

# BIOLOGY 5TH EDITION LESSON PLAN OVERVIEW

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 1: The Living Creation</b>					
1–2	1A The Study of Life	<ul style="list-style-type: none"> <li>Evaluate the presuppositions about life that lie at the heart of the abortion debate.</li> <li>Summarize the Creation narrative in their own words.</li> <li>Summarize the six attributes of life in their own words.</li> <li>Create a graphic organizer that relates the six attributes of life to specific biological structures and functions.</li> <li>Diagram the sources of energy for a living organism.</li> <li>Diagram the sources of information for a living organism.</li> </ul>	3–9	Extra Content: Extra Case Study	<ul style="list-style-type: none"> <li>Sanctity of human life</li> <li>Relationship between God’s Word and science</li> <li>God and Creation (the event)</li> <li>Fall of creation</li> <li>Redemption of the world</li> <li>Physical and spiritual life</li> <li>God’s care for creation</li> </ul>
3–4	1B Views of Life	<ul style="list-style-type: none"> <li>Relate observations, interpretations, and models.</li> <li>Compare the changing nature of science with the unchanging nature of God and His Word.</li> <li>Determine when science is most useful despite its limitations.</li> <li>Compare views of life and science that different people have.</li> </ul>	10–15		<ul style="list-style-type: none"> <li>Science in light of a biblical worldview</li> <li>Dominion through modeling</li> </ul>
5	Lab 1A, <i>A Method to This Madness</i>				
6	1C Balance of Life	<ul style="list-style-type: none"> <li>Relate the work of conservation to obeying Genesis 1:28 and Matthew 22:39.</li> <li>Explain the balance between preserving the earth’s resources and using them to help other people.</li> <li>Compare the positive and negative ways that the tools of biology can be used.</li> <li>Give examples of how the sciences can work together to fulfill the Creation Mandate.</li> </ul>	16–18		<ul style="list-style-type: none"> <li>Using biology to practice dominion</li> <li>Glorifying God through science</li> </ul>
	Chapter 1 Review				
7	Lab 1B, <i>More Than Meets the Eye</i>				
8	Chapter 1 Test				

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<b>Chapter 2: The Chemistry of Living Things</b>					
9–10	2A Matter, Energy, and Life	<ul style="list-style-type: none"> <li>• Compare the different types of energy using examples.</li> <li>• Compare chemical and physical changes using examples.</li> <li>• Compare ionic and covalent compounds.</li> <li>• Create a hierarchy chart including the terms <i>matter</i>, <i>atom</i>, <i>element</i>, <i>proton</i>, <i>neutron</i>, <i>electron</i>, <i>compound</i>, and <i>molecule</i>.</li> </ul>	22–27		<ul style="list-style-type: none"> <li>• Sustaining power of God in nature</li> <li>• God’s role both in creating and sustaining life</li> </ul>
11	Lab 2A, <i>Lost in the Woods</i>				
12	2B The Chemical Processes of Life	<ul style="list-style-type: none"> <li>• Relate Brownian motion to diffusion and the dissolving process.</li> <li>• Label the activation energy, reactants, and products on an energy diagram of both exothermic and endothermic reactions.</li> <li>• Compare the actions of enzymes and inhibitors.</li> <li>• Give examples of how people can use chemistry to understand and help living things, especially people.</li> </ul>	28–33		<ul style="list-style-type: none"> <li>• Declaring God’s glory through good stewardship</li> </ul>
13–14	2C Biochemistry	<ul style="list-style-type: none"> <li>• Demonstrate how water is essential to life’s design.</li> <li>• Define an organic compound in their own words.</li> <li>• Describe the difference between an organic compound and other kinds of compounds.</li> <li>• Give one example of a carbohydrate, protein, lipid, sugar, and nucleic acid, and describe how their chemical structures are different.</li> </ul>	34–39		
	Chapter 2 Review				
15	Lab 2B, <i>Bubbles of Life</i>				
16	Chapter 2 Test				

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<b>Chapter 3: Ecology</b>					
17	3A Our Living Planet	<ul style="list-style-type: none"> <li>Distinguish between ecosystems and the biosphere.</li> <li>Explain how biotic and abiotic factors work together to sustain life.</li> </ul>	45–49		<ul style="list-style-type: none"> <li>God’s design of and care for living things</li> <li>Fall of creation</li> <li>Future complete redemption</li> <li>Man’s responsibility to be good stewards of God’s creation</li> </ul>
18–19	3B Biomes	<ul style="list-style-type: none"> <li>Classify a biome on the basis of its biotic and abiotic factors.</li> <li>Compare biomes and vertical zonation.</li> </ul>	50–55	Extra Content: Kilimanjaro Climate Zones	
20	3C Web of Life	<ul style="list-style-type: none"> <li>Use a food web and an ecological pyramid to represent the relationships between producers and consumers in an ecosystem.</li> <li>Give examples of neutralism, competition, predation, parasitism, commensalism, and mutualism.</li> </ul>	56–61		
21	Lab 3A, <i>Tag!</i> Lab 3B, <i>Must You Be So Competitive?</i>				
22	Chapter 3 Review				
23	Chapter 3 Test				
<b>Chapter 4: Interacting with the Biosphere</b>					
24–25	4A Sustainability	<ul style="list-style-type: none"> <li>Trace the flow of materials through the water, oxygen, carbon, and nitrogen cycles.</li> <li>List and give examples of the factors that either limit or encourage population growth and biodiversity.</li> <li>Distinguish between primary and secondary succession.</li> <li>Defend a biblical view of the predictability and orderliness of ecosystems.</li> </ul>	66–75		<ul style="list-style-type: none"> <li>Dominion through modeling</li> <li>Reference to the water cycle in the Bible</li> </ul>
26	Lab 4A, <i>Forest or Farm?</i>				
27–28	4B The Human Niche	<ul style="list-style-type: none"> <li>Explain from a biblical worldview the role that people play in managing the earth.</li> <li>Evaluate arguments about changes in the environment.</li> <li>Identify evolutionary bias in the field of ecology.</li> <li>Relate different fields of science to ecology.</li> </ul>	76–81	Webquest Rubric	<ul style="list-style-type: none"> <li>Need for balance in man’s stewardship of the earth</li> <li>God’s care and provision for His creation</li> <li>A biblical look at ecological issues (greenhouse gases, ecological footprints, climate change, and extinction rates)</li> <li>Man’s responsibility to be good stewards of God’s creation</li> </ul>
	Chapter 4 Review				
29	Lab 4B, <i>Hale Hardwoods or Sickly Cedars?</i>				
30	Chapter 4 Test				

