Unit 2 Structure of Marine Ecosystems

Content Area: **Science**
Course(s): **Marine Biology**
Time Period: **Semester 1**
Length: **2 weeks**
Status: **Published**

Standards

SCI.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.
SCI.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.
SCI.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.
SCI.HS-ESS2-3	Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.
SCI.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.
SCI.HS-ESS2-6	Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
SCI.HS-ESS2-7	Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
SCI.HS-ESS3-6	Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity (i.e., climate change).
SCI.HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics, as well as possible social, cultural, and environmental impacts.

Enduring Understandings

The theory of plate tectonics and the phenomena that result from plate tectonics is essential to an understanding of why we have oceans.

Plate tectonics shapes the surface features of our planet, including oceans.

Physical properties of the ocean including waves, currents, tides, salinity, temperature and pressure help delineate different habitats in the ocean and move materials and energy around the globe.

Marine life have unique adaptations in response to the physical properties of the ocean.

Essential Questions

Why do we have oceans on our planet?

How do the physical processes of our planet shape the oceans?

Knowledge and Skills

Knowledge:

The structure of our planet is due to processes established going back to the Big Bang.

Plate tectonics continuously reshapes the face of our planet and is the reason for the development of oceans.

Hydrothermal vent communities exist as a result of geologic processes and represent a rare food chain that exists without the need for sunlight.

The 3 dimensional structure of our planet determines environmental conditions like the amount of light, oxygen. pressure, temperature present in each layer of the ocean.

Marine life have unique adaptations as a result of the extreme conditions in the deep ocean.

Skills:

Being able to read, interpret and plot data on a map of the Earth.

Interpret and develop 2 and 3-dimensional models of the crust and interactions at plate boundaries.

Explain graphical representations for properties of the ocean with depth.

Design an experiment and collect data.

Assessments

https://docs.google.com/document/d/1wR7bQF-8AQoRrt0g4C3hKja0yjwDjC9_BiAmONWbTcI/edit?usp=sharing

Modifications

https://docs.google.com/document/d/1ODqaPP69YkcFiyG72fIT8XsUIe3K1VSG7nxuc4CpCec/edit?usp=sharing