

Plankton Investigation



Teacher's Guide

Topic: Plankton

Grade level: 4

Aligned Standards

Next Generation Science Standards (NGSS) Performance Expectations:

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:

Asking questions and defining problems

Planning and carrying out investigations

Constructing explanations

Engaging in argument from evidence

Ocean Literacy Principles:

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

a. Ocean life ranges in size from the smallest virus to the largest animal that has ever lived on Earth.

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

Discover the world of plankton! Use scientific tools to collect microscopic life from the Yaquina Bay and examine the external structures of plankton. Use scientific reasoning to complete the lifecycle of a local mystery plankton. Make predictions, investigate, and discover!



Activity at a glance

Students will explore how external structures of plankton help them survive and discover how some plankton undergoes metamorphic transformations throughout its life.

Objectives

Students will be able to:

- Communicate how the external structures of plankton help them survive
- Explore the metamorphic stages of a mystery plankton
- Work collaboratively to predict, illustrate and label external structures of an adult animal based upon its plankton larval stages
- Express excitement and appreciation for plankton

Skills

Students will gain expertise in:

- Using scientific equipment including microscopes, eye droppers, and a plankton net
- Making predictions based on evidence and observations
- Collaborating with others to answer questions and communicate reasoning

Program features:

- Plankton collection at Estuary Overlook
- Staff-facilitated educational experience in Gleason Room
- Student illustrations based on live specimens and biofacts
- Self-guided exploration of the Aquarium

Extension activities

Use these prompts to facilitate further discovery before, during, or after your field trip to Oregon Coast Aquarium.

In the Classroom

- Study the life cycle of a common animal which undergoes metamorphosis, such as a frog or butterfly. Discuss why the appearance of an organism might change throughout its life, thinking about survival strategies such as hiding from predators, finding food, etc.
- Have students invent and build a model of their own plankton and describe the features that help it survive. Potential materials to use could include pipe cleaners, toothpicks, playdough, and sponges cut into cubes.

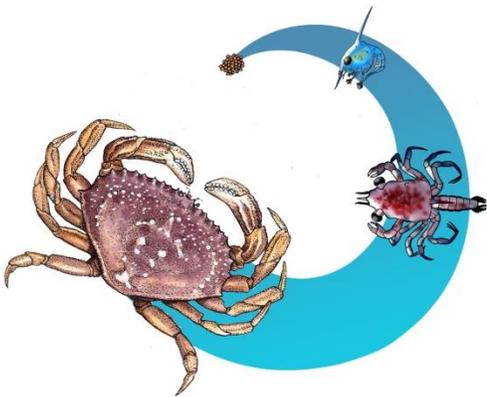
At Oregon Coast Aquarium

- Ask students to pick an animal that interests them somewhere in the Aquarium. Distribute copies of the attached “Aquarium Animal Investigation” and have students describe its habitat, draw a picture of the animal in its habitat, and label its external anatomy. Describe how its external structures might help it survive, and create a fictional story about a day in the life of their animal.
- The word *plankton* means “drifter” and includes many different types of animals which drift along with the ocean currents. Challenge students to find an example of plankton in our exhibits. (**HINT:** Several types of large plankton can be seen in the “Coastal Waters” Gallery – they are slow, often transparent, and known for their stinging tentacles!)



Get Outside

- Go to your school garden, a nearby park, or even just a tree or bush at your school. Look at the external structures of plants and any visible animals such as insects or snails. Discuss how their features, such as spiky leaves, bright flowers, hard shells, etc. may help them survive.
- Collect plankton from a local water source near your school (fresh or salt water). Examine its structures and discuss how those features might help it survive. How are these plankton similar to the plankton you saw during your Aquarium field trip? How are they different?



TIP: Contact your local [STEM Hub](#) to see what scientific equipment they have available for check out, such as microscopes and plankton nets.

Name: _____

Aquarium Animal Investigation

Choose an animal somewhere in the Aquarium that interests you. Then, use the information posted next to its exhibit or ask a Chaperone or Aquarium Volunteer to help you answer the questions below.

Type of animal: _____

Where does it live? (in the sand, on the rocks, open ocean, somewhere else?)

Describe its habitat:

Draw a picture of your animal in its habitat. Label its *external features* (body parts you can see which help it survive such as spikes, claws, flippers, or scales):



How do your animal's external features help it survive in its habitat?

Now, write a story about a day in the life of your animal on the back of this page!