

## HJHS 7th Grade Life Science Syllabus

### 1st Nine Weeks

	Topic	Anchor Standard		Resources	Objectives
1st	Science Tools and Lab Safety			NOS Lesson 2	Identify uses and units of measurement for lab tools. Understand and apply lab safety rules.
1st	Characteristics of Life	1	Engage in argument from evidence to support claims of the cell theory.	Chapter 1 Lesson 1  Chapter 20 Lesson 1	1.2: Differentiate between living and nonliving materials. 5.4: Compare and contrast abiotic and biotic.
1st	Classification, Dichotomous Keys and Cladograms	16	Construct an explanation based on evidence for the anatomical similarities and differences among modern organisms	Ch 1 Lesson 2	16.1: Define cladogram, phylogenetic tree, anatomical, nautilus, and coelacanth.
1st	Cell Theory	1	Engage in argument from evidence to support claims of the cell theory.	Chapter 2 Lesson 1	1.1: Define cell theory. 1.3: Research evidence to support/refute the cell theory. 1.4: Explain the components of the cell theory. 1.5: Identify the components of the cell theory.
1st	Macromolecules Cell Membrane Cell Wall	3	Construct an explanation of the function (of specific cell structures for maintaining a stable environment.	Chapter 2 Lesson 1 Lesson 2	3.1: Define homeostasis, mitochondria 3.3: Describe the role of each organelle in maintaining a stable environment. 3.5: Identify the form and function of cell structures.

<b>1st</b>	<b>Prokaryotic &amp; Eukaryotic</b>	<b>2</b>	Gather and synthesize information to explain how prokaryotic and eukaryotic cells differ in structure and function, including the methods of asexual and sexual reproduction.	Chapter 2 Lesson 2  Chapter 4 Lesson 1 Lesson 2	2.1: Define prokaryotic, eukaryotic, sexual reproduction and asexual reproduction. 2.2: Differentiate between prokaryotic and eukaryotic cells. 2.3: Compare and contrast sexual reproduction and asexual reproduction. 2.4: Illustrate a prokaryotic and eukaryotic cell. 2.5: Identify a prokaryotic and eukaryotic cell.
<b>1st</b>	<b>Cell Structure and Function</b>  <b>Diffusion and Osmosis</b>	<b>3</b>	Construct an explanation of the function of specific cell structures for maintaining a stable environment.	Chapter 2 Lesson 2 Lesson 3	3.1: Define homeostasis, mitochondria, cellular respiration, nucleus, ribosomes, chloroplast, and vacuoles. 3.2: Create a model representing organelles in a plant & animal cells. 3.3: Describe the role of organelles in maintaining a stable environment. 3.4: Identify in sequence the levels of organization of an organism from cells through organ systems. 3.5: Identify the form and function of cell structures.
<b>1st</b>	<b>Photosynthesis and Respiration</b>	<b>5</b>	a. Obtain, evaluate, and communicate information about how food is broken down through chemical reactions to create new molecules that support growth and/or release energy as it moves through an organism.	Chapter 2 Lesson 4  Chapter 20 Lesson 3	5.1: Define photosynthesis, ecosystem, respiration, molecules, organism, abiotic, and biotic. 5.2: Explain the role of photosynthesis and respiration in the symbiotic relationship between plants and animals. 5.3: Summarize how energy transfer occurs during photosynthesis and cellular respiration. 5.5: Identify the relationship between photosynthesis and respiration.

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2nd Nine Weeks**

	Topic	Anchor Standard	Resources	Objectives
2nd	Organ Systems	4 Construct models and representations of organ systems to demonstrate how multiple interacting organs and systems work together to accomplish specific functions.	Chapter 3 Lesson 2  Chapter 14 Lesson 1 Bones Lesson 2 Muscles  Chapter 15 Lesson 2 Digestion  Chapter 16 Lesson 1 Respiration Lesson 2 Circulation	4.1: Research how a failure of one system affects the whole organism. 4.2: Explain how each organ system interacts with other organ systems. 4.3: Draw and label the organs of each body system. 4.4: Identify the characteristics and function of each body system.

