

Wyoming Department of Education Required Virtual Education Course Syllabus

BIG HORN COUNTY SCHOOL DISTRICT #1

Program Name	WYCA	Content Area	Science
Course ID	CASC80392	Grade Level	9, 10, 11, 12
Course Name	Earth Space Science B	# of Credits	0.5
SCED Code	03008G0.5022	Curriculum Type	Connections Academy

COURSE DESCRIPTION

Why did early explorers risk their lives to reach the North Pole? Why does Earth look so beautiful when seen from space? What is really down at the bottom of the ocean? Discovering new things about Earth has been the dream of scientists and explorers for centuries. Today, it is your turn to continue that journey of discovery. Earth/Space SC is a laboratory course focusing on the study of space, and the geologic and atmospheric forces that shape the world. Through experimentation and investigation, the student will explore Earth cycles including the geosphere, hydrosphere, cryosphere, atmosphere, and the carbon cycle. The student will learn about scientific inquiry, geologic time, space exploration, the solar system, and the universe. The student will use web 2.0 tools, interactive experiences, higher order thinking, collaborative projects, and real-world application through labs and a variety of assessments. Upon completion of the course, the student will have a clear understanding of the dynamic forces at work in the surrounding world, becoming better caretakers of planet Earth.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK
HS-LS4-1	Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.
HS-LS4-5	Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
HS-ESS1-1	Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.
HS-ESS1-2	Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
HS-ESS1-3	Communicate scientific ideas about the way stars, over their life cycle, produce elements.
HS-ESS1-5	Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
HS-ESS1-6	Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
HS-ESS2-1	Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.
HS-ESS2-2	Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
HS-ESS2-3	Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.
HS-ESS2-5	Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
HS-ESS3-6	Use the results of a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES
Unit 1: The Lands In this unit, you will learn about the theory of plate tectonics, volcanoes, earthquakes, and other phenomena related to this theory. You will also learn about minerals, rocks and the rock cycle.	HS-ESS1-5, HS-ESS2-1, HS-ESS2-2, HS-ESS2-3, HS-ESS2-5, HS-ESS3-1, HS-ESS3-4, HS-ESS3-6	<ul style="list-style-type: none"> • Summarize the theory of plate tectonics and related phenomena • Describe the composition of Earth's surface and interior • Explain the rock and carbon cycles • Describe the causes and impact of erosion • Describe and differentiate energy sources
Unit 2: The Past In this unit, you will learn about geologic time; relative and absolute dating techniques; the principles and laws by which geologists make assumptions about time; and fossils.	HS-LS4-1, HS-LS4-5, HS-ESS1-6	<ul style="list-style-type: none"> • Explain geologic time • Differentiate relative and absolute dating techniques • Summarize principles and laws guiding geologic research
Unit 3: Space: The Final Frontier In this unit, you will learn about the scientific beliefs about the origin of the universe; the components of the universe; galaxies; our galaxy; our solar system; the planets; and will take a closer look at earth/moon/sun relationships that result in our year, day, tides, and seasons.	HS-ESS1-1, HS-ESS1-2, HS-ESS1-3	<ul style="list-style-type: none"> • Describe theories related to the origin of the universe • Describe components of the solar system and the universe • Explain Earth/moon/sun relationships that relate to time, tides, and seasons • Discuss the pros and cons of space exploration