Textbook Syllabus & Pacing Guide

Course Title: Biology
Grade Level: 9/10 **Course Length:** 2 Semesters **Credits/Semester:** 5

Semester 1: Biology A

UNIT 1: ECOLOGY
- Chapter 1: The Study of Life
- Chapter 2: Principles of Ecology
- Chapter 3: Communities, Biomes, and Ecosystems
- Chapter 4: Population Ecology
- Chapter 5: Biodiversity and Conservation

UNIT 2: THE CELL
- Chapter 6: Chemistry in Biology
- Chapter 7: Cellular Structure and Function
- Chapter 8: Cellular Energy
- Chapter 9: Cellular Reproduction

UNIT 3: GENETICS
- Chapter 10: Sexual Reproduction and Genetics
- Chapter 11: Complex Inheritance and Human Heredity
- Chapter 12: Molecular Genetics
- Chapter 13: Genetics and Biotechnology

UNIT 4: HISTORY OF BIOLOGICAL DIVERSITY
- Chapter 14: The History of Life
- Chapter 15: Evolution
- Chapter 16: Primate Evolution
- Chapter 17: Organizing Life's Diversity

Semester 2: Biology B

UNIT 5: THE DIVERSITY OF LIFE
- Chapter 18: Bacteria and Viruses
- Chapter 19: Protists
- Chapter 20: Fungi
- Chapter 21: Introduction to Plants
- Chapter 22: Plant Structure and Function
- Chapter 23: Reproduction in Plants
- Chapter 24: Introduction to Animals
- Chapter 25: Worms and Mollusks
- Chapter 26: Arthropods

Chapter 27: Echinoderms and Invertebrate Chordates
Chapter 28: Fishes and Amphibians
Chapter 29: Reptiles and Birds
Chapter 30: Mammals
Chapter 31: Animal Behavior

UNIT 6: THE HUMAN BODY

Chapter 32: Integumentary, Skeletal, and Muscular Systems
Chapter 33: Nervous System
Chapter 34: Circulatory, Respiratory, and Excretory Systems
Chapter 35: Digestive and Endocrine System
Chapter 36: Human Reproduction and Development
Chapter 37: The Immune System

Course Description

Biology, a one-year NGSS-aligned laboratory course, designed to introduce the student to the basic principles, concepts of Biology. Topics covered include scientific method, classification, cell and membrane structure and functions, biochemistry, respiration and photosynthesis, mitosis and meiosis, metabolism, genetics, DNA, evolution, the diversity of life and the human body. Students will develop the ability to think and express themselves in a scientific manner by focusing on the importance of laboratory skills, experimentation and analysis. This course will support students in developing an understanding of science and its role in society.

The emphasis will be on students developing an understanding of The NGSS High School Life Sciences Standards. These will guide the students in this course of study.

Course Materials

McGraw-Hill Education, Biology 2017
Student Edition: ISBN 9780076774289
Teacher Edition: ISBN 9780076774302

Class expectations and assignments

- Students will complete regular class assignments, laboratory experiments, quizzes, and tests.
- Students will complete cumulative midterm and final semester exams or will complete a teacher approved final project.
- Students will use the guidelines for writing a Lab Report for laboratory experiments.

Teacher Tools and Resources:

- PhET Interactive Simulations
- McGraw-Hill Virtual Laboratory Investigations (access through ConnectEd online McGraw Hill textbook)

Suggested Grading Scale:

Worksheets:	20%
• Applying Practices	
• Enrichment	
• Real-World Biology	
• Study Guide	
Labs:	20%
Key Assignments:	10%
Quizzes:	10%
Tests:	30%
Semester Final:	10%
Total:	100%

The standard grading scale will be used to determine your grade:

A	B	C	D	F
89.5 – 100%	79.5 – 89.4%	69.5 – 79.4%	59.5 – 69.4%	Below 59.5%

Semester 1: Biology A

UNIT 1: ECOLOGY

Learning Period 1

Length – 5 weeks

The students will learn that all life is connected through the flow of energy and the cycling of materials within both living and nonliving systems. Students will learn about the factors that influence organisms and how human growth is impacting the earth. Students will learn about the interactions of biomes, communities and ecological succession.