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<b>Chapter 5: Cytology</b>					
31–32	5A The Structure and Function of Cells	<ul style="list-style-type: none"> <li>• Relate the modern cell theory to the changing nature of models.</li> <li>• Use a graphic organizer to compare unicellular, multicellular, and colonial organisms.</li> <li>• Differentiate between prokaryotic and eukaryotic cells.</li> <li>• Illustrate a typical cell and describe the functions of its parts.</li> <li>• Suggest ways to use the complexity of the cell to better help others.</li> </ul>	89–94		<ul style="list-style-type: none"> <li>• God’s role as Creator of all of life</li> <li>• Man’s role in obeying God and serving others</li> <li>• The purpose of science as modeling and not ultimate truth</li> <li>• Interpreting data on the basis of worldview</li> </ul>
33	Lab 5A, <i>Dwell on the Cell</i>				
34	5B The Cell Environment	<ul style="list-style-type: none"> <li>• Describe how cells in a particular cell environment maintain balance.</li> <li>• Compare the ways that solutions affect cells.</li> <li>• List and illustrate the different ways that molecules are transported across the cell membrane.</li> </ul>	95–101		<ul style="list-style-type: none"> <li>• Serving God as a medical researcher</li> </ul>
35	Lab 5B, <i>The Leaking Lab</i>				
	Chapter 5 Review				
36	Chapter 5 Test				
<b>Chapter 6: Energy and Information in the Cell</b>					
37	6A Metabolism	<ul style="list-style-type: none"> <li>• Explain how energy is stored in ATP molecules.</li> <li>• Track the flow of energy from ATP to ADP.</li> </ul>	106–8		<ul style="list-style-type: none"> <li>• Evidence of design at the molecular level</li> </ul>
38	Lab 6A, <i>No Swimming Today</i>				
39–40	6B DNA and Protein Synthesis	<ul style="list-style-type: none"> <li>• Compare the structures of DNA and RNA.</li> <li>• Summarize the model of DNA replication.</li> <li>• Differentiate between transcription and translation.</li> <li>• Explain how a protein comes from DNA.</li> </ul>	109–15	Webquest Rubric	<ul style="list-style-type: none"> <li>• Using science to help others</li> </ul>
	Chapter 6 Review				
41	Lab 6B, <i>Hidden Code</i>				
42	Chapter 6 Test				

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<b>Chapter 7: Cell Processes</b>					
43–44	7A Photosynthesis	<ul style="list-style-type: none"> <li>• Relate photosynthesis to God's provision for life.</li> <li>• Give examples for exercising good and wise dominion over the process of photosynthesis.</li> <li>• Diagram the reactants and products of photosynthesis using a chemical equation.</li> <li>• Relate the roles of pigments, light, and chemical energy to the process of photosynthesis.</li> <li>• Outline the steps of the light-dependent and light-independent reactions.</li> <li>• Give examples of factors that affect photosynthesis</li> </ul>	118–22		<ul style="list-style-type: none"> <li>• God's provision and care for His creation</li> </ul>
<i>Lab 7A, Whatever Floats Your Leaf</i>					
45–46	7B Cellular Respiration and Fermentation	<ul style="list-style-type: none"> <li>• Trace the flow of energy from glucose in glycolysis to ATP in the electron transport chain.</li> <li>• List the amounts of ATP produced in each step of aerobic respiration.</li> <li>• Differentiate between aerobic respiration and fermentation.</li> <li>• Explain the roles of aerobic respiration and fermentation in the environment.</li> <li>• Relate cellular respiration to its effects on the environment.</li> <li>• Show how God's care for creation is seen in the current models of cell processes.</li> </ul>	122–28		<ul style="list-style-type: none"> <li>• Dominion through modeling</li> </ul>
47	<i>Lab 7B, On the Road to Alternative Fuels</i>				
	Chapter 7 Review				
48	Chapter 7 Test				

