

Commerce City Schools Curriculum Map

Grade Level: Advanced Placement (11/12)

Content Area: AP Biology-1st Semester

Grading Period	1 st 6 weeks		2 nd 6 weeks		3 rd 6 weeks	
Name of Unit	Biochemical Nature of Life	Cellular Basis of Life and Cellular Reproduction	Metabolism	Central Dogma (Molecular Genetics)	Genetics (Mendelian and Non-Mendelian)	Biotechnological Revolution
Big Ideas	<p>Atomic Structure, Chemical bonds, Water properties, Organic chemistry, pH and buffers, Macromolecule structure and function, Free energy change and laws of thermodynamics, Enzymatics</p> <p>[AP Lab 2: Enzyme Catalysis]</p>	<p>Cell theory, Prokaryotic and Eukaryotic cells, Eukaryotic organelles: structure and function, Fluid mosaic model of the membrane and homeostasis, Cellular transport, Cell communication, Cell Cycle and regulation, Mitosis and asexual reproduction, Meiosis and gametogenesis</p> <p>[AP Lab 1: Osmosis and Diffusion;</p>	<p>Molecules and reactions of metabolism, Free energy changes, Cellular respiration, Fermentation and industrial uses, Photosynthesis</p> <p>Light-independent and light-dependent reactions, Coupled reactions, ATP/ADP cycle</p> <p>[AP Lab 5: Cell Respiration]</p>	<p>History of “unraveling” DNA, DNA structure and function, Gene regulation, RNA structure and function, The central dogma (DNA→RNA→ protein), Mutations,</p> <p>[AP Lab 6: Molecular Biology]</p>	<p>Meiosis and gametogenesis (review and application), Structure of eukaryotic and prokaryotic chromosomes, Mendelian genetics</p> <p>Inheritance patterns: simple monohybrid, dihybrid, sex-linked, codominance, incomplete dominance, Human heredity</p> <p>[AP Lab 7: Genetics of Organisms]</p>	<p>Microbial models, Genetics of viruses and bacteria, DNA cloning and libraries, Recombinant DNA technology/genetic engineering, modern biotechnology applications</p> <p>[AP Lab 6: Molecular Biology]</p>

		AP Lab 3: Mitosis and Meiosis]				
Pacing of Unit	12 days	27 days	11 days	14 days	14 days	12 days
Course Description Topics and Concepts, AP Exam Content Weight (Complete College Board Course Description Available at: http://apcentral.collegeboard.com/apc/public/repository/ap07_bio_coursedesc.pdf)	I. Molecules and Cells (25%)- A. Chemistry of Life (7%: water, organic molecules in organisms, free energy changes, enzymes)	I. Molecules and Cells (25%) B. Cells (10%: Prokaryotic and Eukaryotic cells, membranes, subcellular organization, cell cycle and its regulation) II. Heredity and Evolution (25%) A. Heredity (8%: meiosis and gametogenesis)	I. Molecules and Cells (25%) C. Cellular Energetics (8%: coupled reactions, fermentation and cellular respiration, photosynthesis)	II. Heredity and Evolution (25%) B. Molecular Genetics (9%: RNA and DNA structure and function, Gene regulation, mutation)	II. Heredity and Evolution (25%) A. Heredity (8%: Meiosis and gametogenesis, eukaryotic chromosomes, inheritance patterns)	II. Heredity and Evolution (25%) B. Molecular Genetics (9%: Gene regulation, mutation, viral structure and replication, nucleic acid technology and applications)
Selected Chapter Readings* *from Campbell and Reece <i>Biology</i>, 7th edition/AP Edition (unless noted otherwise)	Chapters 1-5, 8 and additional research article readings; Stephen R. Palumbi's <i>The Evolution Explosion: How Humans Cause Rapid Evolutionary Change</i> (2001))	Chapters 6, 7, 11-13 and additional research article readings	Chapters 8-10 and additional research article readings	Chapters 15-19 and additional research article readings	Chapters 13-15 and additional research article readings	Chapters 18-20 and additional research article readings Rachel Carson <i>Silent Spring</i> (2002))

