



# CREATE A FOSSIL

**GRADE LEVEL:** 1-4

**TIME REQUIRED:** One class session

**SETTING:** Classroom or outdoors

**GOAL:** The student will create a fossil.

**OUTCOMES:** At the end of the lesson the student will be able to:

- list three conditions necessary for fossilization,
- state where fossils are usually found, and
- define at least two types of fossils.

**KERA GOALS:** Meets KERA goals: 1.1, 1.2, 1.3. 2.2, 2.5, 2.6, 5.1, 5.2

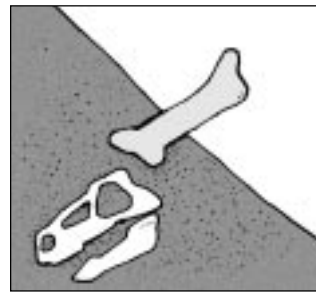
## BACKGROUND INFORMATION

Fossils are the direct evidence of past life. They are the tools around which geologists and paleontologists reconstruct the history of the earth. They are found in sedimentary rocks. This type of rock is the result of the consolidation of sediment that has accumulated in layers. These depositional environments come from lake bottoms, river bottoms, river sandbars, beaches, and oceans. Some sediments result from weathering rocks, others originate from tissues and bones of plants and animals. It is within the depositional environment that plants and animals may become fossilized. There are three prerequisites that must be met before organic material can be preserved: (1) Organisms must contain hard parts such as bones, teeth, cartilage, or shells. (2) The organic material must be buried quickly in an oxygen-free environment protected from scavengers. (3) Conditions after burial must be favorable as the effects of heat and pressure that produce sedimentary rock may alter the composition and appearance of a potential fossil.

There are several types of fossils.

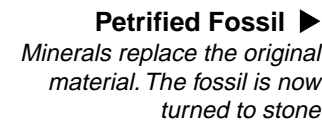
1. **Petrification** occurs when parts of the organism are saturated with minerals. Highly porous materials such as wood and bone are often petrified.
2. **Carbonization** occurs when the weight of surrounding sediments squeezes out the water and gas and leaves a residue of carbon (imprint).

3. **Molds and casts** are replicas of the construction of an organism. A good analogy is Jell-O. The Jell-O is poured into a mold and the finished dish is a cast of that mold.
4. **Trace** fossils are signs left behind by an organism. Examples include footprints, nests, and burrows.



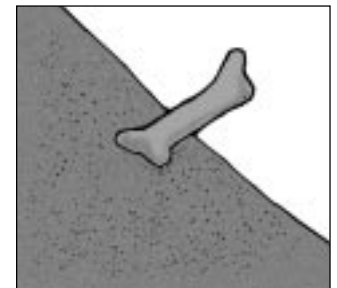
### ◀ Original Remains

*The bones and teeth may be dug out unchanged*



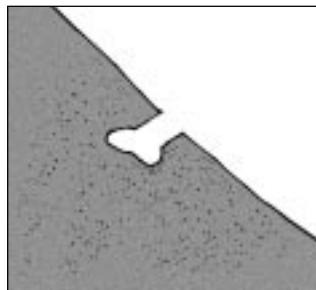
### ▶ Petrified Fossil

*Minerals replace the original material. The fossil is now turned to stone*



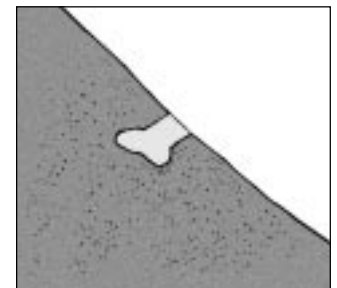
### ◀ Mold Fossil

*The bones and teeth rot away slowly, leaving a hole in the rock in the exact shape of the original*



### ▶ Cast Fossil

*After a mold forms, different chemicals fill the hole. They form a fossil the same shape as the original, but made of a different material*



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## CREATE A FOSSIL

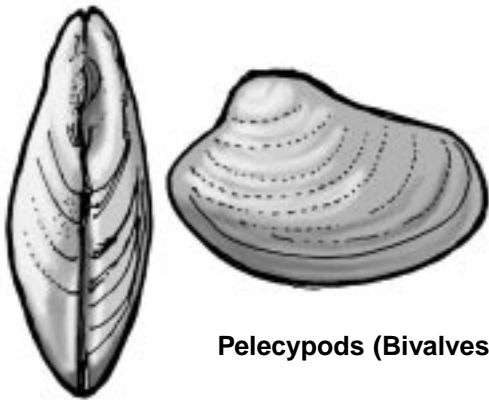
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The rocks of South-central Kentucky began as sediments in a shallow tropical sea. Today, fossils of marine shell life are abundant, and the remains of bryozoans, brachiopods, trilobites, pelecypod (clams), gastropods (snails), and crinoids (sea lilies) are easily found.

A fossil that is always found in the same rock layer is called an index fossil. The index fossil of the Mammoth Cave St. Genevieve limestone is the crinoid. By finding this fossil the paleontologist can date the rock strata.