NGSS for Unit 1

HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.
HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
HS-LS1-5: Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.
HS-LS1-6: Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.
HS-LS1-7: Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed resulting in a net transfer of energy.
HS-LS2-5: Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere
HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

Key assignments are due at the end of each unit. Students may begin working on the key assignment at the beginning of each unit.

Unit 1 Key Assignment: Differentiating Between Biotic vs. Abiotic Factors

Students will identify and write about the biotic and abiotic factors in their environment. They will produce a table of objects in their vicinity that they will use to categorize each item. They will differentiate between organisms that have and have never been alive, building an understanding of renewable and nonrenewable resources.

Unit 1 Activities & Assignments

Week 1 Lessons (Learning Period 1)	Activities & Assignments
Chapter 1: The Study of Life	
Read Chapter 1, Lesson 1: Introduction to Biology	1-1 Study Guide
Read Chapter 1, Lesson 2: The Nature of Science	1-2 Study Guide
Read Chapter 1, Lesson 3: Methods of Science	1-3 Study Guide
Read and complete worksheet Real-World Biology: Applying Scientific Method	Chapter 1 Real-World Biology
Read and complete worksheet Enrichment: Using Graphs to Understand Biology	Chapter 1 Enrichment
Review Chapter 1 Study Guides and study for quiz	Chapter 1 Quiz

Week 2 Lessons (Learning Period 1)	Activities & Assignments
Chapter 2: Principles of Ecology	
Read Chapter 2, Lesson 1: Organisms and Their Relationships	2-1 Study Guide
Read Chapter 2, Lesson 2: Flow of Energy in an Ecosystem	2-2 Study Guide
Complete Mini Lab: Construct a Food Web	2-2 Mini Lab
Read Chapter 2, Lesson 3: Cycling of Matter	2-3 Study Guide
Review Chapter 2 Study Guides and study for quiz	Chapter 2 Quiz
Complete the Microscope Lab and use the Lab Report guidelines to write about your findings	Microscope Lab Report

Week 3 Lessons (Learning Period 1)	Activities & Assignments
Chapter 3: Communities, Biomes, and Ecosystems	
Read Chapter 3, Lesson 1: Community Ecology	3-1 Study Guide
Read Chapter 3, Lesson 2: Terrestrial Biomes	3-2 Study Guide

Complete the Owl Pellet Lab use the Lab Report guidelines to write about your findings	Owl Pellet Lab Report
Read Chapter 3, Lesson 3: Aquatic Ecosystems	3-3 Study Guide
Review Chapter 3 Study Guides and study for quiz	Chapter 3 Quiz

Week 4 Lessons (Learning Period 1)	**Activities & Assignments**
Chapter 4: Population Ecology	
Read Chapter 4, Lesson 1: Population Dynamics	4-1 Study Guide
Read and complete worksheet Applying Practices: Carrying Capacity of Nectar-Feeding Bats	Chapter 4 Applying Practices
Read Chapter 4, Lesson 2: Human Population	4-2 Study Guide
Read and complete worksheet Real-World Biology: Population Research	Chapter 4 Real-World Biology
Complete Mini Lab: Evaluate Factors	4-2 Mini Lab
Review Chapter 4 Study Guides and study for quiz	Chapter 4 Quiz

Week 5 Lessons (Learning Period 1)	**Activities & Assignments**
Chapter 5: Biodiversity and Conservation	
Read Chapter 5, Lesson 1: Biodiversity	5-1 Study Guide
Read Chapter 5, Lesson 2: Threats to Biodiversity	5-2 Study Guide
Read Chapter 5, Lesson 3: Conserving Biodiversity	5-3 Study Guide
Read and complete worksheet Enrichment: Should Endangered Species Be Protected?	Chapter 5 Enrichment
Review Chapter 1 – 5 and study for unit test	Unit 1 Test
Complete Key Assignment 1: Differentiating Between Biotic vs. Abiotic Factors	Unit 1 Key Assignment

UNIT 2: THE CELL

Learning Period 3

Length – 4 weeks

In this unit, students will define the cell, understand the structure of the atom and how they are the building blocks of life. Students will study the structure of the cell and how it keeps the cell and organism alive.

