

Activity—Mold and Cast Fossil Formation

Standard IV

Students will understand how fossils are formed, where they may be found in Utah, and how they can be used to make inferences.

Objective 1

Describe Utah fossils and explain how they were formed.

Intended Learning Outcomes

1. Use science process and thinking skills.

Standard IV

Objective 1

Connections

Background Information

When an organism dies and is covered by sediments, the process of decomposition may be slowed. As the sediment particles are cemented together and begin to harden on the way to becoming rock, the original remains may decay completely. The cavity or hole left in the rock will retain the shape of the organism that has decayed away, and is called a mold. If this cavity later fills with minerals, it produces a fossil called a cast which physically looks like the original organism.

Invitation to Learn

Ask students, “How are fossils formed?” Check for understanding of what may be a fossil, and how different kinds of fossils may be formed. (See the attached “FOSSILS” glossary for more information about fossils and how they are formed.)

Instructional Procedures

1. Explain how mold and cast processes form fossils. Tell them that they can make a “fossil” using this process.
2. Have each student choose a piece of clay, a shell from which to make a mold, a plastic cup with powdered plaster of paris, and a craft stick.
3. Flatten the clay into a circle that is about 6 cm in diameter and 1.5 cm thick.
4. Press the shell into the clay to make an impression that can be used as a mold.

Add water to the plaster of paris and stir with the craft stick. When the plaster of paris has the consistency of a thick milkshake, pour it into the mold. Mark your initials in the clay and set it aside for the plaster to harden. (Take the “fossil” home at the end of the day.)

Materials

- stick of modeling clay for each student
- 1 seashell selected by each student
- 1 plastic cup and a craft stick for each student
- Plaster of paris
- water

Possible Extensions/Adaptations

Have the students compare the “fossil” they made to the shell that was the source of the mold. How closely do they match?

Assessment Suggestion

Have students write a paragraph describing how fossils are formed through the mold and cast process.

Additional Resources

See the Additional Resources list at the end of this set of activities.

Homework & Family Connections

Send clay and plaster of paris home with students. Have them explain mold and cast fossil making to their family members. The student may select another object to make a mold and cast “fossil” to show how it is done. Bring back the homemade “fossil.”

Fossils Glossary

Amber: fossilized tree sap from evergreen trees. It may or may not contain the remains of insects or other Arthropods.

Carbon Imprint: very thin objects such as leaves, feathers, and fish, which may be compressed between rock layers until only the carbon of the cells remain as an imprint.

Cast: a solid formed when a mold fills with minerals which hardens in the same shape as the original organism.

Fossils: the remains or other evidence of a once-living organism.

Freezing: whole organisms have been found frozen below the permafrost line in the Arctic, such as Mammoths.

Mold: the empty space left in a rock where an organism was trapped and decomposed. The space has the exact shape of the decomposed organism.

Paleontologist: a person who studies fossils.

Paleontology: the study of fossils.

Petrification: when minerals have replaced each cell of an organism, thereby turning it into a rock.

Tar Pits: animals have been trapped in pools of soft tar and preserved as fossils. For example, the LaBrea Tar Pits in California.

Trace Fossils:

- A. *Dinosaur Tracks:* footprints made in mud and preserved when the mud turns to stone.
- B. *Gastroliths:* polished stones used to grind food inside dinosaur gizzards.
- C. *Fossilized Eggs and Eggshells:* one was found in Utah that contained an identifiable embryo.
- D. *Coprolites:* fossilized animal dung.

Creating a Fossil

