

# Bivalve Biology

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**Subject:** Science  
**Skills:** observation, description, research  
**Duration:** one hour  
**Group size:** one class (approx. 30 students)  
**Setting:** classroom  
**Vocabulary:** mollusk, bivalve, habitat  
**SC Science Standards:** Grade K-5 –  
Inquiry: IA1a, IA2a, IA4a. Grade 2 – IIA1a,  
IIA2a.b. IIB2b. IIC1a. Grade 3 – IIA2a.

## Objectives

Students will learn:

- 1) both inside and outside structures of a **bivalve**; and
- 2) how these structures help each animal live in a different **habitat**.

## Background

A bivalve is a mollusk with two shells, or valves. Many structures inside and outside this animal have allowed it to live far below the surface of the ocean or in mudflats where it is exposed to air twice a day. By learning the different parts of an organism, we can better understand how it lives and why certain species are in trouble.

## Materials

- white paper plates
- craft supplies (construction paper, glue, tape, scissors, markers, pipe cleaners, wiggly eyes, crayons, etc.)
- bivalves (clams, oysters, mussels) for the students to observe
- **mollusk** reference books (list provided on page #)

## Procedures

After the students have researched bivalves and are familiar with the many different bivalve species, they will be

creative and build one using paper plates and the other supplies provided. Any of the inside and outside structures can be included, obviously more being better. If the students are making specific species, have them pass their bivalves to other students and have them guess what mollusk it is. Display these shells, labeling them with the common name, scientific name, student who made it, size of actual shell, color, range of habitat, etc. Display the real shell next to those created. Share your display with other classes.

## Extension

**Objective:** To show how clams (and other similar bivalves) use their siphons to bring water into and push water out of their shells.

**Background:** The water that enters through the incurrent siphon travels across the gills of the clam and then exits through another siphon. Collection of food from the water occurs as the water flows across the gills.

**Materials:** Clams, clear beakers with salt water, food coloring, and brine shrimp

**Procedure:** Place a clam (Quahog) in a beaker (or other small, clear container) of saltwater. After it has been still for quite some time without the clam being startled, you will be able to see the siphons extrude out from inside the shell. Place a small drop of food coloring just above the shell, near the opening of a visible siphon. Observe where the food coloring is drawn into and expelled from the animal. You may need to do this a few times before the

clam will suck the food coloring into the siphon. I recommend having a few clams in separate containers so you won't have to put the one clam in a fresh container of water after every try and wait for his siphons to become visible. After you have completed the activity above, place the clam into a beaker of clean saltwater (no food coloring). Add 24 brine shrimp (or another known number) to the beaker. Count the shrimp every two minutes and keep a record of the number eaten.

Extension referenced from Sea Things...Objectively, 2<sup>nd</sup> Edition.