Wyoming Department of Education Required Virtual Education Course Syllabus

Natrona County School District # 1

Program Name	Natrona Virtual Academy	Content Area	SC
Course ID	NCV03051.2	Grade Level	9,10,11,12
Course Name	Biology Sem 2	of Credits	.5
SCE Code	03051G0.5022	Curriculum Type	Odysseyware

COURSE DESCRIPTION

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK_(Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
SC11.1.d	Evolution and equilibrium
SC11.1.1	The Cell: Explain the processes of life, which necessitates an understanding of relationships between structure and function of the cell and cellular differentiation. Identify activities taking place in an organism related to metabolic activities in cells, including growth, regulation, transport, and homeostasis. Differentiate between asexual and sexual reproduction.
SC11.1.2	Molecular Basis of Heredity: Demonstrate an understanding that organisms ensure species continuity by passing genetic information from parent to offspring. Utilize genetic information to make predictions about possible offspring. Apply concepts of molecular biology (DNA and genes) to recent discoveries.
SC11.1.3	Biological Evolution: Explain how species evolve over time. Understand that evolution is the consequence of various interactions, including the genetic variability of offspring due to mutation and recombination of genes, and the ensuing selection by the environment of those offspring better able to survive and leave additional offspring. Discuss natural selection and that its evolutionary consequences provide a scientific explanation for the great diversity of organisms as evidenced by the fossil record. Examine how different species are related by descent from common ancestors. Explain how organisms are classified based o similarities that reflect their evolutionary relationships, with species being the most fundamental unit of classification.
SC11.1.3	Biological Evolution: Explain how species evolve over time. Understand that evolution is the consequence of various interactions, including the genetic variability of offspring due to mutation and recombination of genes, and the ensuing selection by the environment of those offspring better able to survive and leave additional offspring. Discuss natural selection and that its evolutionary consequences provide a scientific explanation for the great diversity of organisms as evidenced by the fossil record. Examine how different species are related by descent from common ancestors. Explain how organisms are classified based o similarities that reflect their evolutionary relationships, with species being the most fundamental unit of classification.
SC11.1.4	Interdependence of Organisms: Investigate the interrelationships and interdependence of organisms, including the ecosystem concept, energy flow, competition for resources, and human effects on the

	environment.
SC11.1.5	Matter, Energy, and Organization in Living Systems: Describe the need of living systems for a continuous input of energy to maintain chemical and physical stability. Explain the unidirectional flow of energy and organic matter through a series of trophic levels in living systems. Investigate the distribution and abundance of organisms in ecosystems, which are limited by the availability of matter and energy and the ability of the living system to recycle materials.
SC11.1.6	Behavior and Adaptation: Examine behavior as the sum of responses of an organism to stimuli in its environment, which evolves through adaptation, increasing the potential for species survival. Identify adaptations as characteristics and behaviors of an organism that enhance the chance for survival and reproductive success in a particular environment.
SC11.3.2.1	Interdisciplinary connections of the sciences and connections to other subject areas and career opportunities.
SC11.2.2.3	Give priority to evidence in drawing conclusions and making connections to scientific concepts.
	Evolution and equilibrium

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 7: Genetics and Heredity	SC11.1.d, SC11.1.2,SC11.1.3,	Describe the DNA replication process explain how genetic mutations occur recognize the principles of heredity derived from Mendel's experiments use a Punnett square to calculate probability of genotype inheritance compare and contrast four mechanisms for evolution identify three sources of evidence supporting the theory of evolution
Unit 8: Microbiology and Biodiversity	SC11.2.2.3	Compare and contrast organisms in the Archaea and Eubacteria kingdoms relate how bacterial diseases are transmitted describe the characteristics of protists, protozoa, algae, and fungi describe characteristics similar to all plants distinguish between invertebrates and vertebrates identify characteristics common to all animals
Unit 9: Plants	SC11.1.1,SC11.1.3,SC11.1.5, SC11.1.6	Describe the functions of plant cell features and organelles distinguish between flowers and fruits recognize that plants create their own

		energy via photosynthesis compare different plant life cycle stages examine evidence for plant evolution recognize the contribution of plants to world food supply
Unit 10: Animals and Humans	SC11.1.1,SC11.1.5,SC11.3.2.1	Recognize the five types of specialized animal cells identify organ systems and the organs they contain understand that differences in animal body plans are considered evidence for evolution understand the role chemical transmitters play in sensory reception identify the components of the digestive, respiratory, circulatory, and excretory systems describe the function of the immune system
Unit 11: Ecology and The Environment	SC11.1.4, SC11.1.5, SC11.1.6,	Distinguish between ethologists and comparative behaviorists describe the effects population density, growth rate, and carrying capacity have o ecosystems identify ways that ecosystems fall out of balance, and ways that balance can be restored recognize that all organisms within an ecosystem are dependent upon biotic and abiotic factors recognize that individual actions have a large impact on global pollution Recognize ethical concerns about the development and use of biotechnology