

## Biology, 4<sup>th</sup> Edition Lesson Plan Overview

Day(s)	Topic	Pages	Support Materials	Bible Integration*
<b>Chapter 1: The Science of Life and the God of Life</b>				
1–2	1.1 What Is Truth?	2–8		Relationship between God and science Redemption of the world God and Creation Deductive reasoning and worldviews God and syllogisms God's Word as Truth
	1.2 What Is Science?	8–10		Dominion through modeling
3	1.3 Using the Scientific Method	10–15		
	1.4 The Limits of Science	15–17		
4	1.5 Science and the Christian	17–20		Christian philosophy of science Divinely ordained destruction in conquering the Promised Land Proper view of worship
	1.6 The Attributes of Life	20–23		
5			Lab 1a The Scientific Method	
6	1.7 The Study of Life	23–30		
7				
8			Lab 1b The Microscope	
9	Chapter 1 Review			
10	Chapter 1 Test			
<b>Chapter 2: The Chemistry of Life</b>				
11–13	2.1 Matter	31–36		
	2.2 Energy	36–40		Sustaining power of God in nature
	2.3 Solutions	41–45		
	2.4 Organic Compounds	45–47		God's role both in creating and sustaining life
14			Lab 2 Osmosis	
15–16	2.5 Carbohydrates and Lipids	47–50		
	2.6 Proteins and Nucleic Acids	50–54		
	Chapter 2 Review			
17	Chapter 2 Test			
<b>Chapter 3: Introduction to Cells <i>Cytology Part I</i></b>				
18–19	3.1 Cell Theory	55–58		God's power revealed through His creation
	3.2 Levels of Cellular Organization	59–60		

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	3.3 Cellular Anatomy	60–70		Creation and the law of conservation
20	3.4 Homeostasis	70–73		Evidence of design in creation
	3.5 Transportation Across the Membrane	74–76		
21			Lab 3a Basic Cytology Lab 3b Cellular Organelles and Processes	
22	Chapter 3 Review			
23	Chapter 3 Test			
<b>Chapter 4: Cellular Processes    <i>Cytology Part II</i></b>				
24–25	4.1 Energy Relationships	77–80		Evidence of God’s design at the molecular level
	4.2 Photosynthesis	80–85	Lab 4 Photosynthesis	Creation vs. evolution in studying photosynthesis
26	4.3 Cellular Respiration	85–91		
27	4.4 Protein Synthesis	91–97		Creator’s design of the “code of life” Evidence of design in mitochondrial DNA
28	4.5 Metabolism and Homeostasis	97–100		
	Chapter 4 Review			
29	Chapter 4 Test			
<b>Chapter 5: Genetics    <i>The Continuity of Life Part I</i></b>				
30–31	5.1 The Mechanism of Heredity	101–5		Genetics and environment as excuses for sin by secularists Influence of man’s spiritual nature in his development Jesus’s power to save from sin
	5.2 Cell Division	105–8		
	5.3 Meiosis	108–12		
32			Lab 5a Mitosis and Meiosis	
33	5.4 Mendelian Genetics	112–17	Lab 5b, Genetics Parts I–II**	
34	5.5 Variations of Mendelian Genetics	117–22	Lab 5b, Genetics Parts III–V**	
35	5.6 Sex Determination and Sex-Linked Traits	123–26	Lab 5b, Genetics Part VI**	
36	Chapter 5 Review			
37	Chapter 5 Test			
<b>Chapter 6: Advanced Genetics    <i>The Continuity of Life Part II</i></b>				