NGSS for Unit 2:

HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells
HS-LS1-5: Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy
HS-LS1-6: Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules
HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
HS-LS2-5: Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere
HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

Key assignments are due at the end of each unit. Students may begin working on the key assignment at the beginning of each unit.

Unit 2 Key Assignment: Cell Analogy Project

Students will create a chart with characteristics of eukaryotic cells and describe the structure and function of each organelle. Students must include the following information:

- Describe the structure and function of microtubules, flagella, and the cytoskeleton
- Illustrate how the cell membrane or cell wall gives shape and internal organization to eukaryotic cells.
- Explain the roles of the endoplasmic reticulum, Golgi apparatus, and secretory vesicles in protein synthesis.
- Differentiate between the functions of the rough and smooth endoplasmic reticulum.

Students will then use that information to creatively develop an analogy between cellular structures and functions to some other topic, such as comparing the cell to a city or a sports team. Students must clearly justify why each cell part relates to a part of their analogy topic. This project enables students to understand the structure and function of cell organelles.

Unit 2 Activities & Assignments

Week 6 Lessons (Learning Period 2)	Activities & Assignments
Chapter 6: Chemistry in Biology	
Read Chapter 6, Lesson 1: Atoms, Elements, and Compounds	6-1 Study Guide
Read Chapter 6, Lesson 2: Chemical Reactions	6-2 Study Guide
Read Chapter 6, Lesson 3: Water and Solutions	6-3 Study Guide
Read Chapter 6, Lesson 4: The Building Blocks of Life	6-4 Study Guide
Read and complete worksheet Enrichment: Just One of the Family	Chapter 6 Enrichment
Review Chapter 6 Study Guides and study for quiz	Chapter 6 Quiz

Week 7 Lessons (Learning Period 2)	Activities & Assignments
Chapter 7: Cellular Structure and Function	
Read Chapter 7, Lesson 1: Cell Discovery and Theory	7-1 Study Guide
Read Chapter 7, Lesson 2: The Plasma Membrane	7-2 Study Guide
Read Chapter 7, Lesson 3: Structures and Organelles	7-3 Study Guide
Read Chapter 7, Lesson 4: Cellular Transport	7-4 Study Guide
Read and complete worksheet Enrichment: Practical Applications of Osmosis	Chapter 7 Enrichment
Review Chapter 7 Study Guides and study for quiz	Chapter 7 Quiz

Week 8 Lessons (Learning Period 2)	Activities & Assignments
Chapter 8: Cellular Energy	
Read Chapter 8, Lesson 1: How Organisms Obtain Energy	8-1 Study Guide
Read Chapter 8, Lesson 2: Photosynthesis	8-2 Study Guide

Read Chapter 8, Lesson 3: Cellular Respiration	8-3 Study Guide
Complete the Cellular Respiration Lab use the Lab Report guidelines to write about your findings	Cellular Respiration Lab Report
Review Chapter 8 Study Guides and study for quiz	Chapter 8 Quiz

Week 9 Lessons (Learning Period 2)	**Activities & Assignments**
Chapter 9: Cellular Reproduction	
Read Chapter 9, Lesson 1: Cellular Growth	9-1 Study Guide
Read Chapter 9, Lesson 2: Mitosis and Cytokinesis	9-2 Study Guide
Read Chapter 9, Lesson 3: Cell Cycle Regulation	9-3 Study Guide
Review Chapter 6 – 9 and study for unit test	Unit 2 Test
Complete Key Assignment 2: Cell Analogy Project	Unit 2 Key Assignment

---

UNIT 3: GENETICS

Learning Period 3

Length – 4 weeks

Students will learn how reproductive cells are produced through meiosis and pass on genetic information. Students will learn about how DNA was discovered and how DNA codes for protein. Students will learn about biotechnology.

NGSS for Unit 3:

HS-LS3-2: Make and defend a claim based on evidence that inheritable genetic variations may result from: (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.

HS-LS3-3: Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.

HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS4-1: Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

Key assignments are due at the end of each unit. Students may begin working on the key assignment at the beginning of each unit.

