*Unit 2 Marine Organisms

Content Area: **Science**
Course(s): **Marine Environmental Science**
Time Period: **March**
Length: **22 blocks**
Status: **Published**

Performance Expectations (Transfer Skills)

LS1-5	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.
LS2-3	Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in a
LS4-2	Construct an explanation based on evidence that the process of evolution primarily results from four fac heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) comp organisms that are better able to survive and reproduce in the environment.

Enduring Understandings

-Organisms have physical and behavioral adaptations that help them grow, survive, reproduce and change with their environment.
-Empirical evidence is is required to differentiate between cause and correlation of human influences on marine life.
-Organisms are linked by lines of descent from common ancestry.

Essential Questions

How do an animal's characteristics help it and or the species survive?

What makes a quality experiment?

How are different marine species are related, and what may have caused speciation?

Disciplinary Core Ideas (Content)

LS1.C: Organization for Matter and Energy Flow in Organisms

- The process of photosynthesis converts light energy to stored chemical energy by converting carbon dioxide plus water into sugars plus released oxygen. (HS-LS-1-5)

LS2.B: Cycles of Matter and Energy Transfer in Ecosystems

- Photosynthesis and cellular respiration (including anaerobic processes) provide most of the energy for life processes. (HS-LS2-3)

LS4.B: Natural Selection

- Natural selection occurs only if there is both (1) variation in the genetic information between organisms in a population and (2) variation in the expression of that genetic information—that is, trait variation—that leads to differences in performance among individuals. (HS-LS-4-2)

LS4.C: Adaptation

- Evolution is a consequence of the interaction of four factors: (1) the potential for a species to increase in number, (2) the genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for an environment's limited supply of the resources that individuals need in order to survive and reproduce, and (4) the ensuing proliferation of those organisms that are better able to survive and reproduce in that environment. (HS-LS-4-2)

Science & Engineering Practices (Skills)

The eight science and engineering practices should be integrated in to learning opportunities where appropriate.

1. Asking questions (for science) and defining problems (for engineering)

2. Developing and using models

3. Planning and carrying out investigations

4. Analyzing and interpreting data

5. Using mathematics and computational thinking

6. Constructing explanations (for science) and designing solutions (for engineering)

7. Engaging in argument from evidence

8. Obtaining, evaluating, and communicating information

Resources

Pearson Text

Lesson 13. Photosynthesis in the ocean: (HS-LS1-5, HS-LS2-3)

Lesson 18. Intro to marine invertebrates: (HS-LS4-2)

Lesson 19. Biology of fishes: (HS-LS4-2)

Lesson 20. Marine reptiles and bird: (HS-LS4-2)

Lesson 21. Marine mammals: (HS-LS4-2)

Standards

CCC.7.1	students understand much of science deals with constructing explanations of how things change and how they remain stable. They quantify and model changes in systems over very short or very long periods of time. They see some changes are irreversible, and negative feedback can stabilize a system, while positive feedback can destabilize it. They recognize systems can be designed for greater or lesser stability.
SEP.5.b	Use mathematical, computational, and/or algorithmic representations of phenomena or design solutions to describe and/or support claims and/or explanations.
SEP.7.d	Construct, use, and/or present an oral and written argument or counter-arguments based on data and evidence.
SCI.9-12.5.3	Energy cannot be created or destroyed—only moves between one place and another place, between objects and/or fields, or between systems.
SCI.HS-ESS2-7	Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
SCI.HS-LS2-4	Use a mathematical representation to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.