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<b>Chapter 8 Basic Genetics</b>					
49	8A Cell Division	<ul style="list-style-type: none"> <li>• Differentiate between a gene and a chromosome.</li> <li>• Differentiate between a sex chromosome and an autosome.</li> <li>• Relate DNA to chromosomes.</li> <li>• Trace the growth and reproduction of a cell through the cell cycle.</li> <li>• Draw the phases of mitosis and meiosis.</li> <li>• Compare mitosis and meiosis.</li> </ul>	132–37		<ul style="list-style-type: none"> <li>• Good stewardship of animal life</li> </ul>
50	Lab 8A, <i>Let's Split</i>				
51–52	8B The Inheritance of Traits	<ul style="list-style-type: none"> <li>• List the three genetic principles proposed by Mendel.</li> <li>• Differentiate between recessive and dominant traits.</li> <li>• Set up monohybrid and dihybrid crosses with Punnett squares.</li> <li>• Explain the differences between the kinds of genetic inheritance.</li> <li>• Explain the worldview implications of correctly understanding the genetics of skin color.</li> </ul>	137–46	Lab 8B, <i>The Punnett Square Dance</i> : Part 1 Simple Dominance Part 2 Incomplete Dominance Part 3 Codominance Extra Content: Branch Diagrams	<ul style="list-style-type: none"> <li>• Evidence of God's design at the molecular level</li> <li>• Effect of the Fall at the molecular level</li> <li>• Importance of understanding biblical principles as they apply to scientific issues</li> <li>• Ethical issues related to care for animal life</li> </ul>
53	8C Gene Expression	<ul style="list-style-type: none"> <li>• Explain how genes control cell development.</li> <li>• Relate the environment to gene expression.</li> <li>• Differentiate between embryonic and somatic stem cells.</li> <li>• Give biblical support for ethically using animals to benefit people.</li> </ul>	148–51	(Lab 8B, <i>continued</i> ): Part 4 Multiple Alleles Part 5 Polygenic Inheritance	<ul style="list-style-type: none"> <li>• Using scientific discoveries to deal with the consequences of the curse</li> <li>• Evaluating research and technology in light of Scripture</li> </ul>
54	Chapter 8 Review			(Lab 8B, <i>continued</i> ): Part 6 Sex-linked Traits Extra Content: Question 28 Genetic Graphic Organizer	
55	Chapter 8 Test				

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<b>Chapter 9 Advanced Genetics</b>					
56	9A Population Genetics	<ul style="list-style-type: none"> <li>List the factors that affect the gene pool.</li> <li>List the different sources of genetic variation.</li> <li>Differentiate between genetic drift and gene flow.</li> <li>Evaluate the models of genetic change from a biblical viewpoint.</li> <li>Analyze how genetic load can affect the genetic variability of a population.</li> </ul>	157–60		<ul style="list-style-type: none"> <li>Using research and biotechnology to serve people</li> <li>Variety in creation as part of God’s design for it</li> <li>Christian worldview in understanding changes in populations</li> </ul>
57–58	9B Mutations	<ul style="list-style-type: none"> <li>Differentiate between chromosome and gene mutation.</li> <li>Create a model that illustrates the three types of point mutations.</li> <li>Explain how a gene mutation can affect a cell.</li> <li>Explain how nondisjunction affects the chromosome number.</li> <li>Give examples of the ways that a mutation can be expressed in an organism.</li> </ul>	162–67		<ul style="list-style-type: none"> <li>Stewardship in agriculture</li> <li>Population growth as an aid to dominion</li> <li>Value of all human life</li> <li>Using technology to improve human life</li> </ul>
59	Lab 9A, <i>Fix It!</i>				
60	9C Genetic Engineering	<ul style="list-style-type: none"> <li>Give support for the importance of gene sequencing.</li> <li>Diagram how a gene can be transferred from one organism to another.</li> <li>List and explain four ways that DNA can be manipulated.</li> <li>Evaluate the benefits and dangers of DNA manipulation.</li> </ul>	168–73	Webquest Rubric	<ul style="list-style-type: none"> <li>Evaluating research in the light of the Bible</li> <li>Using scientific discoveries to glorify God and help others</li> </ul>
61–62	Lab 9B, <i>Whodunit?</i>				
	Chapter 9 Review				
63	Chapter 9 Test				

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<b>Chapter 10 When Worldviews Collide</b>					
64–65	10A The Origins Question	<ul style="list-style-type: none"> <li>Summarize the history of evolutionary thinking.</li> <li>List and define the three primary supports for modern evolutionary theory.</li> <li>Evaluate popular nonliteral interpretations of the Creation account.</li> <li>Recognize the two main differences between biblical creation and evolution.</li> </ul>	178–87	Lab 10A, <i>In Darwin's Own Words</i>	<ul style="list-style-type: none"> <li>Biblical worldview versus naturalistic worldview</li> <li>Supremacy and inerrancy of Scripture</li> <li>Importance of and support for a literal interpretation of Scripture</li> <li>Results of believing evolutionary theory</li> <li>Death as a result of the Fall</li> <li>Catastrophic results of the Flood</li> <li>Role of the Flood in fossil formation</li> <li>God's creation of all life</li> <li>Need for faith in Christ</li> <li>Creationist presuppositions versus evolutionist presuppositions</li> </ul>
66–67	10B Change in Nature	<ul style="list-style-type: none"> <li>Explain the different ways that populations of organisms can change.</li> <li>Differentiate between adaptation and evolution.</li> <li>Evaluate the different supports for evolution in light of a biblical worldview.</li> </ul>	187–200	Webquest Rubric	<ul style="list-style-type: none"> <li>Infallibility of the Bible</li> <li>Scripture as the ultimate, unchanging standard</li> <li>God's Word versus man's wisdom</li> <li>Relevance of the literal Creation account to the Christian faith</li> <li>Intelligent design and biblical creationism</li> <li>God's design and efficiency in creation</li> <li>Response to nonliteral interpretations of Creation</li> <li>God's merciful plan of redemption</li> <li>Special creation of man and God's care for him</li> <li>God's glory in creation</li> </ul>
68	Chapter 10 Review			Lab 10B, <i>Worldview Sleuthing</i>	
69	Chapter 10 Test				

