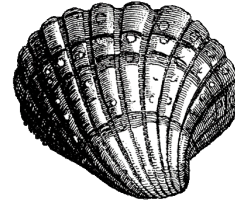
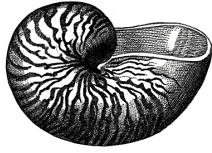


WHAT'S IN THE BAG?



BENCHMARK and TASKS

SC.A.1.1.1 The student knows that objects can be described, classified, and compared by their composition (e.g., wood or metal) and their physical properties (e.g., color, size, and shape).

- The student uses senses to make observations about the physical properties of objects (e.g., color, shape, mass, capacity, form, texture, size, position, speed, and composition).
- The student compares and classifies objects and living things according to one or two attributes and explains a system of classification (e.g., metals or plastics, rough or smooth).

KEY QUESTION

How can we use our senses to see how shells are alike and different?

BACKGROUND INFORMATION

All science is based upon observations. Scientists use their senses and extensions of their senses to see, touch, hear, and otherwise view the world, observing its characteristics and behaviors as objectively as possible. They use the evidence of their senses to obtain the information upon which scientific work is based.

Sensory observation is fundamental to young students as they learn about the world around them. We must teach students to use their five senses – seeing, hearing, smelling, tasting and touching – to explore and describe their surroundings and themselves. Through exploration, students should become aware that different senses provide different information, and that we often use them in conjunction with each other.

The Sense of Sight: Eighty percent of the information received by the brain comes in through our eyes. Sight allows us to know the size and shape of objects, their nearness, and their speed. Light enters the eye through the pupil. It is focused by a lens and projected onto the retina at the back of the eyeball. Receptors, rods and cones, convert the light into nerve impulses. The impulses are sent along the optic nerve to the brain.

The Sense of Touch: The skin is covered with thousands of receptors that detect pressure, temperature, and pain. When we touch something, nerve impulses travel to the brain and the brain signals the body to respond.

The Sense of Hearing: The outer ear flaps catch sound waves and funnel them into the auditory canal, where they strike the eardrum. Vibrations occur and travel to three tiny bones (hammer, anvil, and stirrup) in the middle ear. These bones transmit the vibrations to a membrane that covers the opening of the inner ear. There the cochlea (a fluid-filled tube) responds. Hair-like receptors send nerve signals to the brain, and we hear sound.

The Sense of Smell: The air is filled with odor molecules that flow through the nose and nasal cavity when we inhale. When the molecules reach the hairlike structures that are covered with a single layer of mucus, the mucus dissolves the molecules so they can be received by receptors.

The Sense of Taste: The tongue is covered with taste receptors (or buds) that can identify sweet, sour, bitter, and salty tastes. Adults may have as many as 10,000 taste buds. Babies have even more taste buds than adults.

MATERIALS

Teacher

an opaque bag or envelope containing a shell

The Shell Book by Barbara Hirsch Lember

yarn for 2 sorting circles

Show Me A Shell sheet

Senses recording sheet (optional)

The Five Senses by Keith Faulkner (Scholastic)

My Five Senses by Burton, French, and Jones (Benchmark Education Co.)

Five Senses by Alan Trussell-Cullen (Dominie Press)

Per pair of students

1 sandwich bag containing 5 assorted shells

2 magnifiers

TEACHING TIP

Package five shells of different sizes and shapes in sandwich bags for every two students.

ENGAGE

1. Display the bag or envelope and tell the students there is a mystery object inside.
2. Pass the bag around the class, asking students to feel it (with the bag closed) and to think about what may be inside. (Tell students not to guess out loud, but to remain quiet until everyone has had a turn.)
3. Ask students to guess the name of the mystery object and to give reasons for their guesses.
4. After allowing time for student responses, open the bag and show the shell to the students.

EXPLORE

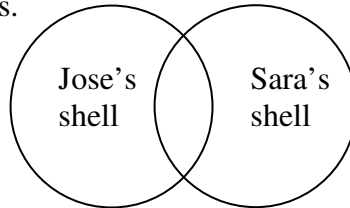
1. Explain to students that they will be observing the likenesses and differences in shells.
2. Pair students and distribute bags of shells and a magnifier to each pair.
3. Provide time for students to observe the shells with the magnifiers.
4. Optional: Tell students to use their senses to record their observations by drawing or writing on the *Senses* recording sheet.
5. Have students order their shells from smallest to largest.
6. Tell students to sort their shells and explain their groupings.
7. Discuss student observations.
8. Have students participate in *Show Me A Shell* as teacher calls out the criteria.

EXPLAIN

1. Have students each select a shell from their bag.
2. Seat students in a circle on the floor. As a class, have students order the shells from largest to smallest. (Shells that are the same size should be placed side-by-side.)
3. Ask students what other characteristics could be used to sort shells. (Students should come up with categories: smooth/not smooth, dark-colored/not dark colored, patterned/not patterned, pointy/not pointy, broken, not broken, etc.)
4. Have each student place their shell in one of the two yarn circles (e.g., smooth/not smooth) or stand in a certain spot in the room.
5. Ask:
Which senses did you use to decide where to place your shell?
How are shells the same?
How are shells different?
(Record responses.)

EXTEND/APPLY

1. Provide other objects such as rocks, buttons, or crayons for students to sort by attributes. Discuss which senses are used to determine attributes of the objects.
2. Read: *The Shell Book* by Barbara Hirsch Lember.
3. As a class, make a Venn Diagram or Double Bubble Thinking Map to compare and contrast two shells or other objects.



4. Read and discuss *The Five Senses*, *Five Senses* and/or *My Five Senses*.

ASSESSMENT

As you observe your students, look for the following behaviors:

- Is the student able to sort objects by one or more attribute(s)?
- By how many attributes can they sort?

SHOW ME A SHELL!



Show me a big shell.

Show me a small shell.

Show me a shell that is wider than the crayon box.

Show me a shell that is white.

Show me a shell that has a brown or tan color.

Show me a shell that has all one color.

Show me a shell that has more than one color.

Show me a shell that feels smooth.

Show me a shell that feels rough.

Show me a shell that feels smooth inside and rough outside.

Show me a broken shell.

Show me a shell that is curved.

Show me a shell that has ridges.

Show me a shell that is pointed.

Show me a shell that is spiral-shaped.

Show me a shell that is cone-shaped.

Show me a shell that has a scalloped edge.

Show me a shell that has sand inside it.

