

## ACTIVITY 6: MAKE A FOSSIL MOLD AND CAST

*In this activity, students will make their own replica fossil casts.*

### BACKGROUND

A shell is buried in the mud and this mud later hardens into rock. Water seeping into the rock can dissolve the shell, leaving the shell's imprint in the rock, creating a mold. A fossil **mold** is a hollow space left in a rock by an object that has dissolved. If the mold fills in with minerals or mud, the filling can later harden. The resulting fossil is called a **cast**.

### OBJECTIVES

Students will:

- understand the difference between a fossil mold and cast and
- construct models of a fossil mold and cast.

### MATERIALS

Each student will need: approximately 12g of dry plaster of Paris, a plastic dish, plastic spoon, 5ml water, enough modeling clay to make a 12cm diameter "pie" about 3cm deep, natural items such as leaves, sticks, dead insects, shells, clean chicken bones, or pine cones.

### PREPARATION

Prepare the materials for each student as listed above. Make a sample clay mold and plaster cast for examples.

### SETTING THE STAGE

- 1) Review the background information with students. Give examples from the *Arizona's Prehistoric Past* lab of molds and casts. Show your sample molds and casts.

### DOING THE ACTIVITY

- 1) Instruct students to make a mold as follows:
  - a. Roll out a clay ball into a circular "pie" about 12cm in diameter and about 3cm thick.
  - b. Turn up the edges of the clay about 2cm to hold the plaster of Paris.
  - c. Choose a variety of natural objects. Press these into the clay to make a mold of each.
  - d. Remove the objects from the clay. You now have several fossil molds.
- 2) Instruct students to make a cast as follows:
  - a. Add 5ml of water to 12g of plaster of Paris in a plastic dish. Use a plastic spoon to stir this mixture until it is smooth.
  - b. Carefully pour the plaster into the clay mold. Fill it completely to the top of the turned up edge.
  - c. Allow the plaster to dry for about one hour. Carefully remove the fossil cast from the mold. Set it aside and allow it to dry 24 hours before handling.
  - d. Paint may be added later to simulate actual sedimentary rock coloring.

### DISCUSSION

- 1) Exchange fossils and let students guess what objects made each fossil is. Identify each as a mold or cast.
- 2) How are the models of a fossil mold and fossil cast similar to real fossils? How are they different?
- 3) Under what circumstances might real fossil molds or casts have been formed?

## EXTENSION

Fossil Stories: Have students select a fossil to research. Refer students to their completed *Arizona's Prehistoric Past* lab manual for ideas. Students can diagram the fossil in its prehistoric environment and write a short story about its life. Include information about its habitat, niche, adaptations, when it lived, and how it died and became a fossil.

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## ACTIVITY 7: HOW BIG WERE PREHISTORIC ANIMALS?

*This demonstration gives students some perspective as to the sizes of dinosaurs and other prehistoric animals.*

### MATERIALS

- 50-foot length of rope or cording
- dinosaur & prehistoric mammals books - optional (see reference list)

### GETTING READY

- 1) Using a marker or masking tape, mark a 50-foot length of cording or rope at the following lengths:

2' = Compsognathus - smallest (triassic) dinosaur

8' = sabertooth cat (Pleistocene [ice ages] mammal)

9' = woolly mammoth and mastodon (not counting tusks!)  
(Pleistocene mammals)

10' = Coelophysis (Triassic dinosaur)

15' = Half of all dinosaurs were under this length!

20' = ground sloth (Pleistocene mammal)

30' = Stegosaurus (Jurassic dinosaur) & Triceratops (Cretaceous dinosaur)

35' = Parasaurolophus (Cretaceous crested duckbill dinosaur), Ankylosaurus  
(cretaceous dinosaur), and half of Brontosaurus/Apatosaurus (Jurassic dinosaur)

40' = Tyrannosaurus (Cretaceous dinosaur)

- 2) Then, list the animals' names on the board.

### DOING THE ACTIVITY

- 1) Show students pictures of those dinosaurs and other prehistoric animals with which they are not familiar.
- 2) Have students guess the actual sizes of the animals you listed on the board.
- 3) Have each student select an animal from the list and decide how long it might have been.
- 4) Take the class outside or into the hallway and lay the rope on the floor.
- 5) Ask students to stand at the marked spot on the rope that corresponds to the length of their prehistoric animal.
- 6) Tell students the actual sizes.