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38	6.1 Changes Affecting the Numbers of Chromosomes	128–33	Lab 6 Genetic Research**	Stewardship in agriculture
	6.2 Mutations	133–37		
39	6.3 Gene Expression	137–42		God's wisdom and power seen through the development of an embryo Suffering as evidence of man's sin and God's grace
40	6.4 The Gene Pool	142–46		
41	6.5 Eugenics	146–51		Importance of understanding biblical principles as they apply to scientific issues Influence of man's spiritual nature on his behavior Christians and surrogacy Christians' use of genetic technologies Ethical and moral issues surrounding artificial reproduction The Bible as the source of values Man's suffering because of sin Man's need of salvation Sanctity of human life
	If assigned, have students present Lab 6 research.			
42	Chapter 6 Test			
<b>Chapter 7: Biotechnology</b>				
43	7.1 Clones and Cloning	152–56		Sanctity of human life Biblical response to human cloning
44	7.2 Genetic Engineering	156–58		
	7.3 Stem Cell Technology	158–61		Evaluating stem cell research in light of the Bible Using scientific discoveries to glorify God and help others
45	7.4 Gene Therapy	161–62		
	7.5 DNA Fingerprints	163–65		
	7.6 Genetically Modified Plants	165–67		Stewardship of God-given resources
46			Lab 7a DNA Extraction	
			Lab 7b DNA Analysis**	
47	Chapter 7 Test			
<b>Chapter 8: The History of Life</b>				
48	8.1 What Is a Worldview?	168–70		Importance of presuppositions to a worldview

Day(s)	Topic	Pages	Support Materials	Bible Integration*
	8.2 Which Worldview Should We Use?	170–74		Christian worldview vs. secular worldview Authority of Scripture Results of believing evolutionary theory Stewardship Declaring God's glory Spreading the gospel Showing love for others Need for faith in Christ Creationist presuppositions vs. evolutionist presuppositions
49	8.3 The Beginnings of Evolutionary Theory	174–76	Lab 8 Creationism: My Beliefs and Their Defense**	Creation with apparent age God's Word vs. man's wisdom
	8.4 Darwin's Theory of Evolution	176–80		Biblical response to environmental determinism Special creation of man God's glory in creation
50	8.5 Later Developments in Evolutionary Theory	180–88		Role of the Flood in fossil formation God's design and efficiency in creation
51	8.6 Interpretation of Genesis	189–93		Inerrancy of Scripture Response to nonliteral interpretations of Creation Genesis account of Creation Importance of and support for a literal interpretation of Scripture Authority of Scripture Relevance of the literal Creation account to the Christian faith Intelligent design and biblical Creationism Scripture as the ultimate, unchanging standard
	8.7 Noah's Flood and Fossilization	193–99		Genesis account of the Flood Noah's ark Scripture passages comparing the antediluvian and postdiluvian earth Support for a universal Flood God's covenant with Noah Noah's Flood as an explanation for fossilization
53	Chapter 8 Review			
54	Chapter 8 Test			
<b>Chapter 9: The Classification of Organisms</b>				
55	9.1 The Classification Hierarchy	202–9		God's design in creation
	9.2 Scientific Names	209–12		
56	9.3 The Species	212–16		God's design in creation Creationist view of speciation

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	9.4 The Biblical Kind	217–20		Noah's Flood and the biblical kind God's design in creation Importance of evaluating things based on Scripture
57			Lab 9 The Use of Biological Keys	
58	Chapter 9 Review			
59	Chapter 9 Test			
<b>Chapter 10: Bacteria and Viruses</b>				
60–61	10.1 Bacterial Classification and Morphology	221–26		Evidence of detail in God's creation
	10.2 Bacterial Reproduction and Growth	226–32		Creationism and accelerated mutation rates God's design in creation
	10.3 Virology	232–35		
62			Lab 10a Bacterial Basics Lab 10b Bacteria and Antibiotics or Lab 10c Epidemic Alert	
63	10.3 Virology (cont'd)	235–38		Evolutionary bias in the search for the "first living thing"
	10.4 Viral Diseases	238–40		
64–65	10.5 Infectious Disease	240–45		Disease as a result of the Fall and Curse Disease as a means of grace Christ's miracles of healing Helping those who suffer from disease Leprosy in Bible times Disease and God's providence
	10.6 Defense Against Infectious Disease	245–50		The body's defenses against disease as evidence of God's loving care for His creation and as evidence against evolution
	10.7 Disorders	250–54		Biblical perspective on aging and death Future glorified body and eternal life for believers God's power over life and death Christ's victory over physical and spiritual death
66	Chapter 10 Review			
67	Chapter 10 Test			
<b>Chapter 11: The Kingdom Protista</b>				
68–69	11.1 General Characteristics (of Protozoans)	255–56		Creation of protozoans
	11.2 Protozoan Classification	257–63		
	11.3 General Characteristics (of Algae)	263–66		