Unit 3 Key Assignment: Sex-Linked Genetics

Students will research how sex-linked genes are passed through a family tree. Students will predict inheritance patterns for sex-linked disorders such as muscular dystrophy, hemophilia, and color blindness. Students will create Punnett Squares to determine the probability of the genotypes and phenotypes of the offspring, and calculate them as a fraction, ratio, and percentage. Students must create family pedigree and follow the sex-linked gene through at least 3 generations.

OR

Students can complete the Virtual Lab: Sex-Linked Traits and answer lab journal questions. The Virtual Lab can be found in Chapter 11, Section 2 (p. 308) of the digital textbook.

Unit 3 Activities & Assignments

Week 10 Lessons (Learning Period 3)	**Activities & Assignments**
Chapter 10: Sexual Reproduction and Genetics	
Read Chapter 10, Lesson 1: Meiosis	10-1 Study Guide
Read and complete worksheet Applying Practices: Meiosis	Chapter 10 Applying Practices
Read Chapter 10, Lesson 2: Mendelian Genetics	10-2 Study Guide
Read and complete worksheet Applying Practices: Punnett Squares	Chapter 10 Applying Practices
Complete Virtual Lab: Punnett Squares and answer lab journal questions	10-2 Virtual Lab

Week 11 Lessons (Learning Period 3)	**Activities & Assignments**
Read Chapter 10, Lesson 3: Gene Linkage and Polyploidy	10-3 Study Guide
Review Chapter 10 Study Guides and study for quiz	Chapter 10 Quiz
Chapter 11: Complex Inheritance and Human Heredity	
Read Chapter 11, Lesson 1: Basic Patterns of Human Inheritance	11-1 Study Guide

Read Chapter 11, Lesson 2: Complex Patterns of Inheritance	11-2 Study Guide
Read Chapter 11, Lesson 3: Chromosomes and Human Heredity	11-3 Study Guide
Review Chapter 11 Study Guides and study for quiz	Chapter 11 Quiz

Week 12 Lessons (Learning Period 3)	**Activities & Assignments**
Chapter 12: Molecular Genetics	
Read Chapter 12, Lesson 1: DNA: The Genetic Material	12-1 Study Guide
Read Chapter 12, Lesson 2: Replication of DNA	12-2 Study Guide
Read Chapter 12, Lesson 3: DNA, RNA, and Protein	12-3 Study Guide
Read Chapter 12, Lesson 4: Gene Regulation and Mutation	12-4 Study Guide
Read and complete worksheet Applying Practices: Transcription and Translation	Chapter 12 Applying Practices
Review Chapter 12 Study Guides and study for quiz	Chapter 12 Quiz

Week 13 Lessons (Learning Period 3)	**Activities & Assignments**
Chapter 13: Genetics and Biotechnology	
Read Chapter 13, Lesson 1: Applied Genetics	13-1 Study Guide
Read Chapter 13, Lesson 2: DNA Technology	13-2 Study Guide
Read Chapter 13, Lesson 3: The Human Genome	13-3 Study Guide
Review Chapter 10 – 13 and study for unit test	Unit 3 Test
Complete Key Assignment 3: Sex-Linked Genetics	Unit 3 Key Assignment

UNIT 4: HISTORY OF BIOLOGICAL DIVERSITY

Learning Period 4

Length – 4 weeks

Students will learn about the theories on the origin of life. Students will learn about the theory of evolution and how natural selection explains the diversity of life. Students will learn how scientists have organized living things.

NGSS for Unit 4:

HS-LS4-1: Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
HS-LS4-2: Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.
HS-LS4-3: Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.
HS-LS4-4: Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

Key assignments are due at the end of each unit. Students may begin working on the key assignment at the beginning of each unit.

Unit 4 Key Assignment: Natural Selection and Finches

Students will utilize various mediums (i.e. film segments, discussion, development of models, interpreting data) to develop arguments for the evolution of Darwin's finches. Students may use the Natural Selection and the Evolution of Darwin's Finches guided activity and Finch Cards to complete this assignment. The student can summarize their findings via 3D model, diorama, essay, or PowerPoint presentation.

