

Fossil Fun

Strand	Living Systems
Topic	Fossils show evidence of life long ago
Primary SOL	2.5 The student will investigate and understand that living things are part of a system. Key concepts include d) fossils provide information about living systems that were on Earth years ago.
Related SOL	2.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which a) observations and predictions are made and questions are formed; b) observations are differentiated from personal interpretation; d) two or more characteristics or properties are used to classify items; l) simple physical models are designed and constructed to clarify explanations and show relationships. 2.5 The student will investigate and understand that living things are part of a system. Key concepts include c) habitats change over time due to many influences.

Background Information

Fossils are the preserved remains, impressions, or other evidence of animals or plants that lived in the prehistoric past. Some of the oldest fossils are microscopic organisms that date back well over 3 billion years ago. Fossils provide scientists with information about plants and animals that lived on Earth many years ago. Fossils and the rocks they are found in provide clues that allow scientists to investigate and interpret past climate and environmental conditions.

Bones, teeth, and shells are common types of fossils because the hard parts of organisms are less easily destroyed before burial than the soft fleshy tissue. Generally, the remains must be covered in sediments, such as sand or mud, to be preserved. In some cases the fossil is the actual shell or hard part of the organism. Impressions such as footprints, burrow marks, and other evidence of an organism are called trace fossils. Often the material of the organism is mineralized, a process by which all or most of the original matter is slowly replaced with other minerals.

Fossils are almost always found in sedimentary rocks, which form from the sediments that cover and encase the remains or traces of the organism. Rarely do igneous or metamorphic rocks contain fossils because the heat and pressure required to create those rock types generally destroys fossils.

Many marine fossils such as clams, snails, sand dollars, sharks' teeth, and whalebones have been found in the fossiliferous (fossil containing) rocks in Virginia's coastal plain. *Chesapecten jeffersonius*, is the Virginia state fossil. It is a large extinct species of scallop that dates to about 4.5 million years ago. It was the first fossil ever described in North America and is named after Thomas Jefferson, who was an amateur paleontologist.

Materials

For each student:

- book about fossils
- chart paper
- markers
- paper cups (or clean, dry milk cartons)
- small objects (such as seashells, sharks' teeth, leaves, clean bones) to use to make fossils
- waxed paper – one sheet for each student
- petroleum jelly
- plaster of Paris
- one copy of the recording sheet

Vocabulary

imprint fossil, body fossil, sedimentary rocks

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

Introduction

1. Prior to beginning the lesson, place a supply of petroleum jelly and the small objects you collected on the students' desks.
2. Ask students what they know about fossils. Record their ideas on the chart paper. Read the book about fossils to the students. Distribute the recording sheet and ask students to write down something they learned.

Procedure

1. Direct students to choose an object. Explain that they will be making a fossil of this object. Have them cover the object with petroleum jelly and place it on their sheet of waxed paper. Once they have cleaned their hands, have student complete their record sheet.
2. While the students are completing the recording sheet, mix water with the plaster of Paris to form a paste. Pour a 1" layer of plaster into each paper cup (or milk carton) and distribute one cup to each child.
3. Have the students press their object into the top of the plaster. (Tell them NOT to bury the object in the plaster.) While the plaster dries, talk with students about the objects and where they might be found.
4. After the plaster has dried, ask students to carefully remove the object and examine the resulting imprint fossils. Discuss why these are imprint fossils and not body fossils.
5. Have students trade their imprint fossils with students at another table and see if they can determine what left the imprint. Repeat a few times so students see many different imprints.
6. Hold up an object. Ask students what they could learn from finding a fossil of that object.
7. Guide them to complete the bottom section of the recording sheet.

Assessment

- **Questions**
 - What is a fossil?
 - What can you learn from examining a fossil?
 - How can a fossil tell you about the environment long ago?
- **Journal/writing prompts**
 - Provide a real fossil or a picture of a real fossil. Ask students to write about it- What is it? Where did it come from? What can it tell us?
 - Give each student a clam or oyster shell. Ask them to imagine that scientists 10,000 from now find a fossil of a clam or oyster. What would they learn about us from looking at the clam or oyster?
- **Other**
 - Collect and grade the students' recording sheets.
 - Ask students to draw their own fossil and tell what it is, where it came from, and what it can tell us.

Extensions and Connections (for all students)

- Ask students to bring in interesting objects from home to use to make imprint fossils. (Make sure that the objects they bring in are ones which can be covered with petroleum jelly without hurting the object.)
- Use clay instead of plaster of Paris to make the fossils.
- Guide students to make a cast as follows: Have them cover an object with petroleum jelly and press it into the clay; then remove the object and cover the resulting imprint with more petroleum jelly; then pour plaster of Paris into the imprint; when the plaster dries, remove it.

Strategies for Differentiation

- Have a volunteer assist students with making their imprint fossil.
- Pair a student with another student to complete the recording sheet.
- Provide a word bank for students to use when completing the recording sheet.
- Blow up the chart to 1" squares to provide a direct representation of the measurements of the fossil in inches.
- Chart the discussion telling what can be learned from looking at a fossil for later reference.
- Create groups for completing the entire activity process.

Fossil Fun!

Name: _____ Date: _____

Write a few sentences telling what you know about fossils. _____

My Fossil

Measure the length of your fossil in inches and draw a line below that shows its length.

Measure the width of your fossil in inches and draw a line below that shows its width.

Each square below is one inch long and one inch wide. Draw a picture of your fossil in the grid.
