Fossil History

Purpose

Students will observe and describe how fossils can be compared to one another and to living organisms according to their similarities and differences.

Materials

For the teacher: water, flour, salt, mixing bowl, spoon, chalk, chalkboard, plaster of paris
For each student: 2 copies of Black Line Master (BLM) *Fossil Traits*, pencil, clam or scallop shell, paper towel, pen, science journal
For the class: sets of pictures or specimens of fossil and modern organisms

Activity

A. Pre-Activity Preparation

1. Collect pictures and/or specimens of related fossil and modern organisms:
   - Some organisms whose living and fossil specimens are very similar are: ferns, bony fish, sand dollars, snails, sea urchins, clams, crinoids, brachiopods, corals, bryozoans, and mosquitoes.
   - Some extinct and living organisms that are very similar are: trilobite and arthropod, ammonite and chambered nautilus, allosaurus and crocodile, and pterodactyl or archaeopteryx and bird.
2. Label each specimen and organize the specimens and pictures into pairs of related organisms in various locations around the room.
3. Prepare salt dough by mixing 230 ml flour, 230 ml salt, and approximately 230 ml water for every four students. Knead the dough until it is elastic.
4. Form a ball of salt dough for each student (each ball should be large enough to make an impression of a shell).
5. Cover the balls of dough with a moist towel.

B. Fossil Comparison

1. Ask students: "What are fossils?"
2. Ask students what they could learn by observing a fossil.
3. Tell students they will be investigating how fossils can be compared to each other and to living organisms to determine their similarities and differences.

(continued)

INCORPORATING TECHNOLOGY

Have students explore paleontology on this fun Web site: ology.amnh.org/paleontology/index.html.

EXTENDING THE ACTIVITY

Ask a paleontologist from a local university or the U.S. Geological Survey to visit the classroom and discuss local fossil animals and plants.

Activity (continued)

4. Review how to fill in a Venn Diagram and pass out two copies of the BLM *Fossil Traits* to each student.
5. Tell students to observe any four pairs of specimens around the room and complete the Venn Diagrams on their BLMs *Fossil Traits*.
6. After students have completed the diagrams, bring them back into a group and ask:
   - What were some similarities between [*insert set of specimens*]?
   - Why do you think they were similar? [Relatedness and living in similar environments are good answers.]
   - What were some differences you observed?
   - Why do you think they were different?

C. Fossil Creation

1. Inform students they are about to make their own fossils.
2. Give each student a paper towel, a shell, and a ball of dough.
3. Have students write their names on their paper towels and place their dough in the center of the paper towel.
4. Have students press their dough into a flat disc approximately 2 cm thick.
5. Tell students to gently but firmly press the outside of their shells into the dough and then pull them out to leave an impression.
6. As students are making their molds, prepare plaster of paris by following the directions on the packaging.
7. Fill each student's mold with plaster.
8. Have students place their shells in a warm dry place for approximately 30 minutes.
9. When the plaster of paris has dried, have students peel the salt dough off and throw it away.
10. Have students observe the original shells and their fossils, and record similarities and differences in their science journals.

Questions for Review

Basic Concepts and Processes

At the conclusion of the activity, discuss the following with the students:

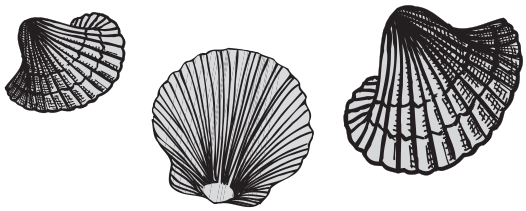
📖 How were the pairs of specimens similar and/or different?

💡 How could you tell?

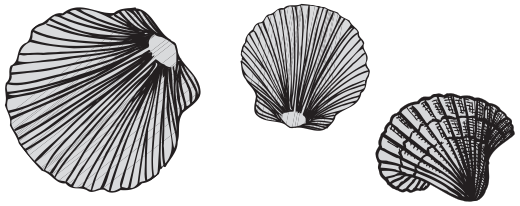
📖 Why do you think they [*set of specimens*] were alike or different?

📖 Describe how the fossil you made was similar and/or different from the original organism.