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<b>Chapter 11 Classifying Life</b>					
70–71	11A Taxonomy	<ul style="list-style-type: none"> <li>• Discuss the importance of classifying living things.</li> <li>• Associate classification with the model-making nature of biology.</li> <li>• List the eight levels of taxonomy.</li> <li>• Create a graphic organizer illustrating the identifying traits and examples of the seven kingdoms.</li> <li>• Construct a scientific name.</li> </ul>	207–12	Lab 11A, <i>The Key Concept</i>	<ul style="list-style-type: none"> <li>• God’s design in creation</li> <li>• Use of knowledge and opportunity as a means of practicing good dominion</li> <li>• Creationist view of speciation</li> <li>• Importance of evaluating things on the basis of Scripture and its worldview</li> </ul>
72–73	11B Unity and Diversity	<ul style="list-style-type: none"> <li>• Differentiate between traditional and modern classification.</li> <li>• Respond to the evolutionary argument that classification can be used to support evolution.</li> </ul>	213–17	Lab 11B, <i>All Myxed Up</i>	<ul style="list-style-type: none"> <li>• God’s design in creation</li> <li>• Variety as an expression of God’s creativity</li> </ul>
	Chapter 11 Review				
74	Chapter 11 Test				
<b>Chapter 12 Prokaryotes and Viruses</b>					
75–76	12A Prokaryotes	<ul style="list-style-type: none"> <li>• Distinguish archaea from bacteria.</li> <li>• Draw the structure of a bacterium.</li> <li>• Summarize the different ways that bacteria can transfer their DNA.</li> <li>• Explain the function of bacteria in the environment.</li> <li>• Identify several diseases caused by bacteria.</li> </ul>	221–27		<ul style="list-style-type: none"> <li>• Creationist presuppositions versus evolutionist presuppositions</li> <li>• Similarity in form or function as an evidence of God’s design</li> <li>• Success of pathogenic organisms as a result of the Fall and Curse</li> </ul>
	Lab 12A, <i>Squeaky Clean</i>				
77–78	12B Viruses	<ul style="list-style-type: none"> <li>• Identify viruses as carriers of genetic information.</li> <li>• Compare viruses to bacteria.</li> <li>• Label the structures of a virus.</li> <li>• Differentiate between a lytic and a lysogenic infection.</li> <li>• Identify useful applications of and diseases caused by viruses.</li> </ul>	228–33		<ul style="list-style-type: none"> <li>• Advances in biotechnology as a means of caring for people</li> <li>• Disease as a result of sin</li> </ul>
79	Lab 12B, <i>One Slick Solution</i>				
80	Chapter 12 Review				
81	Chapter 12 Test				

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<b>Chapter 13: Protists and Fungi</b>					
82–83	13A Kingdom Protozoa	<ul style="list-style-type: none"> <li>• Explain kingdom protozoa's place in classification.</li> <li>• Use drawings or other models to depict the structures and movements of common protozoans.</li> <li>• Describe the different kinds of protozoan reproduction.</li> <li>• List several protozoans that are harmful to people and the environment.</li> </ul>	238–43		<ul style="list-style-type: none"> <li>• Use of knowledge to improve people's lives</li> <li>• Managing pathogens to protect life</li> <li>• Serving with the discipline to bring God glory</li> </ul>
<i>Lab 13A, Wee, Watery World</i>					
84	13B Kingdom Chromista	<ul style="list-style-type: none"> <li>• Compare the two groups of protists using a graphic organizer.</li> <li>• Describe the different kinds of chromist reproduction.</li> <li>• Evaluate the evolutionary idea that multicellular organisms came from unicellular protists.</li> <li>• Describe how chromists contribute to life on Earth.</li> </ul>	244–47		<ul style="list-style-type: none"> <li>• Creationist presuppositions versus evolutionist presuppositions</li> <li>• Variety as an expression of God's creativity</li> </ul>
85–86	13C Kingdom Fungi	<ul style="list-style-type: none"> <li>• Classify fungi on the basis of their reproduction.</li> <li>• Draw and label the structure of a mushroom.</li> <li>• Describe the ways that fungi reproduce.</li> <li>• Explain the relationship of algae and fungi in lichens.</li> <li>• Suggest both beneficial and harmful ways that fungi interact with the environment.</li> </ul>	248–54		<ul style="list-style-type: none"> <li>• Serving with the discipline to bring God glory</li> <li>• The modeling nature of science</li> <li>• Questioning the evolutionary paradigm shaping current classification in biology</li> </ul>
<i>Lab 13B, Zygo's a Fun Guy</i>					
87	Chapter 13 Review				
88	Chapter 13 Test				
<b>Final Material</b>					
89	Semester Exam Review				
90	Semester Exam				

