

Scute Fossil Casting Activity

Definitions:

Fossils: The remains or imprint of an organism (plant or animal) from the past that has been preserved.

An example of how a fossil is made is when a leaf falls to the ground. Over the years the leaf will be covered by additional soil. The leaf will soon decompose and disappear, but the imprint of the leaf may remain. In thousands of years, the soil will harden to rock and the fossil of the leaf is made.

Castings: A replica of an organism that was created by pouring hardening liquid into a mold, or fossil of that organism.

Paleontologist: A scientist who recovers and studies the fossils of previous life forms of plants and animals that existed on Earth thousands of years ago.

Introduction:

Questions to ask your students:

1. Does anyone know what a fossil is?
2. What types of organisms can be found as fossils?
3. How do you think a fossil is made?

To demonstrate, you can have the students press seashells or leaves into wet sand, soil, or modeling clay so they can see the imprint. You can explain that when the clay or dirt hardens over time, the fossil is made.

4. Who studies fossils? Why?
5. Does anyone know what a casting is?

Explain that paleontologists can use castings as a way to see what the organism looked like thousands of years ago. If ancestors of the organism are still on Earth today, scientists can determine from the castings what physical features (i.e. size, length, shape) may have changed, or evolved, over time.

Sturgeon

Explain to the students that ancestors of sturgeon have been around more than 120 million years ago during the time of the dinosaurs, and that sturgeon are still on Earth today. Along with the dinosaurs, paleontologists are discovering sturgeon fossils too.

Display a picture of a sturgeon (or you can hold up the plush sturgeon) and ask the students what body part do they think scientists find the most as fossils? If they guessed the scutes, or the bony scale plates, they are correct.

Explain to the students, that today they are paleontologists who discovered some sturgeon scute fossils (the molds) and they are going to make a casting to see what scutes look like.

Materials:

- Plaster of paris
- Latex rubber mold
- Quart mixing container
- Stirring sticks
- *Food coloring if applicable

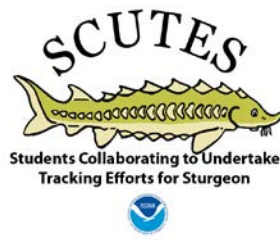
Instructions:

*Note: Always take proper safety precautions (gloves, eye protection, smock, etc.)

1. Set up a level workspace with newspaper and/or other material to protect the work surface from any potential spills.
2. Add a scoop of plaster of paris to the quart container.
3. Add cold water slowly mixing in till the consistency is thick but pourable. If it is too wet, it will just take longer to dry, however it won't affect the product.
4. Pour the mixture slowly into each scute reservoir in the mold to approximately 1/8 inch from the lip of the mold.
5. Mix more plaster of paris and water in the quart container as needed to fill each scute reservoir.
6. Allow to sit for approximately 20-30 minutes.
7. Once hardened to the touch, the mold may be flexed so that the plaster of paris scute can be removed.
8. The scutes may be removed before they are fully dried, however they will need time to dry outside of the mold before they are finished.
9. Once dried, the scute may be painted or covered with a clear finish (finishing is not necessary). The scute is meant to be a souvenir of your time with SCUTES, but it can also be used as chalk. *If time allows, you can add food coloring to the plaster of paris mixture before pouring into the mold, and the product will be a colored scute sidewalk chalk.

After the scutes have dried, you can have the students fill out the handout and/or you can discuss the questions as a class. Most answers can be hypothetical, but here are some explanations:

These molds were made from real scutes from an Atlantic sturgeon that washed up on a beach in Virginia. The fish was approximately 6 feet long and was found by a beachgoer. There is a smooth surface on some of the scutes, because the scutes slightly overlap one another when they are aligned in a row. Scutes are used mainly for protection from predators.



Scute Fossil Casting Activity

Today you are a paleontologist. You were excavating or digging at a site by the James River. You have just found a fossil of an Atlantic sturgeon scute! You made a casting in order to see what the scute looks like and to learn more about sturgeon. As you study the dried scute casting, write down some notes and data about what you discovered. For the answers that you do not know, use your best guess.

Date:

Fossil location:

U.S. state (Hint in the paragraph above):

Species of organism:

Body part:

Characteristics (What does it look like?):

Is the surface completely bumpy, smooth or is it both? Why?

What is the purpose of this body part?

Based on the body part, how long did you think this organism was?