi | | | | | |
| 82–83 | 13A Kingdom Protozoa | * Explain kingdom protozoa’s place in classification. * Use drawings or other models to depict the structures and movements of common protozoans. * Describe the different kinds of protozoan reproduction. * List several protozoans that are harmful to people and the environment. | 238–43 |  | * Use of knowledge to improve people’s lives * Managing pathogens to protect life * Serving with the discipline to bring God glory |
| Lab 13A, Wee, Watery World | | | | |
| 84 | 13B Kingdom Chromista | * Compare the two groups of protists using a graphic organizer. * Describe the different kinds of chromist reproduction. * Evaluate the evolutionary idea that multicellular organisms came from unicellular protists. * Describe how chromists contribute to life on Earth. | 244–47 |  | * Creationist presuppositions versus evolutionist presuppositions * Variety as an expression of God’s creativity |
| 85–86 | 13C Kingdom Fungi | * Classify fungi on the basis of their reproduction. * Draw and label the structure of a mushroom. * Describe the ways that fungi reproduce. * Explain the relationship of algae and fungi in lichens. * Suggest both beneficial and harmful ways that fungi interact with the environment. | 248–54 |  | * Serving with the discipline to bring God glory * The modeling nature of science * Questioning the evolutionary paradigm shaping current classification in biology |
| Lab 13B, Zygo’s a Fun Guy | | | | |
| 87 | Chapter 13 Review | | | | |
| 88 | Chapter 13 Test | | | | |
| Final Material | | | | | |
| 89 | Semester Exam Review | | | | |
| 90 | Semester Exam | | | | |

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| Chapter 14: Plant Classification and Structure | | | | | |
| 91 | 14A Kingdom Plantae | * Differentiate plants from other living organisms. * Differentiate between the four types of plants. * Relate plant size to tissue type. | 259–61 |  | * God’s design in His creation * God’s care of His creation * Good stewardship of God’s creation |
| 92–93 | 14B The Structure of Plants | * Relate the different types of plant cells and tissues to their function in plant organs. * Diagram the structure of leaves, stems, and roots. * Explain the function of leaves, stems, and roots. | 262–69 |  |  |
| 94 | Lab 14A, Name that Plant | | | | |
| 95–96 | 14C The Life Cycles of Plants | * Describe the life cycles of bryophytes and ferns. * Compare gymnosperm and angiosperm reproduction. * Diagram the structure of a flower. * Diagram the structure of a seed. * Create a flow chart that illustrates the life cycle of an angiosperm. * Evaluate using plants that are easily misused. | 270–79 |  | * Good stewardship of God’s creation * God’s design in His creation |
| Chapter 14 Review | | | | |
| 97 | Lab 14B, A Fruitful Lab | | | | |
| 98 | Chapter 14 Test | | | | |
| Chapter 15: Plant Processes | | | | | |
| 99 | 15A Transporting Nutrients | * Discuss the theories for the movement of sap throughout a plant. * Trace the path of water and minerals through a plant. * Explain how nutrients from the soil enter a plant. * Understand that scientific models are not truth and can and should be updated to incorporate new data. | 285–87 | Lab 15B, Too Salty? | * Good stewardship of God’s creation * Modeling nature of science versus the eternality of God’s truth |
| 100–101 | 15B Plant Responses | * Explain the effects that different hormones have on plants. * Relate plant growth to different stimuli in the environment. * Describe the different ways that light affects plants. | 288–92 |  | * God’s care of His creation |

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| Chapter 15: Plant Processes (continued) | | | | | |
| 102 | Lab 15A, Bananamania | | | | |
| 103 | 15C Using Plants Wisely | * Describe the different ways that plants can be produced vegetatively. * List several ways that people use plants. * Assess the importance of plants to biogeochemical cycles. * Analyze, on the basis of a biblical worldview, the advantages and disadvantages of genetically modifying plants. | 293–98 | Webquest Rubric | * Man’s responsibility to be wise stewards of God’s creation * God’s provision for His creation |
| Chapter 15 Review | | | | |
| 104 | Chapter 15 Test | | | | |
| Chapter 16: Invertebrates | | | | | |
| 105 | 16A Kingdom Animalia | * List the characteristics of animals and give examples. * Use a T-chart to compare endotherms and ectotherms. * Relate animal body plans and symmetry to germ layers. * List and describe the different kinds of sexual reproduction in animals. * Relate the different responses animals have to their environments and to each other. | 305–12 |  | * Wise management of God’s creation * Man’s dominion over animals * God’s care for His creation * Living things reproduce after their own kind. |
| 106–107 | 16B Sponges and Cnidarians | * Describe the general characteristics of sponges. * Explain how sponges feed and reproduce. * Create a concept definition map that communicates the general characteristics of cnidarians. * Describe how cnidarians feed and reproduce. * Explain how sponges and cnidarians contribute to the environment. | 312–17 |  | * Wise stewardship of natural resources |
| Lab 16A, The Immortals Next Door | | | | |

