

Treasure Boxes

Key Question

- ▼ How do scientists create classification systems?

Key Concepts

- ▼ Shells can be sorted in many different ways.
- ▼ The process of sorting involves scientific thinking – classification.

Description of Activity

Each pair of students is provided a Treasure Box of beautiful, real shells. Through careful observation, students decide on a classification system and sort the treasures. Students are given the opportunity to explain their system and challenged to find a different method for sorting.

Background for Teachers

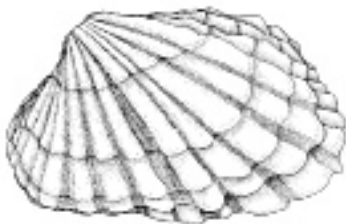
Mollusks comprise a group of invertebrate (no backbone) animals. There are four classes of mollusks: cephalopods, bivalves, gastropods, and chitons.

Most mollusks have a hard outer shell which can be made up of one or several pieces. Snails, the largest group of mollusks, are renowned for their shells. Snails have just one spiral shell and carry it on their backs. They can be found on land, in fresh water, and in the sea. The periwinkle and the conch are examples of snails.

Bivalves have two outer shells that are connected by a muscular hinge which can open and close the shells. Lines on the shells tell how old the mollusk is. As the bivalve grows, it adds shell material to the outer rim of its shells making them bigger. Bivalves exist in fresh water and in the sea. Clams, scallops, oysters, and mussels are bivalves.

Some mollusks have lost their shells altogether. The octopus, the squid, and the sea slugs no longer have the protective armor their ancestors had. Many of these animals have adapted unique defense strategies to protect themselves, like the squid's ink or the poisonous body parts of some octopus and sea slugs.

Of the 80,000 identified mollusks, scientists don't know anything about 70,000, except for their names, according to Paul Valentich-Scott, Curator of Malacology in the Museum's Collections and Research Center. He also believes that an additional 300,000 mollusks will be discovered in the next two hundred years. Treasure Box shells have been provided by Mr. Valentich-Scott.



Treasure Boxes

Words to Know

mollusk: group of invertebrates

shell: hard covering on many mollusks

ocean-dwelling: living in the ocean

land-dwelling: living on land

State Science Standards – Kindergarten

Physical Sciences

1. Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:
 - a. *Students know* objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight)

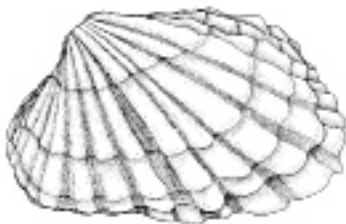
Life Sciences

2. Different types of plants and animals inhabit the earth. As a basis for understanding this concept:
 - a. *Students know* how to observe and describe similarities and differences in the appearance and behavior of plants and animals (e.g., seed-bearing plants, birds, fish, insects).

State Science Standards - First Grade

Life Sciences

2. Plants and animals meet their needs in different ways. As a basis for understanding this concept:
 - a. *Students know* different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.



Important Note to Teachers

This discovery class is all about observing the similarities and differences in objects. There is no right or wrong way to sort the shells. The goal is for students to develop their own criteria for sorting. After the class, students can learn about the fascinating creatures that once inhabited the shells. This is an excellent class for English learners.