

Biology One Weekly Pacing Guide

Week	Topic	Labs	Demonstrations/Animations	Student Performance Indicator
1	Qual/Quan Obs, Scientific Method	Eye Dissection, Termites Ink Trails	Seeing in color, Waterfall Effect	<p>SPI 3210 Inq.1 Select a description or scenario that reevaluates and/or extends a scientific finding.</p> <p>SPI 3210 Inq.2 Analyze the components of a properly designed scientific investigation.</p> <p>SPI 3210 Inq.3 Determine appropriate tools to gather precise and accurate data.</p> <p>SPI 3210 Inq.4 Evaluate the accuracy and precision of data.</p> <p>SPI 3210 Inq.5 Defend a conclusion based on scientific evidence.</p> <p>SPI 3210 Inq.6 Determine why a conclusion is free of bias.</p> <p>SPI 3210 Inq.7 Compare conclusions that offer different, but acceptable explanations for the same set of experimental data.</p> <p>SPI 3210.T/E.1 Distinguish among tools and procedures best suited to conduct a specified scientific inquiry.</p> <p>SPI 3210.T/E.2 Evaluate a protocol to determine the degree to which an engineering design process was successfully applied.</p>
2	Lewis Structures, Functional Groups	Anacid pH Test, Gumdrops Functional Models		<p>SPI 3210.1.3 Distinguish among proteins, carbohydrates, lipids, and nucleic acids.</p> <p>SPI 3210.1.4 Identify positive tests for carbohydrates, lipids, and proteins.</p> <p>SPI 3210.1.5 Identify how enzymes control chemical reactions in the body.</p>
3	Macromolecules	DNA Onion Extraction, DNA modeling, Amylase Starch, Pineapple Enzymes, Making Butter,	Egg Albumin, Sudan 3 for lipid test, Alcohol, Water, and Oil Membrane Column	<p>SPI 3210.Math.1 Interpret a graph that depicts a biological phenomenon.</p> <p>SPI 3210.1.3 Distinguish among proteins, carbohydrates, lipids, and nucleic acids.</p> <p>SPI 3210.1.4 Identify positive tests for carbohydrates, lipids, and proteins.</p> <p>SPI 3210.1.5 Identify how enzymes control chemical</p>

				reactions in the body. SPI 3210.4.1 Identify the structure and function of DNA.
4	Macromolecules + Organelles	Cell Lipid/Carb Model	Harvard BioVisions	
5	Transport	Egg Lab, Starch-Iodine Diffusion, Toxic Jell-O, Alcohol Diffusion into Banana	Food Coloring Diffusion, Air Freshener, Interactive Active Transport	SPI 3210.Math.1 Interpret a graph that depicts a biological phenomenon. SPI 3210.1.7 Predict the movement of water and other molecules across selectively permeable membranes. SPI 3210.1.8 Compare and contrast active and passive transport.
6	Photosynthesis	Peanut Calorimeter, Chlorophyll pH Indicator, Elodea Baking Soda Bubbles, Stoma Microscope Green Onion	Light Reactions Animation	SPI 3210.Math.1 Interpret a graph that depicts a biological phenomenon. SPI 3210.2.1 Predict how population changes of organisms at different trophic levels affect an ecosystem. SPI 3210.3.1 Interpret a diagram that illustrates energy flow in an ecosystem. SPI 3210.3.3 Compare and contrast photosynthesis and cellular respiration in terms of energy transformation.
Common Assessment (excluding photosynthesis)				
7	Cell Respiration	Make Cheese/Yogurt, Make Bread, Fermented Apple Cider, Making Ginger Ale	Cell Respiration Animation	SPI 3210.Math.1 Interpret a graph that depicts a biological phenomenon. SPI 3210.3.1 Interpret a diagram that illustrates energy flow in an ecosystem. SPI 3210.3.3 Compare and contrast photosynthesis and cellular respiration in terms of energy transformation. SPI 3210.3.2 Distinguish between aerobic and anaerobic respiration.

8	DNA Replication + Mitosis	DNA extraction, DNA modeling, Arizona Cell Clasification, Prepared Onion/Fish Scale Slides	Race for the Double Helix, Messelson-Stahl, DNA replication Animation	SPI 3210.1.6 Determine the relationship between cell growth and cell reproduction. SPI 3210.4.2 Associate the process of DNA replication with its biological significance. SPI 3210.4.1 Identify the structure and function of DNA.
9	Meiosis	Yarn models of Meiosis	Meiosis Square Dance	SPI 3210.1.6 Determine the relationship between cell growth and cell reproduction. SPI 3210.4.6 Describe how meiosis is involved in the production of egg and sperm cells. SPI 3210.4.7 Describe how meiosis and sexual reproduction contribute to genetic variation in a population
10	Genetics Intro	Spongebob Punnet Squares	Mendel Punnet Squares	SPI 3210.Math.2 Predict the outcome of a cross between parents of known genotype. SPI 3210.4.4 Determine the probability of a particular trait in an offspring based on the genotype of the parents and the particular mode of inheritance. SPI 3210.4.5 Apply pedigree data to interpret various modes of genetic inheritance. SPI 3210.4.8 Determine the relationship between mutations and human genetic disorders.
11	Transcription		Transcription Animations	SPI 3210.4.8 Determine the relationship between mutations and human genetic disorders.
12	Translation	Translation Role Play, Transcription/Translation Bingo	Amino Acid Similarities	SPI 3210.4.8 Determine the relationship between mutations and human genetic disorders.
Common Assessment				
13	DNA + Genetic Engineering	Gel-Electrophoresis	DNA Fingerprinting	SPI 3210.4.9 Evaluate the scientific and ethical issues associated with gene technologies.

14	Evolution	Homology/Analogy Structures		<p>SPI 3210.2.4 Predict how various types of human activities affect the environment.</p> <p>SPI 3210.2.5 Make inferences about how a specific environmental change can affect biodiversity.</p> <p>SPI 3210.5.1 Compare and contrast the structural, functional, and behavioral adaptations of animals or plants found in different environments.</p> <p>SPI 3210.5.2 Recognize the relationship between form and function in living things.</p> <p>SPI 3210.5.4 Determine how the amount of biodiversity and the ability of a population to adapt to a changing environment are related.</p> <p>SPI 3210.5.5 Apply evidence from the fossil record, comparative anatomy, DNA, and protein sequences to support modern classification systems.</p> <p>SPI 3210.5.6 Infer relatedness among different organisms using modern classification systems.</p>
15	Gateway Wrap Up Week: Ecology, Symbiosis, Population Biology			<p>SPI 3210.Math.1 Interpret a graph that depicts a biological phenomenon.</p> <p>SPI 3210.2.1 Predict how population changes of organisms at different trophic levels affect an ecosystem.</p> <p>SPI 3210.2.2 Interpret the relationship between environmental factors and fluctuations in population size.</p> <p>SPI 3210.2.3 Determine how the carrying capacity of an ecosystem is affected by interactions among organisms.</p> <p>SPI 3210.2.6 Predict how a specific environmental change may lead to the extinction of a particular species.</p> <p>SPI 3210.2.7 Analyze factors responsible for the changes associated with biological succession.</p> <p>SPI 3210.3.4 Predict how changes in a biogeochemical cycle can affect an ecosystem.</p>
16 Gateway Exam				
17	Dissections/Cumulative			

	Project			
18	Final Exam Prep/Exam			