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| Chapter 16: Invertebrates (continued) | | | | | |
| 108–109 | 16C Worms | * Differentiate between flatworms, roundworms, and segmented worms. * Describe the general characteristics of worms. * Explain how the three phyla of worms feed and reproduce. * Give examples of how we can manage and use worm populations in the environment. | 318–22 |  |  |
| 16D Mollusks | * Describe the general characteristics of mollusks. * Differentiate between bivalves, gastropods, and cephalopods. * Explain how mollusks reproduce. * Give examples of how mollusks interact with their environment. | 323–25 |  | * Using stewardship to glorify God |
| 110 | Lab 16B, Fish Tank Fiend! | | | | |
| 111 | 16E Echinoderms | * Describe the general characteristics of echinoderms. * Compare the five classes of echinoderms using a graphic organizer. * Explain how echinoderms reproduce. * Give examples of how echinoderms interact with their environment. | 326–28 |  | * Unique design in echinoderms as evidence for creation * Creation declares the glory of God. |
| Chapter 16 Review | | | | |
| 112 | Chapter 16 Test | | | | |
| Chapter 17: Arthropods | | | | | |
| 113 | 17A Arthropod Introduction and Chelicerates | * Describe the general characteristics of arthropods. * List the general characteristics of chelicerates. * Explain how chelicerates feed and reproduce. * Describe how chelicerates affect their environment. | 333–38 |  | * Unexpected consequences of man’s dominion efforts * Analyzing presuppositions |
| 114–115 | 17B Crustaceans | * Differentiate crustaceans from other arthropods. * Explain how crustaceans feed and reproduce. * Give examples of how crustaceans exert influence on their environment. | 338–41 |  |  |
| Lab 17A, Take a Crack at Crayfish | | | | |
| Chapter 17: Arthropods (continued) | | | | | |
| 116 | 17C Insects | * List the general characteristics of insects. * Explain how insects feed and reproduce. * Suggest ways to wisely control insects and use them in the environment to help people. | 341–47 |  | * God’s provision for His creation * Managing God’s resources to meet the needs of His creatures |
| Chapter 17 Review | | | | |
| 117 | Lab 17B, Cricket Caper | | | | |
| 118 | Chapter 17 Test | | | | |
| Chapter 18: Ectothermic Vertebrates | | | | | |
| 119–120 | 18A Chordate Introduction and Fish | * Describe the general characteristics of fish. * Compare hagfish and lampreys to other fish. * Differentiate between cartilaginous fishes and bony fishes. * Trace the flow of oxygen through the circulatory system of a bony fish. * Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a bony fish. | 351–57 | Lab 18A, Something Fishy Going On | * Humans created in the image of God * Man’s responsibility to exercise informed, balanced dominion over all animal life * Evidence of design in creation |
| 121 | 18B Amphibians | * Describe the general characteristics of amphibians. * Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a frog. * Recommend a way that amphibians can be biblically conserved. | 358–62 |  | * Making wise decisions in exercising dominion |
| 122 | 18C Reptiles | * List the structures of an amniotic egg and their functions. * Describe the general characteristics of reptiles. * Compare the four orders of reptiles. * Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a reptile. | 363–69 |  | * God’s design and use of reptiles * Dinosaurs in the Bible |
| Chapter 18 Review | | | | |
| 123 | Finish Lab 18A, Something Fishy Going On. Complete Lab 18B, Reptile Repasts | | | | |
| 124 | Chapter 18 Test | | | | |

