

FOSSIL FUN

A **fossil** is the evidence of a living thing that has been preserved over time. It takes a very long time for a fossil to form—sometimes many millions of years!

Paleontologists study fossils to learn about ancient life. But what are fossils and how do they form? Let's find out!



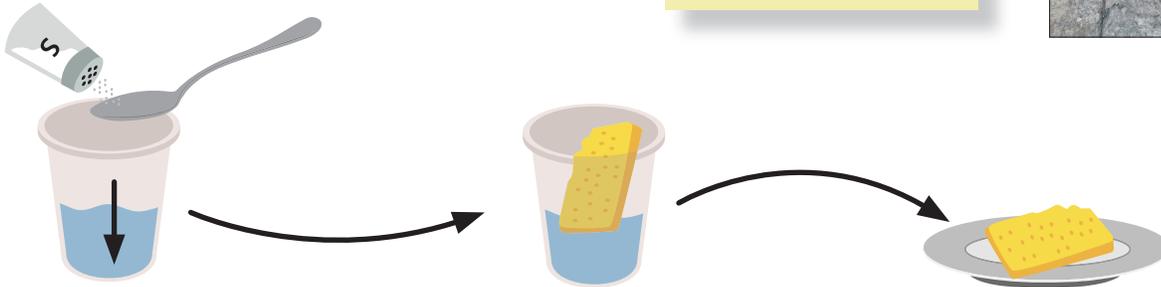
Turning to Stone

Most dinosaur bones are preserved by **permineralization**. This is when minerals are deposited in the pores, or open spaces, within the remains of a living thing and harden into stone.

What you need:

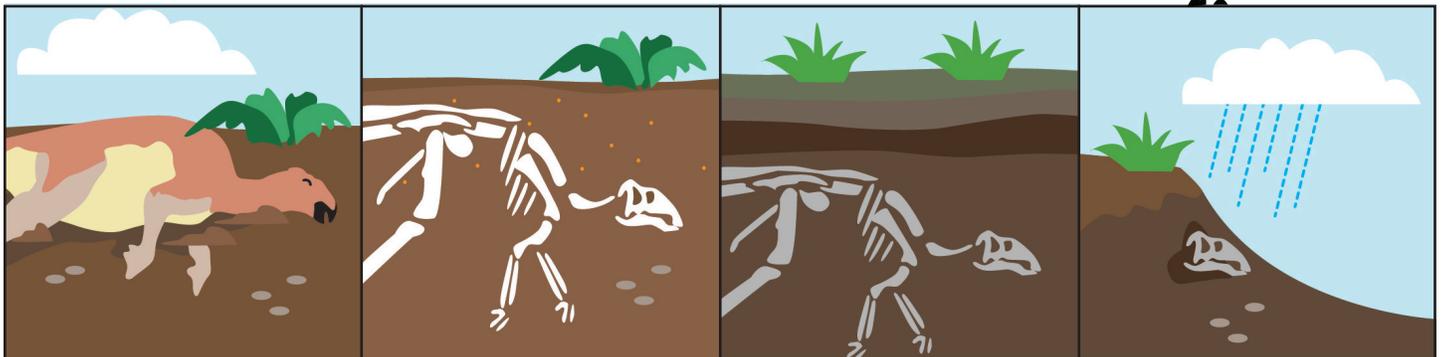
- Salt
- Sponge
- Water
- Plate
- Cup
- Spoon

What to do:



1. Add 1 tablespoon of salt to 1/4 cup of very warm water. Mix until almost all the salt disappears.
2. Soak the sponge in the salt water. Squeeze and resoak it a few times so that it gets really salty.
3. Place the fully soaked sponge on a plate and add a few drops of salt water on top. Let it dry for 5-6 days.

What does the dried-out sponge feel like? Is it soft or hard? Hold it in a bright light. Can you see the sparkly mineral crystals? The sponge has become **permineralized**—like a dinosaur bone fossil!



Step 1

After an animal dies, it is buried by silt, sand, or ash (sediment).