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<b>Chapter 14: Plant Classification and Structure</b>					
91	14A Kingdom Plantae	<ul style="list-style-type: none"> <li>Differentiate plants from other living organisms.</li> <li>Differentiate between the four types of plants.</li> <li>Relate plant size to tissue type.</li> </ul>	259–61		<ul style="list-style-type: none"> <li>God’s design in His creation</li> <li>God’s care of His creation</li> <li>Good stewardship of God’s creation</li> </ul>
92–93	14B The Structure of Plants	<ul style="list-style-type: none"> <li>Relate the different types of plant cells and tissues to their function in plant organs.</li> <li>Diagram the structure of leaves, stems, and roots.</li> <li>Explain the function of leaves, stems, and roots.</li> </ul>	262–69		
94	Lab 14A, <i>Name that Plant</i>				
95–96	14C The Life Cycles of Plants	<ul style="list-style-type: none"> <li>Describe the life cycles of bryophytes and ferns.</li> <li>Compare gymnosperm and angiosperm reproduction.</li> <li>Diagram the structure of a flower.</li> <li>Diagram the structure of a seed.</li> <li>Create a flow chart that illustrates the life cycle of an angiosperm.</li> <li>Evaluate using plants that are easily misused.</li> </ul>	270–79		<ul style="list-style-type: none"> <li>Good stewardship of God’s creation</li> <li>God’s design in His creation</li> </ul>
	Chapter 14 Review				
97	Lab 14B, <i>A Fruitful Lab</i>				
98	Chapter 14 Test				
<b>Chapter 15: Plant Processes</b>					
99	15A Transporting Nutrients	<ul style="list-style-type: none"> <li>Discuss the theories for the movement of sap throughout a plant.</li> <li>Trace the path of water and minerals through a plant.</li> <li>Explain how nutrients from the soil enter a plant.</li> <li>Understand that scientific models are not truth and can and should be updated to incorporate new data.</li> </ul>	285–87	Lab 15B, <i>Too Salty?</i>	<ul style="list-style-type: none"> <li>Good stewardship of God’s creation</li> <li>Modeling nature of science versus the eternity of God’s truth</li> </ul>
100–101	15B Plant Responses	<ul style="list-style-type: none"> <li>Explain the effects that different hormones have on plants.</li> <li>Relate plant growth to different stimuli in the environment.</li> <li>Describe the different ways that light affects plants.</li> </ul>	288–92		<ul style="list-style-type: none"> <li>God’s care of His creation</li> </ul>

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<b>Chapter 15: Plant Processes</b> <i>(continued)</i>					
102	Lab 15A, <i>Bananamania</i>				
103	15C Using Plants Wisely	<ul style="list-style-type: none"> <li>Describe the different ways that plants can be produced vegetatively.</li> <li>List several ways that people use plants.</li> <li>Assess the importance of plants to biogeochemical cycles.</li> <li>Analyze, on the basis of a biblical worldview, the advantages and disadvantages of genetically modifying plants.</li> </ul>	293–98	Webquest Rubric	<ul style="list-style-type: none"> <li>Man’s responsibility to be wise stewards of God’s creation</li> <li>God’s provision for His creation</li> </ul>
Chapter 15 Review					
104	Chapter 15 Test				
<b>Chapter 16: Invertebrates</b>					
105	16A Kingdom Animalia	<ul style="list-style-type: none"> <li>List the characteristics of animals and give examples.</li> <li>Use a T-chart to compare endotherms and ectotherms.</li> <li>Relate animal body plans and symmetry to germ layers.</li> <li>List and describe the different kinds of sexual reproduction in animals.</li> <li>Relate the different responses animals have to their environments and to each other.</li> </ul>	305–12		<ul style="list-style-type: none"> <li>Wise management of God’s creation</li> <li>Man’s dominion over animals</li> <li>God’s care for His creation</li> <li>Living things reproduce after their own kind.</li> </ul>
106–107	16B Sponges and Cnidarians	<ul style="list-style-type: none"> <li>Describe the general characteristics of sponges.</li> <li>Explain how sponges feed and reproduce.</li> <li>Create a concept definition map that communicates the general characteristics of cnidarians.</li> <li>Describe how cnidarians feed and reproduce.</li> <li>Explain how sponges and cnidarians contribute to the environment.</li> </ul>	312–17		<ul style="list-style-type: none"> <li>Wise stewardship of natural resources</li> </ul>
Lab 16A, <i>The Immortals Next Door</i>					