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| Chapter 19: Endothermic Vertebrates | | | | | |
| 125–126 | 19A Birds | * Describe the general characteristics of birds. * Label the major organs of  the circulatory, nervous, digestive, excretory, and reproductive systems of a bird. * Explain how birds are designed for flight. * Relate birds’ beaks, wings, and feet to their environments. * List several behaviors of birds. | 374–81 | Lab 19A, Our Fine, Feathered Friends | * Interpreting evidence on the basis of a Biblical worldview * Structure and function of the bird’s body as evidence of God’s design |
| 127–128 | 19B Mammals | * Describe the general characteristics of mammals. * Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a mammal. * Compare the reproduction strategies of eutherians, monotremes, and marsupials. * Compare the major orders of mammals. * Suggest several ways that a scientist can produce useful science during an evolution-driven study. | 382–89 |  | * Structure and function of the bird’s body as evidence of God’s design * Man’s dominion over animals * God’s preservation of His creation |
| 129 | Lab 19B, Why, It’s Amazing! | | | | |
| 130 | Chapter 19 Review | | | | |
| 131 | Chapter 19 Test | | | | |
| Chapter 20: Protection | | | | | |
| 132 | 20A The Study of You | * Explain how humans are different from other living things. * Differentiate between the kinds of tissues found in the human body. * Summarize the function of each system in the human body. * Evaluate how believers should view the study of the body. | 395–400 |  | * The meaning of man’s being created in God’s image * Man as a spiritual being * Exercising dominion in caring for human life—that of others and of ourselves * The image of God in man marred by the Fall * Man’s sinful nature * Developing an understanding of science from a biblical worldview |
| 133 | Lab 20A, Chill Out! | | | | |
| 134 | 20B The Integumentary System | * List the layers that make up the integumentary system and their functions. * Describe the purposes of the skin. * Explain how each body system presents itself in the skin. | 401–4 |  | * Evidence of design in neural receptors |
| Chapter 20: Protection (continued) | | | | | |
| 135–136 | 20C The Lymphatic System and Immunity | * List the tissues and organs of the lymphatic system. * Describe what lymph does as it travels through the different systems of the body. * Explain the role of the lymphatic system in immunity and homeostasis. * Compare humoral and cell-mediated immunity. * List several ways that the immune system can react. | 405–10 | Lab 20B, Are You Aware? | * Interpreting data from a biblical worldview * Humans are fearfully and wonderfully created. * Sin producing disease and suffering |
| Chapter 20 Review | | | | |
| 137 | Chapter 20 Test | | | | |
| Chapter 21: Support and Movement | | | | | |
| 138–139 | 21A The Skeletal System | * Differentiate between the axial and appendicular skeletons. * Label the main bones of the skeletal system on a diagram. * Describe the structure of a bone. * Differentiate between compact bone and spongy bone. * Relate the different joint structures to their movements. * Explain how a bone forms and is remodeled. | 415–20 |  | * Using science to practice dominion in helping people * Structure and function of the human skeletal system as evidence of God’s design |
| 140 | Lab 21A, Dry Bones | | | | |
| 141–142 | 21B The Muscular System | * Differentiate between the three kinds of muscle and describe their roles. * Label the main muscles of the muscular system on a diagram. * Illustrate the process of muscle movement on the cellular level, using drawings or a model. * Describe how muscles use energy to contract. * Explain how muscles rely on other muscles and body systems to operate. * Evaluate the idea that combining different areas of science is a way to better solve problems and to help others. | 420–25 |  | * Exercising dominion to help improve the quality of life for others |
| 143 | Lab 21B, I’m So Tired! | | | | |
| 144 | Chapter 21 Review | | | | |
| 145 | Chapter 21 Test | | | | |
| Chapter 22: Transport | | | | | |
| 146–147 | 22A The Respiratory System | * List the major organs of the respiratory system and describe their functions. * Explain how gas is exchanged in the lungs. * Diagram the process of breathing. * List factors that affect breathing. | 430–33 |  | * Wise stewardship of the human body |
| 148 | Lab 22A, Relax and Take a Deep Breath | | | | |
| 149-150 | 22B The Circulatory System | * List the major organs and tissues of the circulatory system and describe their functions. * Describe the structure of the heart. * Describe the purpose of each part of blood. * Differentiate between the flow of blood through an artery and through a vein. * Relate the circulatory system to the respiratory system. * Trace the flow of oxygen and carbon dioxide through the heart and lungs. * Differentiate between systemic and pulmonary circulation. | 434–39 |  | * Our bodies are not our own. * Caring for the body for God’s glory |
| 151 | Lab 22B, Feeling the Pressure | | | | |
| 152 | Chapter 22 Review | | | | |
| 153 | Chapter 22 Test | | | | |
| Chapter 23: Energy | | | | | |
| 154–155 | 23A The Digestive System | * List the six nutrients the body needs and describe their roles. * Explain how the body takes in, distributes, and eliminates nutrients. * Compare mechanical and chemical digestion. * List the organs of the digestive system and describe their functions. * Explain how digestion provides the glucose needed for cellular respiration. * Suggest ways to help people take care of their bodies by balancing their food intake with their activity level. | 444–50 |  | * Caring for our bodies as good stewardship * Eating and exercising to glorify God |

