

WV CSO Curriculum Planning Tool

Advanced Biology

Standard	Obj.#	Objective	Projected Date	Date Taught	Date Assessed	Date Re-Taught	Date Re-Assessed
Standard 1: History and the Nature of Science	AB.1.1	formulate scientific explanations based on the student's observational and experimental evidence, accounting for variability in experimental results.					
	AB.1.2	recognize that science has practical & theoretical limitations.					
	AB.1.3	recognize that science is based on a set of observations in a testable framework that demonstrate basic laws that are consistent.					
	AB.1.4	conclude that science is a blend of creativity, logic & math					
	AB.1.5	key historical concepts & principles describing their impact on modern thought & life by identifying the scientist's contributions.					
	AB.1.6	integrate the history of science with cultural history to demonstrate that scientists work within their historical surroundings and are affected by them					
Standard 2: Science as Inquiry	AB.2.1	model and exhibit the skills, attitudes and/or values of scientific inquiry					
	AB.2.2	demonstrate ethical practices for science					
	AB.2.3	apply scientific approaches to seek solutions for personal and societal issues.					
	AB.2.4	properly and safely manipulate equipment, materials, chemicals, organisms and models.					
	AB.2.5	conduct explorations in a variety of environments					
	AB.2.6	use computers and other electronic technologies					
	AB.2.7	demonstrate science processes within a problem solving setting					
	AB.2.8	design, conduct, evaluate and revise experiments					
Standard 3: Unifying Themes	AB.3.1	analyze systems to understand the natural and designed world; use systems analysis to make predictions about behaviors in systems; recognize order in units of matter, objects or events.					
	AB.3.2	apply evidence from models to make predictions about interactions and changes in systems.					
	AB.3.3	measure changes in systems using graphs and equations relating these to rate, scale, patterns, trends and cycles.					
	AB.3.4	characteristics, properties or relationships within a system might change as its dimensions are increased or decreased					
Standard 4: Science Subject Matter/Concepts	AB.4.1	review foundational chemical concepts					
	AB.4.2	molecules of life and their function in the living systems.					
	AB.4.3	identify the structure, functions, and interactions of eukaryotic cell organelles and their products.					
	AB.4.4	chemistry and structure of the cell membrane as it relates to import and export of molecules necessary for life, exploring osmosis, diffusion, active and passive transport and dialysis.					
	AB.4.5	research the diversity/uniqueness of cell types (compare differences in prokaryotic/eukaryotic, plant/animal cells; explore nerve cells, blood cells, gametes, etc.).					
	AB.4.6	explore capture and release of energy as demonstrated by photosynthesis, cellular respiration, fermentation, and the role of coenzymes and vitamins.					
	AB.4.7	investigate and discuss homeostasis.					
	AB.4.8	recognize and describe the phases of eukaryotic and prokaryotic cell cycles.					
	AB.4.9	identify the stages of mitotic and meiotic eukaryotic cell division and explain significance of the stages.					
	AB.4.10	investigate and discuss DNA as the agent of heredity.					
	AB.4.11	investigate and discuss the importance of replication and mutation in the diversity of life.					
	AB.4.12	evaluate the advantages of asexual and sexual reproduction.					
	AB.4.13	identify Mendel's 1st Law and 2nd Law of Genetics and apply					

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		these laws to predict phenotypic and genotypic ratios from mono and dihybrid crosses.					
	AB.4.14	phenotypic and genotypic genetics beyond Mendel including such things as incomplete dominance, gene interaction, codominance, multi-alleles, crossing over, genetic recombination; and influences of environment, development, sex and age.					
	AB.4.15	identify the function of DNA in replication and transfer of the genetic code .					
	AB.4.16	RNAs; messenger, transfer and ribosomal in the transcription and translation process of protein formation.					
	AB.4.17	recognize that differentiation is regulated through the expression of different genes.					
	AB.4.18	discuss regulatory process in controlling gene function					
	AB.4.19	introduce genetic engineering through current DNA technology practices and the social issues that it raises.					
	AB.4.20	discuss gene mutations.					
	AB.4.21	evolution and natural selection, including examples such as peppered moth, fossil records, biogeography, molecular biology and comparative anatomy.					
	AB.4.22	Investigate behavioral response is a set of actions determined in part by heredity and in part from experience.					
	AB.4.23	research pioneers & current authors of evolutionary ideas.					
	AB.4.24	taxonomy and systematics of living organisms comparing DNA as the modern basis of classification to older methods based on morphology.					
	AB.4.25	discuss reasons why viruses are not included in the modern classification system.					
	AB.4.26	various systems of the human organism and their interactions.					
	AB.4.27	investigate and discuss responses of organisms to internal and environmental stimuli.					
	AB.4.28	investigate that extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival.					
	AB.4.29	investigate and discuss ecology as the interaction of living organisms and their nonliving environment.					
	AB.4.30	trace the energy flow through an ecosystem.					
	AB.4.31	investigate that number of organisms any environment can support depends on the resources available.					
Standard 5: Scientific Design and Application	AB.5.1	summarize technological advances in biological sciences.					
	AB.5.2	investigate and analyze the interdependence of science and technology.					
	AB.5.3	apply scientific skills and technological tools to design solutions that address personal and societal needs.					
	AB.5.4	scientific concepts underlying technological innovations.					
	AB.5.5	use appropriate technology solutions to measure and gather data; interpret data; analyze data, and to present and communicate conclusions.					
Standard 6: Science in Personal and Social Perspectives	AB.6.1	impact that humans may have on the quality of the biosphere such as depletion of the rainforest, pollution of estuaries, strip mining, depletion of fossil fuels & deterioration of ozone layer.					
	AB.6.2	investigate the effects of natural phenomena on the environment (e.g., oceanographic, meteorologic).					
	AB.6.3	research current environmental issues					
	AB.6.4	cultural, technological, and economic influences on the evolving nature of scientific thought and knowledge.					
	AB.6.5	explore occupational opportunities in science and technology including the academic preparation necessary.					
	AB.6.6	engage in decision making activities and actions to resolve science-technology-society issues.					

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