



Elizabethtown Area School District
Scope & Sequence - Quick Reference

Department: Science

Course: AP Biology

Grade Level(s): 10, 11, 12

<i>Unit Title</i>	<i>General Topic(s)</i>	<i>Pacing</i>
1. Chemistry of Life	<ul style="list-style-type: none">● Interpretation of data: graphs and table● Experimental controls● How to make graphs● Structure of water and hydrogen bonding● Structure, function and properties of biological macromolecules: carbohydrates, lipids, proteins and nucleic acids	Last week of August - 3rd week of September
2. Cell Structure and Function	<ul style="list-style-type: none">● Structure and function of subcellular components and organelles.● How organisms capture, store and use energy.● Effect of surface area-to-volume ratios on the exchange of materials between cells or organisms and the environment.● Specialized structures and strategies used by cells for the efficient exchange of molecules with the environment.	4th week of September through the 2nd week of October.

	<ul style="list-style-type: none"> ● Facilitated diffusion ● Tonicity and osmoregulation ● Mechanisms of plasma membrane transport ● Cell compartmentalization ● Origins of cell compartmentalization 	
3. Cellular Energetics	<ul style="list-style-type: none"> ● Enzyme structure ● Enzyme catalysis ● Environmental impacts on enzyme function ● Cellular energy ● Photosynthesis ● Cellular respiration ● Fermentation ● Fitness of organisms 	Third week of October - 2nd week of November
4. Cell Communication and Cell Cycle	<ul style="list-style-type: none"> ● Cell communication ● Introduction to signal transduction ● Signal transduction ● Changes in signal transduction pathways ● Feedback ● Cell cycle ● Regulation of cell cycle 	3rd week of November - 2nd week of December
5. Heredity	<ul style="list-style-type: none"> ● Meiosis ● Meiosis and genetic diversity ● Mendelian genetics ● Non-Mendelian genetics ● Environmental effects on phenotype ● Chromosomal inheritance 	3rd week of December - 3rd week of January
6. Gene Expression and Regulation	<ul style="list-style-type: none"> ● DNA and RNA structure ● Replication ● Transcription and RNA processing ● Translation ● Regulation of gene expression ● Gene expression and cell specialization ● Mutations 	4th week of January - 3rd week of February

	<ul style="list-style-type: none"> ● Biotechnology 	
7. Natural Selection	<ul style="list-style-type: none"> ● Introduction to natural selection ● Natural selection ● Artificial selection ● Population genetics ● Hardy-Weinberg equilibrium ● Evidence of evolution ● Common ancestry ● Continuing evolution ● Phylogeny ● Speciation ● Extinction ● Variations in populations ● Origin of life on earth 	4th week of February - 1st week of April
8. Ecology	<ul style="list-style-type: none"> ● Responses to the environment ● Energy flow through ecosystems ● Population ecology ● Effect of density of populations ● Community ecology ● Disruptions to ecosystems 	1st week of April - 2nd week of May