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<b>Chapter 16: Invertebrates</b> (continued)					
108–109	16C Worms	<ul style="list-style-type: none"> <li>• Differentiate between flatworms, roundworms, and segmented worms.</li> <li>• Describe the general characteristics of worms.</li> <li>• Explain how the three phyla of worms feed and reproduce.</li> <li>• Give examples of how we can manage and use worm populations in the environment.</li> </ul>	318–22		
	16D Mollusks	<ul style="list-style-type: none"> <li>• Describe the general characteristics of mollusks.</li> <li>• Differentiate between bivalves, gastropods, and cephalopods.</li> <li>• Explain how mollusks reproduce.</li> <li>• Give examples of how mollusks interact with their environment.</li> </ul>	323–25		<ul style="list-style-type: none"> <li>• Using stewardship to glorify God</li> </ul>
110	Lab 16B, <i>Fish Tank Fiend!</i>				
111	16E Echinoderms	<ul style="list-style-type: none"> <li>• Describe the general characteristics of echinoderms.</li> <li>• Compare the five classes of echinoderms using a graphic organizer.</li> <li>• Explain how echinoderms reproduce.</li> <li>• Give examples of how echinoderms interact with their environment.</li> </ul>	326–28		<ul style="list-style-type: none"> <li>• Unique design in echinoderms as evidence for creation</li> <li>• Creation declares the glory of God.</li> </ul>
	Chapter 16 Review				
112	Chapter 16 Test				
<b>Chapter 17: Arthropods</b>					
113	17A Arthropod Introduction and Chelicerates	<ul style="list-style-type: none"> <li>• Describe the general characteristics of arthropods.</li> <li>• List the general characteristics of chelicerates.</li> <li>• Explain how chelicerates feed and reproduce.</li> <li>• Describe how chelicerates affect their environment.</li> </ul>	333–38		<ul style="list-style-type: none"> <li>• Unexpected consequences of man's dominion efforts</li> <li>• Analyzing presuppositions</li> </ul>
114–115	17B Crustaceans	<ul style="list-style-type: none"> <li>• Differentiate crustaceans from other arthropods.</li> <li>• Explain how crustaceans feed and reproduce.</li> <li>• Give examples of how crustaceans exert influence on their environment.</li> </ul>	338–41		
	Lab 17A, <i>Take a Crack at Crayfish</i>				

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 17: Arthropods (continued)</b>					
116	17C Insects	<ul style="list-style-type: none"> <li>List the general characteristics of insects.</li> <li>Explain how insects feed and reproduce.</li> <li>Suggest ways to wisely control insects and use them in the environment to help people.</li> </ul>	341–47		<ul style="list-style-type: none"> <li>God’s provision for His creation</li> <li>Managing God’s resources to meet the needs of His creatures</li> </ul>
Chapter 17 Review					
117	Lab 17B, <i>Cricket Caper</i>				
118	Chapter 17 Test				
<b>Chapter 18: Ectothermic Vertebrates</b>					
119–120	18A Chordate Introduction and Fish	<ul style="list-style-type: none"> <li>Describe the general characteristics of fish.</li> <li>Compare hagfish and lampreys to other fish.</li> <li>Differentiate between cartilaginous fishes and bony fishes.</li> <li>Trace the flow of oxygen through the circulatory system of a bony fish.</li> <li>Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a bony fish.</li> </ul>	351–57	Lab 18A, <i>Something Fishy Going On</i>	<ul style="list-style-type: none"> <li>Humans created in the image of God</li> <li>Man’s responsibility to exercise informed, balanced dominion over all animal life</li> <li>Evidence of design in creation</li> </ul>
121	18B Amphibians	<ul style="list-style-type: none"> <li>Describe the general characteristics of amphibians.</li> <li>Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a frog.</li> <li>Recommend a way that amphibians can be biblically conserved.</li> </ul>	358–62		<ul style="list-style-type: none"> <li>Making wise decisions in exercising dominion</li> </ul>
122	18C Reptiles	<ul style="list-style-type: none"> <li>List the structures of an amniotic egg and their functions.</li> <li>Describe the general characteristics of reptiles.</li> <li>Compare the four orders of reptiles.</li> <li>Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a reptile.</li> </ul>	363–69		<ul style="list-style-type: none"> <li>God’s design and use of reptiles</li> <li>Dinosaurs in the Bible</li> </ul>
Chapter 18 Review					
123	Finish Lab 18A, <i>Something Fishy Going On</i> . Complete Lab 18B, <i>Reptile Repasts</i>				
124	Chapter 18 Test				

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 19: Endothermic Vertebrates</b>					
125–126	19A Birds	<ul style="list-style-type: none"> <li>Describe the general characteristics of birds.</li> <li>Label the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a bird.</li> <li>Explain how birds are designed for flight.</li> <li>Relate birds' beaks, wings, and feet to their environments.</li> <li>List several behaviors of birds.</li> </ul>	374–81	Lab 19A, <i>Our Fine, Feathered Friends</i>	<ul style="list-style-type: none"> <li>Interpreting evidence on the basis of a Biblical worldview</li> <li>Structure and function of the bird's body as evidence of God's design</li> </ul>
127–128	19B Mammals	<ul style="list-style-type: none"> <li>Describe the general characteristics of mammals.</li> <li>Identify the major organs of the circulatory, nervous, digestive, excretory, and reproductive systems of a mammal.</li> <li>Compare the reproduction strategies of eutherians, monotremes, and marsupials.</li> <li>Compare the major orders of mammals.</li> <li>Suggest several ways that a scientist can produce useful science during an evolution-driven study.</li> </ul>	382–89		<ul style="list-style-type: none"> <li>Structure and function of the bird's body as evidence of God's design</li> <li>Man's dominion over animals</li> <li>God's preservation of His creation</li> </ul>
129	Lab 19B, <i>Why, It's Amazing!</i>				
130	Chapter 19 Review				
131	Chapter 19 Test				
<b>Chapter 20: Protection</b>					
132	20A The Study of You	<ul style="list-style-type: none"> <li>Explain how humans are different from other living things.</li> <li>Differentiate between the kinds of tissues found in the human body.</li> <li>Summarize the function of each system in the human body.</li> <li>Evaluate how believers should view the study of the body.</li> </ul>	395–400		<ul style="list-style-type: none"> <li>The meaning of man's being created in God's image</li> <li>Man as a spiritual being</li> <li>Exercising dominion in caring for human life—that of others and of ourselves</li> <li>The image of God in man marred by the Fall</li> <li>Man's sinful nature</li> <li>Developing an understanding of science from a biblical worldview</li> </ul>
133	Lab 20A, <i>Chill Out!</i>				
134	20B The Integumentary System	<ul style="list-style-type: none"> <li>List the layers that make up the integumentary system and their functions.</li> <li>Describe the purposes of the skin.</li> <li>Explain how each body system presents itself in the skin.</li> </ul>	401–4		<ul style="list-style-type: none"> <li>Evidence of design in neural receptors</li> </ul>