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70	11.4 Algal Classification	266–72		The first plague of Egypt and a biblical response to a modernist interpretation of Scripture
	11.5 The Water Molds	272–73		
	11.6 The Slime Molds	273–74		
71–73			Lab 11 Protista	
74	Chapter 11 Review			
75	Chapter 11 Test			
<b>Chapter 12: The Kingdom Fungi</b>				
76	12.A Fungi and Man	275–79		Leavening in the Bible
	12.B Characteristics of Fungi	279–81		
77	12.C Classification of Fungi	281–86		
78			Lab 12 Fungi and Lichens	
79	Chapter 12 Test			
<b>Chapter 13: The Plant Kingdom <i>Botany Part I</i></b>				
80	13.1 Nonvascular Plants	287–91		God's care of His creation
81	13.2 Vascular Plants Without Seeds	291–93		
	13.3 Vascular Plants with Seeds	294–98		The cedar of Lebanon and Solomon's temple Biblical response to the evolutionary interpretation of the age of trees
82			Lab 13a Plant Identification	
83	13.4 Plant Tissues	298–300		
	13.5 The Leaf	300–304		
84	13.6 The Root	304–7		
	13.7 The Stem	307–13		
85			Lab 13b Plant Organs	
86	Chapter 13 Test			
<b>Chapter 14: The Life Processes of Plants <i>Botany Part II</i></b>				
87	14.1 Plants and Water	314–19		God's design of plants A plant's needing water for physical growth as an analogy for a Christian's needing God's Word for spiritual growth
	14.2 Plants and Minerals	319–22		
88	14.3 Plant Hormones	322–26		

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	14.4 Plants and Light	326–28		
89	14.5 Vegetative Reproduction	328–31		Grafting in the Bible
	14.6 Sexual Reproduction	332–39		
90			Lab 14 Flowers, Fruits, and Seeds	
91	Chapter 14 Review			
92	Chapter 14 Test			
<b>Chapter 15: The Invertebrates <i>Zoology Part I</i></b>				
93	15.1 Characteristics of the Kingdom Animalia	340–42		Adam's naming of the animals Man's dominion over animals The Fall's effect on animals
	15.2 Animal Anatomy and Classification	342–44		
94	15.3 Phylum Porifera: The Sponges	345–47		
	15.4 Phylum Cnidaria	347–51		Stewardship
95			Lab 15a Porifera Lab 15b Cnidaria	
96	15.5 Phylum Platyhelminthes: The Flatworms	351–57		Jewish dietary laws and trichinosis
	15.6 Phylum Nematoda: The Roundworms	357–59		Worms in the Bible
97	15.7 Phylum Annelida: The Segmented Worms	359–62		
98	15.8 Phylum Mollusca	362–66	Lab 15c Worms I: Platyhelminthes and Nematoda Lab 15d Worms II: Annelida	Unique design in echinoderms as evidence for creation
	15.9 Phylum Echinodermata	366–68		
99	Chapter 15 Review			
100	Chapter 15 Test			
<b>Chapter 16: The Arthropods <i>Zoology Part II</i></b>				
101	16.1 Characteristics of Arthropods	369–71		
	16.2 Subphylum Crustacea	371–73		
102			Lab 16a Crustaceans	
103	16.3 Subphylum Chelicerata	374–76		