Step 2

The soft parts of the animal decay, leaving the hard bones. Minerals seep into the bones.

Step 3

Over millions of years, the sediment becomes rock. The skeleton becomes a fossil.

Step 4

The rock erodes and exposes the fossil.



Try these activities to explore other ways that fossils form.

Trapped in Time

Some fossils form when a living thing gets trapped in a material, such as tree sap, tar, or ice. Sometimes this type of fossil can include skin, wings, or fur!

This insect was trapped in tree sap that hardened into a kind of stone, called **amber**.



What you need:

- Small object (shell, toy animal, etc.)
- Water
- Ice cube tray or cup

What to do:

1. Freeze a small object (toy animal, gummy bear, piece of a plant, shell) in water.
2. Use warm water (with a dropper or spoon) to “excavate” your fossil from the ice.



Fossil footprints show us how dinosaurs behaved, how they moved, and how fast they could run.



Leave a Trace

Fossils that show evidence of an animal’s behavior or activity are called **trace fossils**. This includes footprints, nests, burrows, teeth marks, or even poop!

What you need:

- Model Magic clay or Dino Dough
- Dinosaur and lizard toys

What to do:

1. Use the dinosaur and lizard toys to make footprints in the clay. Can you tell which animal made the different prints?
2. Explore inside and outside for evidence, or traces, of animal activity—such as scratched furniture, footprints, fur or hair, spiderwebs, or plants eaten by insects.

Try This! Footprints

Can you make footprints outside? Try walking in soft dirt or step in water and then walk on a dry sidewalk. How far apart are your steps? How are your footprints different from an adult’s footprints?





Make an Impression

When an animal or plant dies in mud, it can leave an impression, or **mold**, that hardens into rock. The impression can fill in with other material to make a copy, or **cast**, of the shape.

What you need

- Model Magic clay or Dino Dough
- Toy animals
- Small objects (shell, feather, plant, etc.)

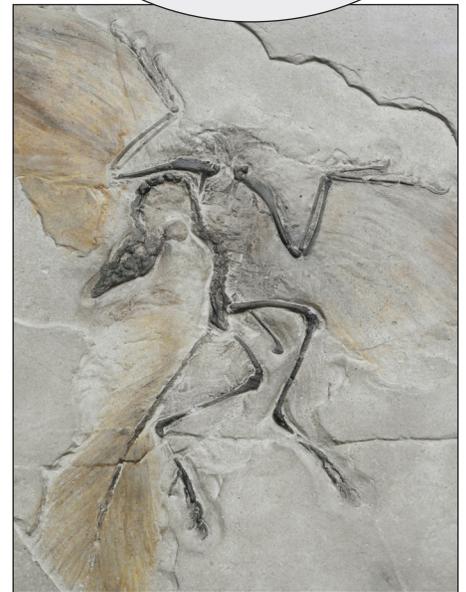
What to do:

1. Press the dinosaur toy into the clay. Now try the shell and the lizard. Can you identify these animals from the shape they leave behind? This is how a **mold fossil** is formed. Try making an impression of the feather or of a plant.
2. Use a piece of clay to make a mold fossil of the shell or dinosaur and let the clay harden, it might take a day or two. Seal the rest of clay in a plastic bag so that it does not dry out.
3. Once the clay has hardened, press a piece of soft clay into the mold fossil. What does it look like? This is how a **cast fossil** is formed.



Feathered Fossils

Science is always changing and so is our knowledge about dinosaurs. The discovery of feather impressions on dinosaur fossils revealed that many dinosaurs had feathers.



Try This!

Reading Fossil Clues

Scientists observe the shape, size, and texture of a fossil to figure out what it is and how it was made. Can you read the fossil clues?

1. Gather a collection of objects—such as a paperclip, keychain, pencil, coin, small toys, or kitchen tools.
2. Have a partner cover their eyes while you make an impression in the clay using a part of one object.
3. Challenge your partner to look at the fossil and decide which object was used.
4. Switch roles and try again.