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 20: Protection</b> (continued)					
135–136	20C The Lymphatic System and Immunity	<ul style="list-style-type: none"> <li>List the tissues and organs of the lymphatic system.</li> <li>Describe what lymph does as it travels through the different systems of the body.</li> <li>Explain the role of the lymphatic system in immunity and homeostasis.</li> <li>Compare humoral and cell-mediated immunity.</li> <li>List several ways that the immune system can react.</li> </ul>	405–10	Lab 20B, <i>Are You Aware?</i>	<ul style="list-style-type: none"> <li>Interpreting data from a biblical worldview</li> <li>Humans are fearfully and wonderfully created.</li> <li>Sin producing disease and suffering</li> </ul>
	Chapter 20 Review				
137	Chapter 20 Test				
<b>Chapter 21: Support and Movement</b>					
138–139	21A The Skeletal System	<ul style="list-style-type: none"> <li>Differentiate between the axial and appendicular skeletons.</li> <li>Label the main bones of the skeletal system on a diagram.</li> <li>Describe the structure of a bone.</li> <li>Differentiate between compact bone and spongy bone.</li> <li>Relate the different joint structures to their movements.</li> <li>Explain how a bone forms and is remodeled.</li> </ul>	415–20		<ul style="list-style-type: none"> <li>Using science to practice dominion in helping people</li> <li>Structure and function of the human skeletal system as evidence of God’s design</li> </ul>
140	Lab 21A, <i>Dry Bones</i>				
141–142	21B The Muscular System	<ul style="list-style-type: none"> <li>Differentiate between the three kinds of muscle and describe their roles.</li> <li>Label the main muscles of the muscular system on a diagram.</li> <li>Illustrate the process of muscle movement on the cellular level, using drawings or a model.</li> <li>Describe how muscles use energy to contract.</li> <li>Explain how muscles rely on other muscles and body systems to operate.</li> <li>Evaluate the idea that combining different areas of science is a way to better solve problems and to help others.</li> </ul>	420–25		<ul style="list-style-type: none"> <li>Exercising dominion to help improve the quality of life for others</li> </ul>
143	Lab 21B, <i>I’m So Tired!</i>				
144	Chapter 21 Review				
145	Chapter 21 Test				

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 22: Transport</b>					
146–147	22A The Respiratory System	<ul style="list-style-type: none"> <li>List the major organs of the respiratory system and describe their functions.</li> <li>Explain how gas is exchanged in the lungs.</li> <li>Diagram the process of breathing.</li> <li>List factors that affect breathing.</li> </ul>	430–33		<ul style="list-style-type: none"> <li>Wise stewardship of the human body</li> </ul>
148	Lab 22A, <i>Relax and Take a Deep Breath</i>				
149–150	22B The Circulatory System	<ul style="list-style-type: none"> <li>List the major organs and tissues of the circulatory system and describe their functions.</li> <li>Describe the structure of the heart.</li> <li>Describe the purpose of each part of blood.</li> <li>Differentiate between the flow of blood through an artery and through a vein.</li> <li>Relate the circulatory system to the respiratory system.</li> <li>Trace the flow of oxygen and carbon dioxide through the heart and lungs.</li> <li>Differentiate between systemic and pulmonary circulation.</li> </ul>	434–39		<ul style="list-style-type: none"> <li>Our bodies are not our own.</li> <li>Caring for the body for God's glory</li> </ul>
151	Lab 22B, <i>Feeling the Pressure</i>				
152	Chapter 22 Review				
153	Chapter 22 Test				
<b>Chapter 23: Energy</b>					
154–155	23A The Digestive System	<ul style="list-style-type: none"> <li>List the six nutrients the body needs and describe their roles.</li> <li>Explain how the body takes in, distributes, and eliminates nutrients.</li> <li>Compare mechanical and chemical digestion.</li> <li>List the organs of the digestive system and describe their functions.</li> <li>Explain how digestion provides the glucose needed for cellular respiration.</li> <li>Suggest ways to help people take care of their bodies by balancing their food intake with their activity level.</li> </ul>	444–50		<ul style="list-style-type: none"> <li>Caring for our bodies as good stewardship</li> <li>Eating and exercising to glorify God</li> </ul>

