

Cornwall-Lebanon School District Curriculum Overview

AP Biology, 10-12

 length of time in weeks	Concepts & Competencies	Common Assessments	Academic Standards (PA Core if applicable)
Unit 1 	<u>Nature of Science and Chemistry of Life</u> Students will illustrate the theories on the origins of the earth and life, describe water's unique properties and relate these properties to living organisms, describe characteristics, structure, and functions of organic compounds, and explain the role of substrates, intermediate, enzymes, cofactors, energy, energy carriers, and products in a variety of metabolic pathways.	➤ Scientific Method Lab ➤ Nature of Science lab ➤ Biochemistry Lab ➤ Enzyme Lab ➤ Vocabulary Quiz ➤ Unit 1 Test	CR2 CR4a CR3a
Unit 2 	<u>Evolutionary Biology and Biodiversity</u> Students will describe and justify evidence Darwin used to develop the theory of natural selection, calculate allele frequencies using the Hardy-Weinberg equation, describe how populations can evolve, describe the formation of species, and evaluate phylogenetic trees to see how taxonomy reflects evolutionary history	➤ Cladograms Activity ➤ Blast lab ➤ Hardy Weinberg Lab ➤ Evolution lab ➤ Vocabulary Quiz ➤ Unit 2 Test	CR2 CR3a CR3b CR3d
Unit 3 	<u>Ecology and Behavior</u> Students will understand animal behavior including response to stimuli, social behavior, altruism, and reproduction, analyze and interpret growth curves and histograms, describe how energy moves through an ecosystem (food chains, biogeochemical cycles, succession, ecosystems), and explain human impact on ecosystems.	➤ Population Labs ➤ Animal Behavior Lab ➤ Vocabulary Quiz ➤ Unit 3 Test	CR2 Cr3d CR4d CR6

Unit 4	3	<u>Homeostasis</u> Students will explain how the plasma membrane maintains homeostasis, explain the functions of cell organelles, a distinguish between active and passive transport, describe the various forms of cellular communication	➤ Microscope Lab ➤ Cell Lab ➤ Diffusion and Osmosis Lab ➤ Vocabulary Quiz ➤ Unit 4 Test	CR2 CR3a CR3b CR6
Unit 5	3	<u>Cellular Respiration</u> Students will explain the differences between anaerobic and aerobic respiration pathways, compare major stages of aerobic respiration in plants and animals; associate each to a particular cell organelle.	➤ Cellular Respiration Lab ➤ Vocabulary Quiz ➤ Unit 5 Test	CR2 CR4b CR5
Unit 6	4	<u>Human Body Systems</u> Students will explain the structure of various human body systems, explain the function of various human body system, and describe how humans maintain homeostasis (including feedback loops).	➤ Nervous System lab ➤ Heat Dissection ➤ Eye and Brain Dissection ➤ System Projects ➤ Vocabulary Quiz ➤ Unit 6 Test	CR2 CR4b CR5
Unit 7	3	<u>Photosynthesis and Plants</u> Students will describe the major processes that occur in the stages of photosynthesis; associate each reaction to a particular cell components, describe evolutionary trends for dealing with differing climate conditions, and explain how the structure of plants help them maintain homeostasis (transport, photosynthesis, tropisms).	➤ Photosynthesis Lab ➤ Plant Structure Lab ➤ Vocabulary Quiz ➤ Unit 7 Test	CR2 CR3a CR3d CR4b
Unit 8	4	<u>Making New Cells</u> Students will explain the processes of mitosis and meiosis, discuss the process in which cancer forms, differentiate between growth and development, discuss and apply the work of Mendel, and explain various how traits may be inherited and detected (non-Medelian genetics, pedigrees, genetic testing, mutations)	➤ Mitosis and Meiosis Labs ➤ Chi Square Lab ➤ Hardy Weinberg Lab ➤ Vocabulary Quiz ➤ Unit 8 Test	CR2 CR3c CR4c CR5
Unit 9	6	<u>Protein Synthesis</u> Students will discuss the discovery, function, and structure of DNA and RNA, describe how proteins are formed, explain how	➤ DNA Lab ➤ Transformation Lab ➤ Protein Synthesis Lab ➤ Mutation Lab	CR2 CR3b CR3d CR4b

	changes in the DNA affect living organisms, explain how gene expression is controlled in both eukaryotes and prokaryotes, and describe various biotechnology tools.	➤ Vocabulary Quiz ➤ Unit 9 Test ➤ AP Exam Review	CR3C CR5
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