Unit 4 Activities & Assignments

Week 14 Lessons (Learning Period 4)	Activities & Assignments
Chapter 14: The History of Life	
Read Chapter 14, Lesson 1: Fossil Evidence of Change	14-1 Study Guide
Read Chapter 14, Lesson 2: The Origin of Life	14-2 Study Guide
Complete Virtual Lab: Dino Dig and answer lab journal questions	14-2 Virtual Lab

Review Chapter 14 Study Guides and study for quiz	Chapter 14 Quiz
Chapter 15: Evolution	
Read Chapter 15, Lesson 1: Darwin's Theory of Evolution by Natural Selection	15-1 Study Guide
Read and complete worksheet Enrichment: Darwin's Finches	Chapter 15 Enrichment

Week 15 Lessons (Learning Period 4)	**Activities & Assignments**
Read Chapter 15, Lesson 2: Evidence of Evolution	15-2 Study Guide
Read Chapter 15, Lesson 3: Shaping Evolutionary Theory	15-3 Study Guide
Review Chapter 15 Study Guides and study for quiz	Chapter 15 Quiz
Chapter 16: Primate Evolution	
Read Chapter 16, Lesson 1: Primates	16-1 Study Guide
Read Chapter 16, Lesson 2: Hominoids to Hominins	16-2 Study Guide
Read Chapter 16, Lesson 3: Human Ancestry	16-3 Study Guide
Review Chapter 16 Study Guides and study for quiz	Chapter 16 Quiz

Week 16 Lessons (Learning Period 4)	**Activities & Assignments**
Chapter 17: Organizing Life's Diversity	
Read Chapter 17, Lesson 1: The History of Classification	17-1 Study Guide
Complete Mini Lab: Develop a Dichotomous Key	17-1 Mini Lab
Read Chapter 17, Lesson 2: Modern Classification	17-2 Study Guide
Read and complete worksheet Real-World Biology: A Dichotomous Key	Chapter 17 Real-World Biology
Read Chapter 17, Lesson 3: Domains and Kingdoms	17-3 Study Guide
Review Chapter 17 Study Guides and study for quiz	Chapter 17 Quiz

Week 17 Lessons (Learning Period 4)	Activities & Assignments
Read and complete worksheet Enrichment: Six-Kingdom Classification System	Chapter 17 Enrichment
Review Chapter 14 – 17 and study for unit test	Unit 4 Test
Complete Key Assignment 4: Natural Selection and Finches	Unit 4 Key Assignment

---

- FINAL EXAM WEEK -

Week 18 Lessons (Learning Period 4)	Activities & Assignments
Complete and submit any missing assignments (study guides, worksheets, labs)	Any missing study guides & labs
Complete and submit any key assignments	Any missing key assignments
Make sure all Quizzes and Tests have been submitted and all scratch work is shown, complete and submit any retakes, if applicable	Any missing quizzes & tests
Study Chapter 1 through 17	Review for Final Exam
Download, complete, and submit the Biology A Final Exam	Biology A Final Exam

- END OF SEMESTER 1 -

Semester 2: Biology B

UNIT 5: THE DIVERSITY OF LIFE

Learning Period 5, 6, & 7

Length – 10 weeks

In this unit, students will learn about prokaryote structure and characteristics and survival. Students will learn about the diversity and structure of fungi and protists. Students will learn about the diversity of plants and how they adapt to their environment to survive. Students will learn about animal body plans and their unique adaptations to the niche of their environment.

NGSS for Unit 5:

HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

HS-LS2-4: Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.

HS-LS4-2: Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.

HS-LS4-4: Construct an explanation based on evidence for how natural selection leads to adaptation of populations.

HS-LS4-5: Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species

HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.

Key assignments are due at the end of each unit. Students may begin working on the key assignment at the beginning of each unit.

Unit 5 Key Assignment: Biodiversity

Students will research about biodiversity and adaptations using various mediums (i.e. videos, articles, textbooks, etc.). Students should choose two species found in a unique environment and research how the two species survive. Students should include the following information:

- How species gathers food
- Description of their unique environment/habitat
- Physical characteristics and adaptations that help the species survive in their environment
- Population size and what factors that limit their number
- Risk factors that the species face

Students will then compile their findings in a PowerPoint, poster, movie, or other multimedia presentation.