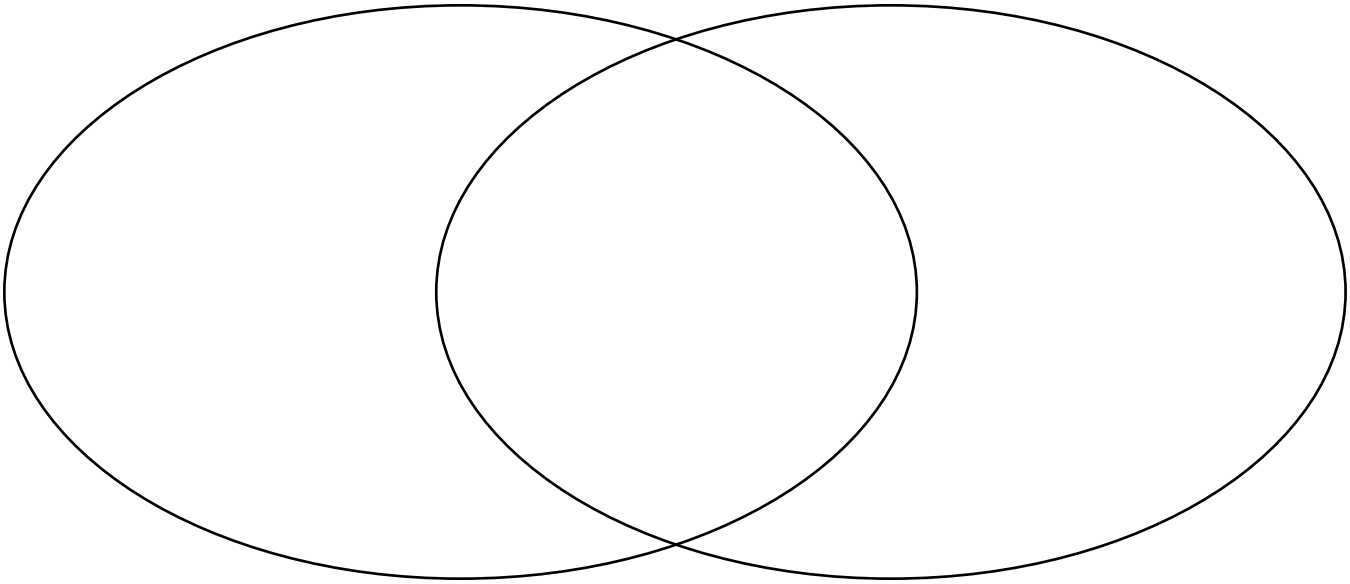
Name: _____



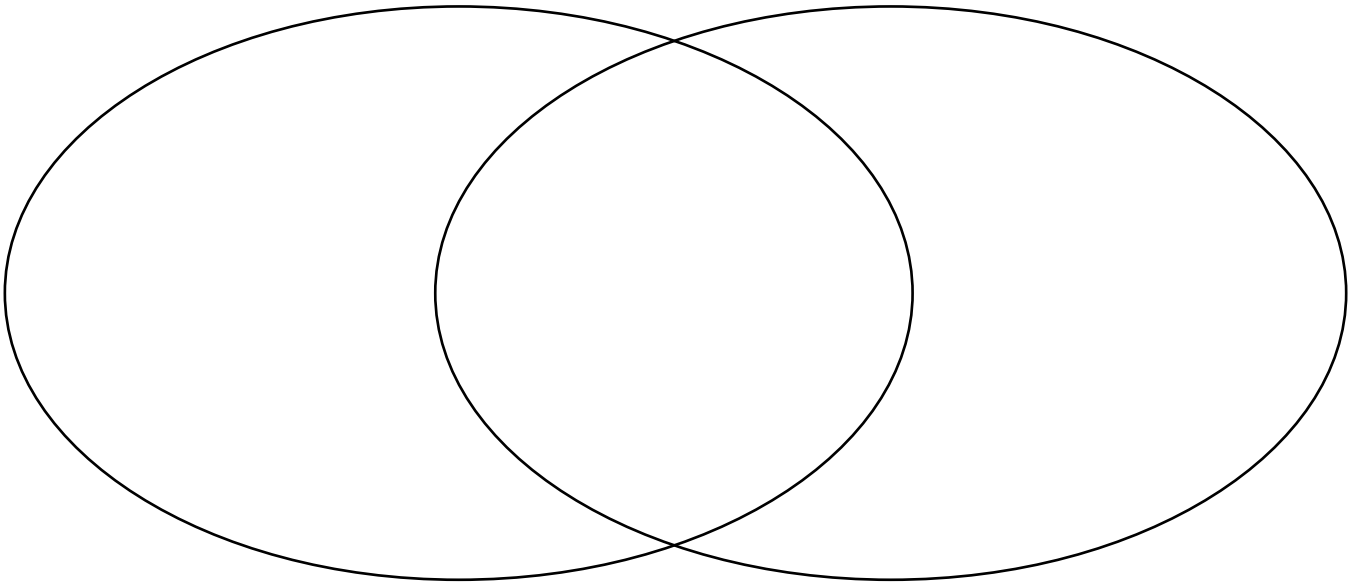
Fossil Traits



Observe two pairs of organisms and fill in three similarities and three differences in the diagrams below.



Fossil: _____ **Living Organism:** _____



Fossil: _____ **Living Organism:** _____

Fossil Traits

Teacher Directions

1. Label each specimen or picture.
2. Place pairs of related specimens/pictures in various places around the room.
3. Provide students with ample time to fill in four Venn Diagrams about four different pairs of specimens.
4. Discuss with the class how each pair of specimens had similarities and differences.

Answer Key

Answers will vary depending on the available specimens; however, students should have reasonable similarities and differences listed in the appropriate locations in the Venn Diagrams.