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| Chapter 23: Energy (continued) | | | | | |
| 156 | Lab 23, A Calorimetry in a Can | | | | |
| 157 | 23B The Urinary System | * List the organs of the urinary system and describe their functions. * Explain how the kidneys filter and recycle the materials in blood. * List organs from other body systems that are involved in excretion. * Explain why drinking water helps the body maintain homeostasis. | 452–55 |  | * Keeping your body healthy, so that you can glorify the Lord in your best service |
| 158–159 | Lab 23B, What a Waste! | | | | |
| Chapter 23 Review | | | | |
| 160 | Chapter 23 Test | | | | |
| Chapter 24: Communication | | | | | |
| 161–162 | 24A The Nervous System | * Differentiate between the central nervous system and the peripheral nervous system. * Trace the flow of a signal through a neuron. * Label the parts of the brain. * Explain how the hypothalamus acts as the link between the nervous and endocrine systems. * Explain how the three types of neurons work together in a reflex arc. | 459–65 |  | * Improving the quality of life of God’s image bearers * God’s design of the nervous system |
| 163–164 | 24B The Sensory Organs | * Describe the major structures of the eye. * Describe the major structures of the ear. * Describe the purpose of each kind of sensory receptor. * Describe how each kind of sensory receptor works with sensory organs. * Relate the importance of sensing the world to a person’s growth and development. * Relate the ability to feel pain to God’s care for mankind. | 465–73 |  | * Preventing disease to improve the quality of human life |
| 165 | Lab 24A, Sensational! | | | | |

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| Chapter 24: Communication (continued) | | | | | |
| 166–167 | 24C The Endocrine System | * Differentiate between the speed of the nervous system and that of the endocrine system. * Explain how steroid and nonsteroid hormones communicate with cells. * Describe the function of the different glands and the hormones they secrete. * Explain how glands are controlled by negative feedback. * Describe how hormones prepare the body for puberty. * Explain how hormones are affected by our fallen nature. | 473–78 |  | * Man as a spiritual being * God’s grace is sufficient to meet all our needs. |
| Chapter 24 Review | | | | |
| 168 | Chapter 24 Test | | | | |
| 169–171 | Lab 24B, Rat Recap | | | | |
| Chapter 25: Reproduction, Growth, and Health | | | | | |
| 172–173 | 25A The Reproductive System | * Describe the function of the male reproductive organs. * Describe the function of the female reproductive organs. * Explain how an ovum is produced, fertilized, and transported from an ovary to the uterus. * Explain how sin and the Curse affect human sexuality and reproduction. | 483–91 | Lab 25A, Unusual Development | * Fulfilling the Creation Mandate to have children * Man is God’s highest creation. * God alone has the authority to determine what is good. * The image of God in man marred by the Fall * Biblical principles of marriage * Relationship between man and wife as an example of the relationship between Christ and the church * The Bible’s challenge to have a pure life * Christ’s provision of Redemption * Avoiding situations that can lead to temptation * The value of human life * The Bible and abortion * Grace to deal with suffering |

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| Chapter 25: Reproduction, Growth, and Health (continued) | | | | | |
| 174–175 | 25B Human Growth and Development | * Trace the development of an embryo from implantation to birth. * Compare the body of a child to that of an infant. * Describe the changes in a person’s body associated with puberty. * Associate the changes in puberty with the function of the endocrine system. * Predict how a student’s body will change as he gets older. | 491–97 | Lab 25B, Fast Food Fact-Finding | * The Bible’s challenge to have a pure life * Thinking about death from a biblical perspective * Sex and gender are designed by God to be aligned. * God’s way is always best. * God determines the number of our days. * Christians will spend an eternity in heaven. * Christ has conquered death. |
| 176–177 | 25C Balanced Living | * List what substances people can ingest that affect the body’s homeostasis. * Explain how exercise, sleep, and hygiene are linked to maintaining homeostasis. * Relate the importance of mental health and healthy relationships to physical health. * Evaluate whether the decisions that people make regarding health are based on God’s Word. | 497–502 |  | * Our bodies are the temple of the Holy Spirit. * We should do all to the glory of God. * Christ alone satisfies my needs. * Human life is physical, mental, social, and spiritual. * Biblical principles of marriage * Our hope can be found only in Christ. |
| Chapter 25 Review | | | | |
| 178 | Chapter 25 Test | | | | |
| Final Material | | | | | |
| 179 | Semester Exam Review | | | | |
| 180 | Semester Exam | | | | |