Unit 5 Activities & Assignments

Week 1 Lessons (Learning Period 5)	Activities & Assignments
Chapter 18: Bacteria and Viruses	
Read Chapter 18, Lesson 1: Bacteria	18-1 Study Guide
Read Chapter 18, Lesson 2: Viruses and Prions	18-2 Study Guide
Review Chapter 18 Summary and study for quiz	Chapter 18 Quiz
Chapter 19: Protists	
Read Chapter 19, Lesson 1: Introduction to Protists	19-1 Study Guide
Read Chapter 19, Lesson 2: Protozoans – Animal-like Protists	19-2 Study Guide
Read Chapter 19, Lesson 3: Algae – Plantlike Protists	19-3 Study Guide

Week 2 Lessons (Learning Period 5)	Activities & Assignments
Read Chapter 19, Lesson 4: Fungus-like Protists	19-4 Study Guide
Review Chapter 19 Summary and study for quiz	Chapter 19 Quiz
Chapter 20: Fungi	
Read Chapter 20, Lesson 1: Introduction to Fungi	20-1 Study Guide
Read Chapter 20, Lesson 2: Diversity of Fungi	20-2 Study Guide
Complete Mini Lab: Investigate Mold Growth	20-2 Mini Lab

Read Chapter 20, Lesson 3: Ecology of Fungi	20-3 Study Guide
Review Chapter 20 Summary and study for quiz	Chapter 20 Quiz

Week 3 Lessons (Learning Period 5)	**Activities & Assignments**
Chapter 21: Introduction to Plants	
Read Chapter 21, Lesson 1: Plant Evolution and Adaptations	21-1 Study Guide
Complete Virtual Lab: Biotechnology Knocking Out Genes and answer lab journal questions	21-1 Virtual Lab
Chapter 22: Plant Structure and Function	
Read Chapter 22, Lesson 1: Plant Cells and Tissues	22-1 Study Guide
Read Chapter 22, Lesson 2: Roots, Stems, and Leaves	22-2 Study Guide
Read Chapter 22, Lesson 3: Plant Hormones and Responses	22-3 Study Guide
Review Chapter 21 - 22 Summary and study for quiz	Chapter 21 - 22 Quiz

Week 4 Lessons (Learning Period 5)	**Activities & Assignments**
Chapter 23: Reproduction in Plants	
Read Chapter 23, Lesson 1: Introduction to Plant Reproduction	23-1 Study Guide
Read Chapter 23, Lesson 2: Flowers	23-2 Study Guide
Read Chapter 23, Lesson 3: Flowering Plants	23-3 Study Guide
Review Chapter 23 Summary and study for quiz	Chapter 23 Quiz
Chapter 24: Introduction to Animals	
Read Chapter 24, Lesson 1: Animal Characteristics	24-1 Study Guide
Read Chapter 24, Lesson 2: Animal Body Plans	24-2 Study Guide

Week 5 Lessons (Learning Period 5)	Activities & Assignments
Read Chapter 24, Lesson 3: Sponges and Cnidarians	24-3 Study Guide
Review Chapter 24 Summary and study for quiz	Chapter 24 Quiz
Chapter 25: Worms and Mollusks	
Read Chapter 25, Lesson 1: Flatworms	25-1 Study Guide
Read Chapter 25, Lesson 2: Animal Body Plans	25-2 Study Guide
Read Chapter 25, Lesson 3: Mollusks	25-3 Study Guide
Read Chapter 25, Lesson 4: Segmented Worms	25-4 Study Guide
Review Chapter 25 Summary and study for quiz	Chapter 25 Quiz

Week 6 Lessons (Learning Period 6)	Activities & Assignments
Complete Virtual Lab: Earthworm Dissection and answer lab journal questions	25-4 Virtual Lab
Chapter 26: Arthropods	
Read Chapter 26, Lesson 1: Arthropod Characteristics	26-1 Study Guide
Read Chapter 26, Lesson 2: Arthropod Diversity	26-2 Study Guide
Complete Virtual Lab: Classifying Arthropods and answer lab journal questions	26-2 Virtual Lab
Read Chapter 26, Lesson 3: Insects and Their Relatives	26-3 Study Guide