Commerce City Schools Curriculum Map

Grade Level: Advanced Placement (11/12)
Content Area: AP Biology-2nd Semester

Grading Period	4th 6 weeks		5th 6 weeks and 6th 6 weeks		
Name of Unit	Evolutionary Biology and phylogeny of life	Microbiology and the Diversity of Life	Plants-More than meets the eye!!	Zoology and Comparative Animal Anatomy and Physiology	Interdependence of Life: Ecology and Exam Review
Big Ideas	<p>Descent with modification- Darwin's theory, Evidence supporting evolution, Populations & mechanisms of evolution, Speciation, Prebiotic chemical evolution, Early evolution of life, Evolutionary patterns, Phylogenetic trees</p> <p>[AP Lab 8: Population Genetics & Evolution]</p>	<p>Structure, function and reproduction of prokaryotes, Origins of Eukaryotic diversity, Simple Eukaryotes, Survey of the diversity of life, Evolutionary relationships, Fungi: Friends and Foes</p>	<p>Origin of plants, Evolution of seed plants, Plant structure and growth, Plant nutrition and transport, Plant reproduction and development, Plant adaptations- structural, physiological and behavioral, Plant control systems and responses to environment</p> <p>[AP Lab 9: Transpiration]</p> <p>[AP Lab 4: Plant Pigments and Photosynthesis]</p>	<p>Animal evolution, Invertebrate diversity: the unheralded 95+%, Phylogenetic patterns, Vertebrate origins and evolution, Vertebrate diversity, Modern human phylogeny, Animal Structure and Function, Animal nutrition, Circulation and gas exchange, Animal regulation of internal conditions, Animal reproduction and development, Animal adaptations, Animal behavior and response to the environment</p>	<p>Basic ecological frameworks, Population ecology, Community ecology, Ecosystems, Conservation biology: local and global issues</p> <p>[AP Lab 12: Dissolved Oxygen and Aquatic Primary Productivity]</p>

				[AP Lab 10: Physiology of the Circulatory system]	
				[AP Lab 11: Animal Behavior]	
Pacing of Unit	15 days	13 days	18 days	20 days	24 days
Course Description Topics and Concepts, AP Exam Content Weight (Complete College Board Course Description Available at: http://apcentral.collegeboard.com/apc/public/repository/ap07_biology_course_desc.pdf)	II. Heredity and Evolution (25%) C. Evolutionary Biology (8%: early evolution of life, evidence for evolution, mechanisms of evolution) III. Organisms and populations (50%) A. Diversity of organisms (8%: survey of the diversity of life, evolutionary relationships, evolutionary patterns)	III. Organisms and populations (50%) A. Diversity of organisms (8%: survey of the diversity of life, evolutionary relationships, evolutionary patterns)	III. Organisms and populations (50%) B. Structure and function of plants and animals (32%: reproduction, growth and development; structural, physiological and behavioral adaptations; response to the environment)	III. Organisms and Populations (50%) B. Structure and function of plants and animals (32%: reproduction, growth and development; structural, physiological and behavioral adaptations; response to the environment)	III. Organisms and Populations (50%) C. Ecology (10%: Population dynamics, communities and ecosystems, global issues)
Selected Chapter Readings* *from Campbell and Reece <i>Biology</i>, 7th edition/AP Edition (unless noted otherwise)	Chapters 22-34 (selected sections) and additional research article readings	Chapters 26-28, 31 and additional readings	Chapters 29, 30, 35-39 and additional research article readings <i>The Essence of Plantness</i> (Darley)	Chapters 32-34, Chapters 40-49 (selected sections) and additional readings	Chapters 50, 52-55, additional readings and AP Exam review materials (study guides, practice exams)

