

Mussels and Other Bivalve Mollusks

Biological Classification Series

Grade Levels:

Grades 5-10

Subject Areas:

Science

Life Sciences

Biology

Synopsis:

Live-action film footage introduces typical bivalve mollusks including mussels, oysters, clams, cockles, fresh water mussels and pearl oysters. Explains that there are over 12,000 species in the world, each distinguished by a shell with two halves and siphons through which the animal filters its food. Provides close-up photography of the byssus that anchors mussels to rocks and the mussel's characteristic behavior underwater where it breathes by absorbing oxygen dissolved in water and feeds on suspended particles. Also films how mussels release their eggs and spermatozooids into water and how the larva develops. Shows how to hunt for oysters and clams and introduces the size and weight of the largest, the giant clam. Also films the creation of pearls when a foreign body is introduced into the oyster.

Learning Objectives: Students will:

Describe the characteristics that determine an animal is a bivalve mollusk.

Understand that there are over 12,000 species worldwide.

Appreciate the variety of bivalve mollusks that exist in the world, from mussels to giant clams.

Understand that all bivalve mollusks are filter feeders.

Vocabulary:

profusion, mussels, byssus, valves, bivalve, mollusks, hermetically, submerged, expel, absorbing, suspended, filter, spermatozooids, fertilization, larva, extremities, siphons, cockle, razor clam, burrowing, zebra mussels, mother of pearl

Pre-Viewing Discussion:

Have you ever hunted for clams or oysters? How did you find them? Were they easy to catch? Once caught, were they easy to open?

When we say that clams and oysters are “bivalves”, what characteristic are we describing? When you open a clam or oyster, how many shell pieces are left in your hand?

How large is the largest clam in the world?

Other than as a source of food, why are oysters so valued? What other product can they produce? How do they produce this product?

Post-Viewing Discussion:

What is the outstanding characteristic of bivalve mollusks?

How do bivalve mollusks feed themselves?

Why is it so difficult to catch razor clams?

What is a byssus? Which animal attaches itself to rocks with its byssus? How do oysters attach themselves to rocks?

Describe the mussel’s life cycle. How long after the larva hatches does it become an adult?

How are pearls made in the waters surrounding certain Pacific islands?

Further Activities:

Find out which of the five major classification groups mussels and other bivalve mollusks are in (i.e. Kingdom, Phylum, Class, Order, Family). Chart the relationships of animals in the largest to the smallest taxonomic groups around them. What characteristics make this group similar to and different from the other groups to which they are related? Then, pick one species from the program and determine its genus and species name, writing them in the proper scientific terminology. Find out why the genus and species name is written the way it is.

Find out the biological names and physical characteristics of the 10 largest or 10 smallest bivalve mollusks. Where are they found? Do they support any human economic endeavors? If so, what characteristics make them suitable for this?

Find out if any bivalve species are endangered. Report on why they are endangered and what is being done to conserve the species.

Investigate how bivalve mollusks sustain the shellfish industry. What species are particularly beneficial as a food source? What characteristics make them so? Is harvesting them an expensive process? Why or why not? What is being done to conserve these species for future harvests?

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