Week 7 Lessons (Learning Period 6)	Activities & Assignments
Chapter 27: Echinoderms and Invertebrate Chordates	
Read Chapter 27, Lesson 1: Echinoderm Characteristics	27-1 Study Guide
Read Chapter 27, Lesson 2: Invertebrate Chordates	27-2 Study Guide
Read and complete worksheet Real-World Biology: Outbreaks of Crown-of-Thorns Sea Stars	Chapter 27 Real-World Biology

Review Chapter 26 - 27 Summary and study for quiz	Chapter 26 - 27 Quiz
Chapter 28: Fishes and Amphibians	
Read Chapter 28, Lesson 1: Fishes	28-1 Study Guide
Read Chapter 28, Lesson 3: Amphibians	28-3 Study Guide

Week 8 Lessons (Learning Period 6)	**Activities & Assignments**
Chapter 29: Reptiles and Birds	
Read Chapter 29, Lesson 1: Reptiles	29-1 Study Guide
Read Chapter 29, Lesson 2: Birds	29-2 Study Guide
Complete Mini Lab: Survey Local Birds	29-2 Mini Lab
Review Chapter 28 - 29 Summary and study for quiz	Chapter 28 - 29 Quiz
Chapter 30: Mammals	
Read Chapter 30, Lesson 1: Mammalian Characteristics	30-1 Study Guide
Read Chapter 30, Lesson 2: Diversity of Mammals	30-2 Study Guide

Week 9 Lessons (Learning Period 6)	**Activities & Assignments**
Complete Virtual Lab: Mammals	30-2 Virtual Lab
Read and complete worksheet Real-World Biology: Tooth Adaptations of Mammals	Chapter 30 Real-World Biology
Chapter 31: Animal Behavior	
Read Chapter 31, Lesson 1: Basic Behaviors	31-1 Study Guide
Read Chapter 31, Lesson 2: Ecological Behaviors	31-2 Study Guide
Read and complete worksheet Applying Practices: Investigating Group Behavior	Chapter 31 Applying Practices
Review Chapter 30 - 31 Summary and study for quiz	Chapter 30 - 31 Quiz

Week 10 Lessons (Learning Period 7)	Activities & Assignments
Read and complete worksheet Enrichment: Animal Behavior	Chapter 31 Enrichment
Read and complete worksheet Real-World Biology: Foraging Behavior in Honeybees	Chapter 31 Real-World Biology
Review Chapter 18 – 31 and study for unit test	Unit 5 Test
Complete Key Assignment 5: Biodiversity	Unit 5 Key Assignment

---

UNIT 6: THE HUMAN BODY

Learning Period 7
Length – 7 weeks

Students will learn about the systems that move and hold the body together. Students will learn that the nervous system is essential for communication between cells, tissues and organs. Students will learn about the human systems useful for maintaining homeostasis by delivering nutrients and removing wastes. Students will learn how the digestive system breaks down food and provides nutrients for the body. Students will learn about the human reproductive system and the stages of development of a human. Students will learn how the human immune system keeps out pathogens and impacts of noninfectious diseases.

NGSS for Unit 6:

HS-LS1-1: Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS1-2: Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

HS-LS1-3: Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

HS-LS1-4: Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

HS-LS4-1: Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.

Key assignments are due at the end of each unit. Students may begin working on the key assignment at the beginning of each unit.

Unit 6 Key Assignment: Human Anatomy and Physiology

Students will complete a human and physiology body diagram. Students will create a multi-layered illustration of the human body. Each layer will represent an organ system:

- Integumentary
- Skeletal
- Muscular
- Circulatory
- Respiratory
- Digestive
- Excretory
- Nervous
- Immune

Students will need to label each illustration. On the back of each illustration, describe the significant structures of the organ system and its role in the human body.