**Brachiopods**



**Pelecypods (Bivalves)**



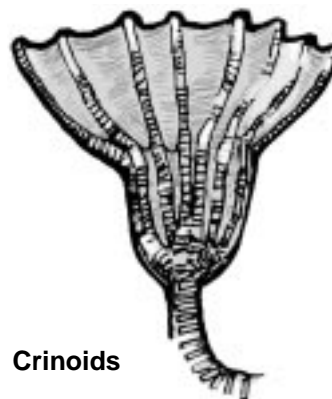
**Bryozoans (*Archimedes*)**



**Gastropods**



**Trilobites**



**Crinoids**

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## CREATE A FOSSIL

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### MATERIALS NEEDED

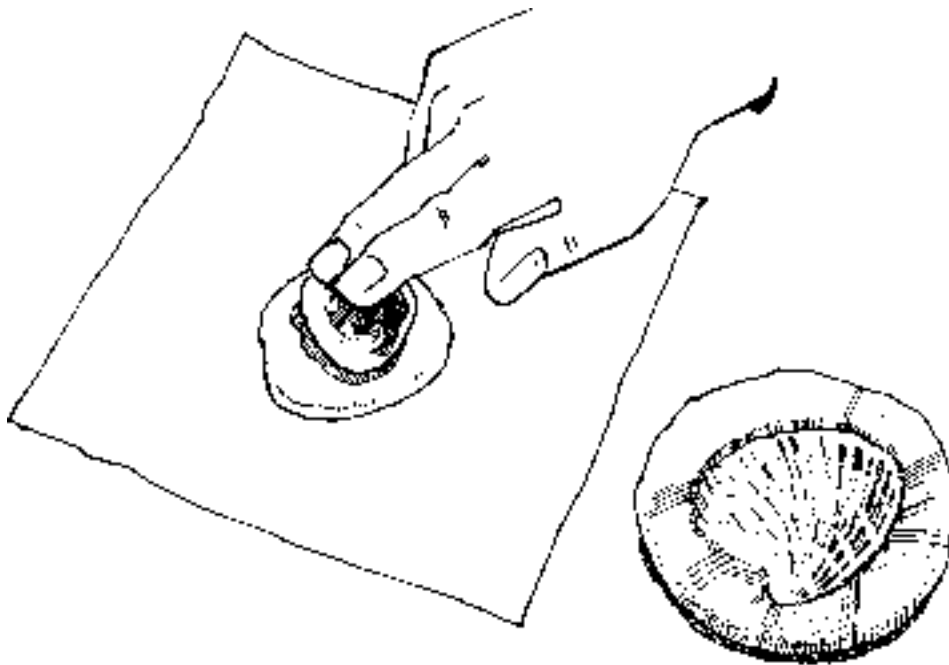
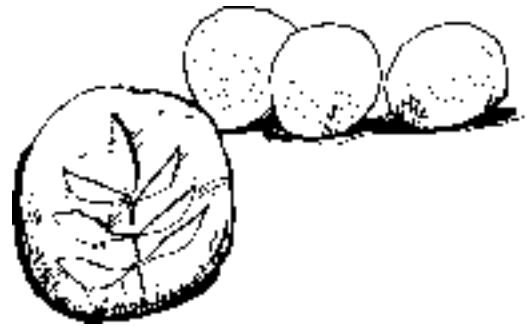
- Recipe for fossil dough
- Enough dough for each student to make a one-inch ball
- 4" X 4" square of wax paper for each student
- Leaf, shell, or other material from which to make an imprint
- Paint and paint brush

### PROCEDURE

1. Provide each student with a square of wax paper.
2. Provide each student with enough dough to make a one-inch ball.
3. On the wax paper, press the dough ball into a disc. The disk should be about the size of a half-dollar.
4. Have each student select a piece of material (shell, bone, leaf, etc.) from which to make an imprint.
5. Press the selected material into the dough. Remove the material, leaving an imprint. Set aside to dry.
6. When dry, may be painted.

### EXTENSION

- Discuss the types of materials that are presently being deposited. What can these potential fossils tell future paleontologists about our present day environment?
- Discuss the different types of fossils. Have the students find and/or describe examples of each.



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## CREATE A FOSSIL – FOSSIL DOUGH RECIPES

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### SMOOTH LIMESTONE:

This recipe will produce a “rock” which is white and smooth. It is preferred for making fossil impressions of leaves.

#### MIX:

- 1 cup cornstarch
- 2 cups baking soda (1 lb. Box)
- 1-¼ cups cold water

#### DIRECTIONS:

1. Stir all ingredients in a saucepan over medium heat for about 4 minutes until the mixture thickens to moist mashed potato consistency. Remove from the heat, turn out onto a plate and cover with a damp cloth until cool. Knead as you would dough.
2. Shape into balls, one for each student.
3. Store in the refrigerator in an airtight container or plastic bag until needed.

**Yield:** 25-30 one-inch balls

### ROUGH LIMESTONE:

This recipe will produce a “rock” which is rough in texture. It is preferred for making fossil impressions of shells or acorns.

#### MIX:

- 2 cups flour
- 1 cup salt
- 1 tablespoon vegetable oil
- 1 teaspoon alum
- ½ - 1 cup water

#### DIRECTIONS:

1. Combine first four ingredients. Add a small amount of water at a time until the mixture is the consistency of bread dough. Knead until smooth.
2. Shape into balls one-inch in diameter, one for each student.
3. Store in an airtight container or plastic bag until needed. For long-term storage, keep in the refrigerator.

**Yield:** 25-30 one-inch balls