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	16.4 Characteristics of Insects	377–83		God's design and care of His creation
104	16.5 Major Orders of Insects	384–90		Insects as a plague recorded in Exodus Stewardship
105			Lab 16b The Grasshopper Lab 16c Insect Orders	
106	Chapter 16 Review			
107	Chapter 16 Test			
<b>Chapter 17: The Ectothermic Vertebrates <i>Zoology Part III</i></b>				
108	17.1 The Chordates	391–93		
109	17.2 Vertebrate Form and Function	394–96		Carnivores a result of the Fall God's glory and design seen in creation
	17.3 Vertebrate Behavior	396–98		Animal intelligence and God's design Humans created in the image of God
110	17.4 Class Osteichthyes	398–405		The fish as a symbol of Christianity Fish in the Bible
111	17.5 Classes Agnatha and Chondrichthyes	406–8		
	17.6 Introduction to Amphibians	409–13		Frogs as a plague recorded in Exodus
112	17.7 Structure and Function in the Frog	413–17		
113			Lab 17a Live Bony Fish Lab 17b Dissection of a Bony Fish	
114	17.8 Characteristics of Reptiles	417–20		God's design and use of reptiles Reptiles as a symbol of God's power and redemption Amniotic egg as evidence of design Dinosaurs in the Bible
115	17.9 Classification of Living Reptiles	420–26		Satan's (the serpent's) temptation of Eve The Fall, the resulting Curse, and the promise of a Redeemer Two groups of people—the people of God and the enemies of God Christ's certain victory over Satan
116	Chapter 17 Review			
117	Chapter 17 Test			
<b>Chapter 18: The Endothermic Vertebrates <i>Zoology Part IV</i></b>				
118	18.1 Bird Characteristics	427–31		The bird's body as evidence of God's design Archaeopteryx as an example of creation and not evolution The ostrich in the Bible
119	18.2 Bird Systems	431–34		Bird bills as evidence of God's design Role of birds in the Battle of Armageddon



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120	18.3 Bird Family Life	434–38	Lab 18a Birds	Birds in the Bible Christ's comparison of a hen's care for her brood to His care for the Israelites
121	18.4 Characteristics of Mammals	439–45		
122–123	18.5 Classification of Placental Mammals	445–52	Lab 18b Mammals	Rodents in the Bible Biblical references to lions Man a special creation of God Mammals and Jewish dietary laws in the Bible Man's dominion over animals God's preservation of His creation Noah's faith in and gratitude toward God
124	Chapter 18 Test			
<b>Chapter 19: Ecology</b>				
125–126	19.1 The Nature of Ecology	453–55	Lab 19 Succession and Pollution (will continue for several weeks)	Stewardship
	19.2 The Ecosystem Defined	455–66		Reference to the water cycle in the Bible
127–128	19.3 Interactions in the Biosphere	466–71		The Bible and extraterrestrial life
	19.4 Changes in the Biosphere	471–74		
129	19.5 Man's Ecological Niche	474–80		Biblical response to deep ecology Need for balance in man's stewardship of the earth God's care and provision for His creation The Bible and animal rights Biblical response to the New Age movement and pantheism The Bible and vegetarianism
130	19.6 Pollution	480–85		A biblical look at global warming God's future destruction of the earth God's judgments described in Revelation Man's responsibility to be good stewards of God's creation
131	Chapter 19 Test			
<b>Chapter 20: Introduction to Human Anatomy and Physiology</b>				

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132	20.1 In the Image of God	488–91	Lab 20a Readings on the Human Body Systems (will continue throughout Chapters 20–25)*	Human intelligence: evidence against the evolutionary idea that man is merely a highly intelligent animal Biblical perspective on animals and spirits The meaning of man’s being created in God’s image The image of God in man marred by the Fall Sanctification of believers God as the source of all truth and moral authority Man as a spiritual being Man’s sinful nature and need of salvation God’s provision of salvation through Jesus Christ
	20.2 Human Tissues, Organs, and Systems	492–95		
133	20.3 The Skin	496–98		
	20.4 Hair and Nails	498		
	20.5 Skin Glands	498–500		The Bible and human races
134	20.6 Bone Anatomy and Physiology	500–504		
	20.7 Joints	505–7		
135			Lab 20b The Human Body and the Skeletal System	
136	20.8 Muscle Anatomy	507–9		
	20.9 Muscle Physiology	510–11		Importance of caring for the body to enable better service for the Lord
	20.10 Muscles and Body Movements	511–15		
137			Lab 20c The Human Muscular and Integumentary Systems	
	Chapter 20 Review			
138	Chapter 20 Test			
<b>Chapter 21: Incoming Substances</b>				
139–140	21.1 Anatomy of the Respiratory System	516–19		
	21.2 Respiration	519–22		