Unit 6 Activities & Assignments

Week 11 Lessons (Learning Period 7)	Activities & Assignments
Chapter 32: Integumentary, Skeletal, and Muscular Systems	
Read Chapter 32, Lesson 1: The Integumentary System	32-1 Study Guide
Read Chapter 32, Lesson 2: The Skeletal System	32-2 Study Guide
Read Chapter 32, Lesson 3: The Muscular System	32-3 Study Guide
Read and complete worksheet Enrichment: Analyzing Bones	Chapter 32 Enrichment
Review Chapter 32 Summary and study for quiz	Chapter 32 Quiz
Chapter 33: Nervous System	
Launch Lab: How Does Information Travel to Nervous System	Chapter 33 Launch Lab

Week 12 Lessons (Learning Period 7)	Activities & Assignments
Read Chapter 33, Lesson 1: Structure of the Nervous System	33-1 Study Guide
Read Chapter 33, Lesson 2: Organization of the Nervous System	33-2 Study Guide
Read Chapter 33, Lesson 3: The Senses	33-3 Study Guide
Read and complete worksheet Enrichment: Nerve Transmission	Chapter 33 Enrichment

Read Chapter 33, Lesson 4: Effects of Drugs	33-4 Study Guide
Review Chapter 33 Summary and study for quiz	Chapter 33 Quiz

Week 13 Lessons (Learning Period 8)	Activities & Assignments
Chapter 34: Circulatory, Respiratory, and Excretory Systems	
Launch Lab: What Changes Take Place during Exercise	Chapter 34 Launch Lab
Read Chapter 34, Lesson 1: Circulatory System	34-1 Study Guide
Complete Virtual Lab: Blood Pressure and answer lab journal questions	34-1 Virtual Lab
Read Chapter 34, Lesson 2: Respiratory System	34-2 Study Guide
Complete Mini Lab: Recognize Cause & Effect	34-2 Mini Lab

Week 14 Lessons (Learning Period 8)	Activities & Assignments
Read Chapter 34, Lesson 3: Excretory System	34-3 Study Guide
Complete Bio Lab: Make Positive Health Choices	Chapter 34 Bio Lab
Review Chapter 34 Summary and study for quiz	Chapter 34 Quiz
Chapter 35: Digestive and Endocrine System	
Read Chapter 35, Lesson 1: The Digestive System	35-1 Study Guide
Read Chapter 35, Lesson 2: Nutrition	35-2 Study Guide
Read Chapter 35, Lesson 3: The Endocrine System	35-3 Study Guide
Review Chapter 35 Summary and study for quiz	Chapter 35 Quiz

Week 15 Lessons (Learning Period 8)	Activities & Assignments
Chapter 36: Human Reproduction and Development	
Read Chapter 36, Lesson 1: Reproductive Systems	36-1 Study Guide
Read Chapter 36, Lesson 2: Human Development Before Birth	36-2 Study Guide

Read Chapter 36, Lesson 3: Birth, Growth, and Aging	36-3 Study Guide
Read and complete worksheet Enrichment: Investigating Hormone Therapy	Chapter 36 Enrichment
Read and complete worksheet Real-World Biology: Premature Births	Chapter 36 Real-World Biology
Review Chapter 36 Summary and study for quiz	Chapter 36 Quiz

Week 16 Lessons (Learning Period 8)	**Activities & Assignments**
Chapter 37: The Immune System	
Read Chapter 37, Lesson 1: Infectious Diseases	37-1 Study Guide
Read Chapter 37, Lesson 2: The Immune System	37-2 Study Guide
Complete Virtual Lab: Virtual Pathology and answer lab journal questions	37-2 Virtual Lab
Read Chapter 37, Lesson 3: Noninfectious Disorders	37-3 Study Guide
Read and complete worksheet Enrichment: The Rise of Drug-Resistant Diseases	Chapter 37 Enrichment
Review Chapter 37 Summary and study for quiz	Chapter 37 Quiz

Week 17 Lessons (Learning Period 8)	**Activities & Assignments**
Review Chapter 32 – 37 and study for unit test	Unit 6 Test
Complete Key Assignment 6: Human Anatomy and Physiology	Unit 6 Key Assignment

---

- FINAL EXAM WEEK -

Week 18 Lessons (Learning Period 8)	**Activities & Assignments**
Complete and submit any missing assignments (study guides, worksheets, labs)	Any missing study guides & labs

Complete and submit any key assignments	Any missing key assignments
Make sure all Quizzes and Tests have been submitted and all scratch work is shown, complete and submit any retakes, if applicable	Any missing quizzes & tests
Study Chapter 18 through 37	Review for Final Exam
Download, complete, and submit the Biology B Final Exam	Biology B Final Exam

- END OF SEMESTER 2 -