

Wyoming Department of Education Required Virtual Education Course Syllabus

BIG HORN COUNTY SCHOOL DISTRICT #1

Program Name	WYCA	Content Area	Science
Course ID	CASC80445	Grade Level	9, 10, 11, 12
Course Name	Honors Marine SC B	# of Credits	0.5
SCED Code	03005H0.5022	Curriculum Type	Connections Academy

COURSE DESCRIPTION

In the Marine Science course, students delve deep into Earth's bodies of water and study geologic structures and how they impact the oceans. Students investigate characteristics of various populations, patterns of distribution of life in our aquatic systems, and ongoing changes occurring everyday in our precious ecosystems. Students have the opportunity to explore the relationships among living organisms and see how they are affected by oceans currents, tides, and waves. The Honors Marine Science course includes additional labs and activities that enable students to deeply explore Marine Science concepts and apply critical thinking skills. In addition, the courses include differentiated unit tests.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK
HS-LS2-2	Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
HS-LS2-6	Evaluate the claims, evidence, and reasoning that the complex biotic and abiotic interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing
HS-LS2-7	Evaluate and assess impacts on the environment and biodiversity in order to refine or design a solution for detrimental impacts or enhancement for positive impacts.
HS-LS2-8	Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.
HS-LS4-4	Construct an explanation based on evidence for how natural selection leads to adaptation of populations.
HS-LS4-6	Create and/or use a simulation to evaluate the impacts of human activity on biodiversity.
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-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-ESS2-4	Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
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-ESS3-3	Use computational tools to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.
HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES
<p>Unit 1: Currents and the Antarctic In Unit 1 you travel to the Antarctic and explore the different ocean currents, El Nino and La Nina, hurricanes and organisms in the Antarctic and their adaptations.</p>	HS-LS2-2, HS-LS2-6, HS-LS2-8, HS-ESS2-4, HS-ESS2-5, HS-ESS3-1, HS-ESS3-3, HS-ESS3-4	<p>Students explore the following lesson topics:</p> <ul style="list-style-type: none"> •Where Are We Going? •Ocean Currents •Continuing With Currents •Investigating ENSO •Impacts of El Nino - Assessment •Hurricane! •Why are Krill So Important? •Learn a Little About Penguins •How Do Penguins Keep Warm?
<p>Unit 2: Mollusks and Estuaries In Unit 2 you will travel past Madagascar and then on to Australia. In this unit you will look at coral reefs, mollusks, estuaries, and nutrient cycles. You will also complete a dissection lab where you dissect a squid and an oyster.</p>	HS-LS2-2, HS-LS2-6, HS-LS2-7, HS-LS4-6, HS-ESS3-4	<p>Students explore the following lesson topics:</p> <ul style="list-style-type: none"> •Where Are We Going? •The Great Barrier Reef •Destroying the Coral Reefs! •Mollusks •Mollusk Lab •In Search of the Giant Squid •Estuaries •Life in a Mangrove Ecosystem •Nutrients in the Marine Environment •Too Much of a Good Thing
<p>Unit 3: What we do not see under the Sea Unit 3 has you traveling from Australia to Hawaii. You will look at the abyss, waves, tides, plate tectonics, as well as fish classification and adaptations.</p>	HS-LS4-4, HS-ESS1-5, HS-ESS2-1	<p>Students explore the following lesson topics:</p> <ul style="list-style-type: none"> •Where Are We Going? •Exploring the Abyss •Surf's Up! Wave Anatomy •Tides •Theory of Plate Tectonics •Introduction to Fish •Fish Adaptations •Fish Shapes •All About Sharks! and Their Relatives
<p>Unit 4: Marine Mammals Unit 4 takes you from Hawaii to the west coast of the US, up the coast into Alaska. This unit covers marine mammal classification and characteristics, human involvement with marine mammals, the kelp ecosystem, and the commercial fishing industry.</p>	HS-LS2-2, HS-LS2-7, HS-LS4-6, HS-ESS3-4	<p>Students explore the following lesson topics:</p> <ul style="list-style-type: none"> •Where Are We Going? •Marine Mammal Characteristics and Adaptations •Protect Wild Dolphins •Exploring the Kelp Forest •Kelp! Not Just for Sea Otters •Keystone Predator •Detecting Whale Meat Using DNA •Global Fisheries