



# Biology (Course #2000310 Hons #2000320)



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Quarter	Big Idea	Benchmark Description	Suggested Pacing Days*	Assessments
First Quarter (39 days)	Matter and Energy Transformation	1 <a href="#">SC.912.L.18.12</a> Properties of water contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.	4	<a href="#">Exemplar 1</a>
		2 <a href="#">SC.912.L.18.1</a> Basic molecular structures and primary functions of the four major categories of biological macromolecules.	5	
		3 <a href="#">SC.912.L.18.11</a> Role of enzymes as catalysts of biochemical reactions. Factors that affect enzyme activity such as pH and temperature.	4	
	Organization and Development of Living Things	4 <a href="#">SC.912.L.14.1</a> , <a href="#">SC.912.L.14.4</a> The scientific theory of cells (cell theory) and the history of its discovery to the process of science. Structure and function of various types of microscopes.	4	<a href="#">Exemplar 2</a>
		5 <a href="#">SC.912.L.14.3</a> , <a href="#">SC.912.L.14.2</a> General structures of plant and animal cells, including the general structures of prokaryotic and eukaryotic cells. Relate structure to function for the components of plant and animal cells.	4	
		6 <a href="#">SC.912.L.14.2</a> Role of cell membranes as a highly selective barrier (passive and active transport)	4	
		7 <a href="#">SC.912.L.14.7</a> Relate the structure of each of the major plant organs and tissues to physiological processes.	5	
Second Quarter (36 days)	Matter and Energy Transformation	8 <a href="#">SC.912.L.18.7</a> , <a href="#">SC.912.L.18.8</a> , <a href="#">SC.912.L.18.9</a> , <a href="#">SC.912.L.18.10</a> The reactants, products, and basic functions of photosynthesis and cellular respiration. The interrelated nature of photosynthesis and cell respiration. Role of adenosine triphosphate (ATP) to energy transfers within a cell.	5	<a href="#">Exemplar 3</a>
	Heredity and Reproduction	9 <a href="#">SC.912.L.16.3</a> , <a href="#">SC.912.L.16.9</a> Basic process of DNA replication and how it relates to the transmission and conservation of genetic information. Genetic code is universal and is common to almost all organisms.	7	<a href="#">Exemplar 4</a>
		10 <a href="#">SC.912.L.16.14</a> , <a href="#">SC.912.L.16.8</a> Cell cycle, including mitosis. Role of mitosis in the formation of new cells and its importance in maintaining chromosome number during asexual reproduction. Relationship between mutation, cell cycle, and uncontrolled cell growth potentially resulting in cancer.	4	
		11 <a href="#">SC.912.L.16.5</a> , <a href="#">SC.912.L.16.4</a> The basic processes of transcription and translation, and how they result in the expression of genes. Mutations in the DNA sequence may or may not result in phenotypic change and mutations in gametes may result in phenotypic changes in offspring.	10	
		12 <a href="#">SC.912.L.16.16</a> , <a href="#">SC.912.L.16.17</a> The process of meiosis, including independent assortment and crossing over. Reduction division results in the formation of haploid gametes or spores. Mitosis vs. meiosis and relating to the processes of sexual and asexual reproduction and their consequences for genetic variation.	5	
		13 <a href="#">SC.912.L.16.13</a> Basic anatomy and physiology of the human reproductive system. The process of human development from fertilization to birth and major changes that occur in each trimester of pregnancy.	5	
	Third Quarter (34 days)	Diversity and Evolution of Living Things	14 <a href="#">SC.912.L.16.10</a> Impact of biotechnology on the individual, society and the environment, including medical and ethical issues.	4
15 <a href="#">SC.912.L.16.1</a> , <a href="#">SC.912.L.16.2</a> Use Mendel's laws of segregation and independent assortment to analyze patterns of inheritance, including dominant, recessive, codominant, sex-linked, polygenic, and multiple alleles.			9	
Diversity and Evolution of Living Things		16 <a href="#">SC.912.L.15.8</a> Scientific explanations of the origin of life on Earth. <a href="#">SC.912.N.1.3</a> , <a href="#">SC.912.N.1.4</a> , <a href="#">SC.912.N.2.1</a>	4	<a href="#">Exemplar 6</a>
		17 <a href="#">SC.912.L.15.6</a> , <a href="#">SC.912.L.15.4</a> , <a href="#">SC.912.L.15.5</a> Distinguishing characteristics of the domains and kingdoms of living organisms. Hierarchical classification and evolutionary relationships. Explain the reasons for changes in how organisms are classified. <a href="#">SC.912.N.1.3</a> , <a href="#">SC.912.N.1.6</a>	5	<a href="#">Exemplar 7</a>
		18 <a href="#">SC.912.L.15.1</a> , <a href="#">SC.912.L.15.10</a> The scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change. <a href="#">SC.912.N.1.3</a> , <a href="#">SC.912.N.1.4</a> , <a href="#">SC.912.N.1.6</a> , <a href="#">SC.912.N.2.1</a> , <a href="#">SC.912.N.3.1</a> , <a href="#">SC.912.N.3.4</a>	7	
		19 <a href="#">SC.912.L.15.13</a> , <a href="#">SC.912.L.15.14</a> , <a href="#">SC.912.L.15.15</a> Conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which results in differential reproductive success. Mechanisms of evolutionary change other than	5	



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		natural selection such as genetic drift and gene flow. Mutation and genetic recombination increase genetic variation.		
Fourth Quarter (27 days)**	Organization and Development of Living Things	20 <b>SC.912.L.14.26</b> Identify major parts of the brain on diagrams or models	2	Exemplar 8
		21 <b>SC.912.L.14.36</b> Factors affecting blood flow through the cardiovascular system.	2	
		22 <b>SC.912.L.14.52, SC.912.L.14.6</b> Basic functions of the human immune system, including specific and nonspecific immune response, vaccines, and antibiotics. Significance of genetic factors, environmental factors, and pathogenic agents to health from the perspectives of both individual and public health.	3	
	Interdependence	23 <b>SC.912.L.17.9</b> Identify and distinguish producers, consumers, and decomposers in a food web, including the pathway of energy transfer and reduction through trophic levels	6	Exemplar 9 (optional)
	Earth Systems and Patterns	24 <b>SC.912.E.7.1</b> Movement of matter and energy through the different biogeochemical cycles, including water and carbon.	4	
	Interdependence	25 <b>SC.912.L.17.5, SC.912.L.17.2, SC.912.L.17.4, SC.912.L.17.8</b> Population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity. The function of chemistry, geography, light, depth, salinity, and temperature in distribution of life in aquatic ecosystems. Changes in ecosystems and biodiversity resulting from seasonal variations, climate change, succession, catastrophic events, human activity, and the introduction of invasive, non-native species. <a href="#">SC.912.N.1.4</a>	5	
		26 <b>SC.912.L.17.20, SC.912.L.17.11, SC.912.L.17.13</b> Impact of individuals on environmental systems and examine how human lifestyles affect sustainability. The costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests. The need for adequate monitoring of environmental parameters when making policy decisions. <a href="#">SC.912.N.1.3</a>	5	
<a href="#">EOC Review</a>				

\*The days provided for each unit/topic is an estimate that may be adjusted by subject-level PLCs based on student achievement data and should be adjusted, if necessary, based upon a daily format. The recommended days shown are less than the actual days for each quarter to allow for additional time for routines, testing, absences, remediation and outside considerations.

\*\* This does not include the days in May or June due to testing schedules and end of year events.