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 23: Energy (continued)</b>					
156	Lab 23, <i>A Calorimetry in a Can</i>				
157	23B The Urinary System	<ul style="list-style-type: none"> <li>List the organs of the urinary system and describe their functions.</li> <li>Explain how the kidneys filter and recycle the materials in blood.</li> <li>List organs from other body systems that are involved in excretion.</li> <li>Explain why drinking water helps the body maintain homeostasis.</li> </ul>	452–55		<ul style="list-style-type: none"> <li>Keeping your body healthy, so that you can glorify the Lord in your best service</li> </ul>
158–159	Lab 23B, <i>What a Waste!</i>				
	Chapter 23 Review				
160	Chapter 23 Test				
<b>Chapter 24: Communication</b>					
161–162	24A The Nervous System	<ul style="list-style-type: none"> <li>Differentiate between the central nervous system and the peripheral nervous system.</li> <li>Trace the flow of a signal through a neuron.</li> <li>Label the parts of the brain.</li> <li>Explain how the hypothalamus acts as the link between the nervous and endocrine systems.</li> <li>Explain how the three types of neurons work together in a reflex arc.</li> </ul>	459–65		<ul style="list-style-type: none"> <li>Improving the quality of life of God's image bearers</li> <li>God's design of the nervous system</li> </ul>
163–164	24B The Sensory Organs	<ul style="list-style-type: none"> <li>Describe the major structures of the eye.</li> <li>Describe the major structures of the ear.</li> <li>Describe the purpose of each kind of sensory receptor.</li> <li>Describe how each kind of sensory receptor works with sensory organs.</li> <li>Relate the importance of sensing the world to a person's growth and development.</li> <li>Relate the ability to feel pain to God's care for mankind.</li> </ul>	465–73		<ul style="list-style-type: none"> <li>Preventing disease to improve the quality of human life</li> </ul>
165	Lab 24A, <i>Sensational!</i>				

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 24: Communication</b> <i>(continued)</i>					
166–167	24C The Endocrine System	<ul style="list-style-type: none"> <li>• Differentiate between the speed of the nervous system and that of the endocrine system.</li> <li>• Explain how steroid and nonsteroid hormones communicate with cells.</li> <li>• Describe the function of the different glands and the hormones they secrete.</li> <li>• Explain how glands are controlled by negative feedback.</li> <li>• Describe how hormones prepare the body for puberty.</li> <li>• Explain how hormones are affected by our fallen nature.</li> </ul>	473–78		<ul style="list-style-type: none"> <li>• Man as a spiritual being</li> <li>• God’s grace is sufficient to meet all our needs.</li> </ul>
	Chapter 24 Review				
168	Chapter 24 Test				
169–171	Lab 24B, <i>Rat Recap</i>				
<b>Chapter 25: Reproduction, Growth, and Health</b>					
172–173	25A The Reproductive System	<ul style="list-style-type: none"> <li>• Describe the function of the male reproductive organs.</li> <li>• Describe the function of the female reproductive organs.</li> <li>• Explain how an ovum is produced, fertilized, and transported from an ovary to the uterus.</li> <li>• Explain how sin and the Curse affect human sexuality and reproduction.</li> </ul>	483–91	Lab 25A, <i>Unusual Development</i>	<ul style="list-style-type: none"> <li>• Fulfilling the Creation Mandate to have children</li> <li>• Man is God’s highest creation.</li> <li>• God alone has the authority to determine what is good.</li> <li>• The image of God in man marred by the Fall</li> <li>• Biblical principles of marriage</li> <li>• Relationship between man and wife as an example of the relationship between Christ and the church</li> <li>• The Bible’s challenge to have a pure life</li> <li>• Christ’s provision of Redemption</li> <li>• Avoiding situations that can lead to temptation</li> <li>• The value of human life</li> <li>• The Bible and abortion</li> <li>• Grace to deal with suffering</li> </ul>

Day(s)	Topic	Objectives	Pages	Support Materials	Biblical Worldview
<b>Chapter 25: Reproduction, Growth, and Health</b> <i>(continued)</i>					
174–175	25B Human Growth and Development	<ul style="list-style-type: none"> <li>Trace the development of an embryo from implantation to birth.</li> <li>Compare the body of a child to that of an infant.</li> <li>Describe the changes in a person's body associated with puberty.</li> <li>Associate the changes in puberty with the function of the endocrine system.</li> <li>Predict how a student's body will change as he gets older.</li> </ul>	491–97	Lab 25B, <i>Fast Food Fact-Finding</i>	<ul style="list-style-type: none"> <li>The Bible's challenge to have a pure life</li> <li>Thinking about death from a biblical perspective</li> <li>Sex and gender are designed by God to be aligned.</li> <li>God's way is always best.</li> <li>God determines the number of our days.</li> <li>Christians will spend an eternity in heaven.</li> <li>Christ has conquered death.</li> </ul>
176–177	25C Balanced Living	<ul style="list-style-type: none"> <li>List what substances people can ingest that affect the body's homeostasis.</li> <li>Explain how exercise, sleep, and hygiene are linked to maintaining homeostasis.</li> <li>Relate the importance of mental health and healthy relationships to physical health.</li> <li>Evaluate whether the decisions that people make regarding health are based on God's Word.</li> </ul>	497–502		<ul style="list-style-type: none"> <li>Our bodies are the temple of the Holy Spirit.</li> <li>We should do all to the glory of God.</li> <li>Christ alone satisfies my needs.</li> <li>Human life is physical, mental, social, and spiritual.</li> <li>Biblical principles of marriage</li> <li>Our hope can be found only in Christ.</li> </ul>
	Chapter 25 Review				
178	Chapter 25 Test				
<b>Final Material</b>					
179	Semester Exam Review				
180	Semester Exam				