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	21.3 Control of Breathing	522–25		Scriptural objections to smoking
141			Lab 21a The Human Respiratory System	
142	21.4 Organs of the Digestive System	525–31		Teleology—all that God creates has a purpose
	21.5 Foods and Digestion	531–38		Scriptural warning against gluttony
143			Lab 21b The Human Digestive System*	
	Chapter 21 Review			
144	Chapter 21 Test			
<b>Chapter 22: Internal Transport</b>				
145	22.1 The Blood	539–45		Evidence of God's design in blood clotting
146			Lab 22a Human Blood	
147	22.2 The Heart	545–47		
148			Lab 22b Human Blood Circulation	
149				547–50
	22.3 Blood Vessels and Circulations	550–54		
150–151	22.4 The Lymphatic System	555–57		The ability of the body to resist disease as evidence of God's design
	22.5 Immunity	557–63		God's providence in disease A Christian response to those suffering from HIV/AIDS Challenge to share the gospel
152	22.6 The Kidneys	564–65		
	22.7 Accessory Excretory Organs	565		
	22.8 Urine	565–66		
153	Chapter 22 Review			
154	Chapter 22 Test			
<b>Chapter 23: The Nervous System Control Part I</b>				
155	23.1 Neurons	567–71		God's design of the nervous system
156	23.2 Divisions of the Nervous System	571–76		Job as an example of God's sovereignty in difficulties Christ as the source of the believer's strength Biblical response to stress (1 Peter 5:7)
			Lab 23a Human Reflexes	
157				
158	23.3 Minor Senses	577–79		
	23.4 The Ear: Hearing and Balance	579–82		

Day(s)	Topic	Pages	Support Materials	Bible Integration*
159			Lab 23b Minor Senses in Humans	
	23.5 The Eye and Sight	582–85		Structure of the eye as evidence of intelligent design The healing of the blind man in Mark 8
160			Lab 23c The Human Eye and Ear	
	Chapter 23 Review			
161	Chapter 23 Test			
<b>Chapter 24: Hormones and the Human Mind <i>Control Part II</i></b>				
162–163	24.1 Hormones	586–89	Lab 24 Drugs in Our Culture**	
	24.2 The Endocrine Glands	589–96		Principles of spiritual maturity Biblical principles regarding peer pressure Unbiblical use of feelings or circumstances as an excuse for sin Importance of witnessing Laying up treasures in heaven Importance of spending time in God's Word
164–165	24.3 Drugs and Addiction	596–604		Submission to the Lord's will God's provision of ways of escape from temptation Christians' responsibility to care for their bodies Miraculous healings in the Bible Biblical principles regarding alcohol
	24.4 Addiction	605–7		Biblical principles regarding Christians' use of psychoactive drugs Depending on strength from God to resist temptation
166	If assigned, have students present Lab 24 research.			
	Chapter 24 Review			
167	Chapter 24 Test			
<b>Chapter 25: Human Reproduction</b>				
168	25.1 Male Reproductive System	608–11		Biblical principles of marriage Relationship between man and wife as example of relationship between Christ and the church Stewardship of the body Circumcision in the Old and New Testaments
	25.2 Female Reproductive System	611–14		
169	25.3 Human Embryology and Birth	614–19		Parents' responsibility to raise children to love and fear God

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170–171	25.4 Fallen Human Sexuality	619–23		Biblical view of sexual relationships Scripture passages regarding adultery The Bible’s challenge to have a pure thought life Avoiding situations that can lead to temptation Grace to escape from temptation Walking in the Spirit Scripture passages regarding homosexuality Principles for dealing with sexual temptation Biblical principles of disease
	25.5 Sanctity of Human Life	623–26		The value of human life Scripture passages regarding capital punishment Christ’s provision of Redemption Yielding to Christ The Bible and abortion
172			Lab 25 Chicken Embryology	
	Chapter 25 Review			
173	Chapter 25 Test			
<b>Final Material</b>				
174–176			Laboratory Final Examination: The Rat	
177	Final Review			
178	Final Exam			

\*Some of the Bible Integration topics are covered in the Teacher’s Edition margin notes and are not directly covered in the student text.

\*\*These labs can be assigned as homework and will require very little class time.