Wyoming Department of Education Required Virtual Education Course Syllabus

BIG HORN COUNTY SCHOOL DISTRICT #1

Program Name	WYCA	Content Area	Science
Course ID	CASC80440	Grade Level	9, 10, 11, 12
Course Name	Honors Marine SC A	# of Credits	0.5
SCED Code	03005H0.5012	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 our 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 ch
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-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-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-ESS2-5	Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
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
Unit 1: Nature of Science Unit 1 reviews the scientific method, how to write a hypothesis, independent and dependent variables, the properties of water, origins of the earth's oceans, and information about the Bay of Fundy.	HS-ESS2-1, HS-ESS2-5	Students explore the following lesson topics: •We're Looking for a Few Good Students •What is Science? •Scientific Method •Design Your Own Experiment •Discussion: Origins of the Oceans •What Makes the Ocean a Nice Place to Live? •Properties of Water Lab •Exploring the Bay of Fundy
Unit 2: Ocean Exploration Unit 2 covers navigation, early ocean expeditions, the rocky shore habitat, crustaceans, and ocean zones. This unit gets you started on your voyage around the world, so it starts with navigation, then discusses earlier ocean research. You will explore the rocky shores of New England, and the organisms that live there. The end of the unit looks at the different ocean zones beginning at the continental shelf and moving outward.	HS-LS2-2, HS-LS2-6, HS-ESS2-1	Students explore the following lesson topics: •Navigation •HMS Challenger Journal of a Scientist •Exploring Rocky Shores •Crabby Crustaceans - Lab Introduction •What is a Tidepool? •Rocky Shore Current Event •Ocean Zones and the Life Within
Unit 3: Sea Turtles and Sandy Beaches In Unit 3, you continue to travel south along the east coast of the United States and explore the sandy beach ecosystem. In Lessons 1-4, you will begin learning about sea turtles. Lesson 5 deals with the problems of the shrimping industry related to turtles, and then Lessons 6 and 7 deal with the sandy beach. Lessons 8 and 9 deal with pollution on the beach, and Lesson 9 with oil spills specifically.	HS-LS2-2, HS-LS2-6, HS-LS2-7, HS-LS4-6, HS-ESS3-4	Students explore the following lesson topics: •Where Are We Going? •Introduction to Sea Turtles •Turtle Rehabilitation •Tracking Sea Turtle Migration •Positive Human Impact •Exploring Sandy Beaches Quiz •What is Happening to the Sand? •Marine Pollution •How Can We Clean Up an Oil Spill?
Unit 4: Phytoplankton and Energy Unit 4 has you traveling through the Panama Canal into the Pacific Ocean where you will explore the Galapagos Islands and then travel down the coast of South America. During the end of the unit you will look at organisms in the Galapagos, and complete some assignments looking at organisms adapting to the environment. At the very end of the unit, you will learn about food webs, and the energy pyramid.	HS-LS2-2, HS-LS2-6, HS-LS2-7, HS-LS4-4, HS-LS4-6	Students explore the following lesson topics: •Where Are We Going? •An Introduction to Marine Phytoplankton •Dinoflagellates •Create a Phytoplankton •Adaptations of Organisms •Marine Iguanas •Food Webs •Make a Food Web - Assessment •Class Report