

Cephalopod Survival



Teacher's Guide

Topic: Octopuses

Grade level: 3-4

Aligned Standards

Next Generation Science Standards (NGSS) Performance Expectations:

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

NGSS Science and Engineering Practices:

Engaging in argument from evidence

Constructing explanations and designing solutions

NGSS Cross-Cutting Concepts:

Structure and function

Ocean Literacy Principles:

Principle #5. The ocean supports a great diversity of life and ecosystems.

d. Ocean biology provides many unique examples of life cycles, adaptations, and important relationships among organisms that do not occur on land.

Eight arms, three hearts, and nine brains! Explore these and other octopus adaptations through hands-on activities and discussion. Work together to identify structures and behaviors that octopuses and their relatives use to survive in their habitats.



Program at a glance

Students will investigate how octopuses survive in their habitat and plan an enriching activity for an octopus at the Aquarium.

Objectives

Students will be able to:

- Identify the basic needs of living things
- Communicate how structural and behavioral adaptations help octopuses survive in the ocean
- Design enrichment for an animal based on its natural behaviors

Skills

Students will gain expertise in:

- Making predictions based on evidence and observations
- Collaborating with others to answer questions and communicate reasoning
- Sketching a solution to a challenge

Program features

- Small group activities that explore octopus structures and behaviors
- Observations of animal biofacts, including beaks and teeth
- Opportunity to create enrichment for an animal at the Oregon Coast Aquarium

Extension activities

Use these prompts to facilitate further discovery before or after your Aquarium program.

In the Classroom

- Octopuses and other cephalopods are masters of camouflage. Watch them in action!
 - <https://youtu.be/RQkwC9LqtB0>
- Octopuses can change the color and texture of their skin to blend in with their surroundings. Provide students with an octopus outline (included) and invite them to decorate their octopus so that it can camouflage somewhere in the classroom. This activity can also be facilitated outdoors.

At Oregon Coast Aquarium

- “Enrichment” is an object or scenario that encourages an animal to engage in natural behaviors. Enrichment might include toys, activities, or environmental changes. Visit the Aquarium and look for examples of enrichment.
- After the program, work together as a class to create enrichment for a giant Pacific octopus. Keep in mind the structures and behaviors that help an octopus survive in its habitat. Students can observe an octopus at the Aquarium or do additional research. If there are multiple ideas, choose one to submit. Drop off your completed enrichment project at the Aquarium. Email education@aquarium.org to coordinate drop-off. You may also choose to keep your mockup and send us photos and specifications to build our own!

Enrichment for our octopuses must meet these criteria:

- No toxic materials
- No sharp edges
- No food (if your idea includes food, let us know and Aquarium staff can add it)

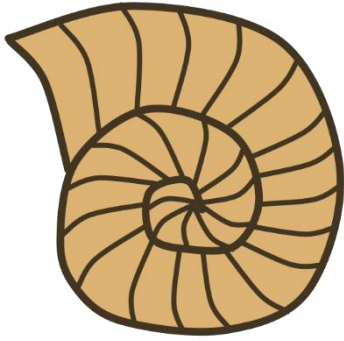


Get Outside

- Did you know octopuses are related to slugs and snails? They are all mollusks! Head outside to look for signs of land mollusks. Use the included scavenger hunt or create your own! Compare and contrast different types of mollusks (e.g. octopuses and slugs).
- Evaluate the habitat around your school. Have students draw a map of the school yard and include the locations of basic survival needs (food, water, hiding places, etc.).



Mollusk Scavenger Hunt



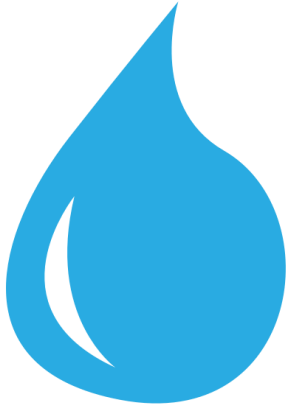
Shell



Slime trail



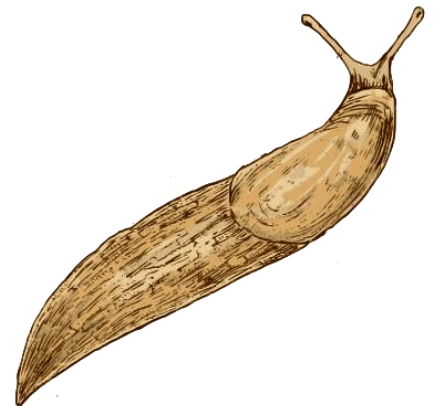
Holes in leaves



Moisture



Hiding spot



Slug



Snail



Dead leaves



Dead bugs