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**3rd Nine Weeks**

	Topic	Anchor Standard	Resources	Objectives
3rd	Genetics	12 Construct and use models to explain that genetic variations between parent and offspring occur as a result of genetic differences in randomly inherited genes located on chromosomes and that additional variations may arise from alteration of genetic information.	Chapter 3 Lesson 1 Cell Cycle  Chapter 5 Lesson 1 Lesson 2 Lesson 3	12.1: Define monohybrid, Punnett Square, mitosis, meiosis, simulation, genetic, variation, allele, mutation, chromosome, alteration, phenotype, genotype, homozygous, and heterozygous. 12.2: Complete a Punnett square to predict the outcome of offspring. 12.3: Explain how mutations cause variations in the development of an organism. 12.4: Compare and contrast the process of mitosis and meiosis. 12.5: Describe how randomly inherited genes are influenced by the process of meiosis. 12.6: Identify common chromosomal abnormalities.
3rd	Genetic Mutations	13 Construct an explanation from evidence to describe how genetic mutations result in harmful, beneficial, or neutral effects to the structure and function of an organism.	Chapter 5 Lesson 3 Lesson 2	13.1: Define traits, genetic, mutation, and beneficial. 13.2: Illustrate a pedigree of a family tree. 13.3: Identify genetic similarities and differences in offspring.

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**4th Nine Weeks**

	Topic	Anchor Standard	Resources	Objectives
4th	<b>Food Chains and Food Webs</b>	<p><b>5</b> Examine the cycling of matter between abiotic and biotic parts of ecosystems to explain the flow of energy and the conservation of matter.</p> <p><b>6</b> Analyze and interpret data to provide evidence regarding how resource availability impacts individual organisms as well as populations of organisms within an ecosystem.</p>	<p>Ch. 20 Lesson 1 Lesson 3</p> <p>Chapter 21 Lesson 1</p>	<p>5.4: Compare and contrast abiotic and biotic.</p> <p>6.1: Define ecosystem, population, and organism.</p> <p>6.2: Create a model of a food web.</p> <p>6.3: Describe types of interactions between organisms.</p> <p>6.4: Describe an ecosystem and its components.</p> <p>6.5: Identify evidence that shows the decline of a species.</p>
4th	<b>Predator/Prey Commensalism Mutualism Parasitism</b>	<p><b>8</b> Construct an explanation to predict patterns of interactions in different ecosystems in terms of the relationships between and among organisms.</p>	<p>Chapter 21 Lesson 3</p>	<p>8.1: Define ecosystem, competition, predation, mutualism, commensalism, and parasitism.</p> <p>8.2: Explain what happens when competition enters an ecosystem.</p> <p>8.3: Compare and contrast mutualism, commensalism, and parasitism.</p> <p>8.4: Identify relationships among organisms</p>

4th	<b>Behavior/ Adaptations and Reproduction</b>	<b>10</b>	Use evidence and scientific reasoning to explain how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of both animals and plants.	Ch 13 Lesson 1 Lesson 2  Chapter 10 Lesson 3	10.1: Define predator, plumage, germination, specialized, probability, innate, and learned behaviors. 10.2: Compare and contrast the male and female characteristics of animals (e.g., size, color, camouflage, nurturing, and food consumed). 10.3: Describe how seeds are dispersed. 10.4: Identify how plants reproduce. 10.5: Identify how animals reproduce.
4th	<b>Natural Selection</b>	<b>18</b>	Obtain and evaluate pictorial data to compare patterns in the embryological development across multiple species to identify relationships not evident in the adult anatomy.	Chapter 6 The Environment and Change Over Time	18.1: Define natural selection, predominance, traits, survival, and suppression. 18.2: Create a historical timeline of changes in an organism. 18.4: Predict changes in a species through natural selection. 18.4: Identify species that have changed over time.