

2. Why do you think these three coverings can preserve animals and insects?

- *When they are covered with ice, sap, or tar, none of the earth's elements can get onto the animal and decay it away. When it is found and the ice, tar, or sap covering is taken off, it looks just like it did before it died.*

3. In front of you is an insect that is in glue. How is this like a preserved fossil?

- *The hot glue represents the sap that nature used to cover insects.*
- *As the sap hardened it turned into amber.*
- *The amber preserved the insect so it looks just like it did when it died.*
- *We can see that the hot glue covered the insect and is clear so we can see what insect is inside.*

Name _____

Fossil

Discovery

Log

Impression Fossils

Impression fossils leave three-dimensional marks on soft soil. The soil hardens and then gets covered with more sediments, and then it becomes preserved.

Experiment #1 Trace Fossils

1. Take apart the footprint trace fossil. Describe what you see.

- *It has three toes like a dinosaur.*
- *It has toenails/no toenails.*
- *It has serrated/non-serrated toes.*
- *It has a u-shaped/v-shaped heel.*
- *It is _____ mm wide.*
- *It is _____ mm long*
- *It is about _____ mm deep*

2. How can a footprint trace fossil found help scientists know more about this animal?

- *We can identify the type of animal it was.*
- *We can find out how long ago it lived.*
- *We can find out the height of the animal.*
- *We know the type of environment that existed then.*
- *We know the type of climate that existed then.*
- *We know the type of food it ate, and therefore we know plants and/or animals that lived then.*

2. How is the sponge with salt in it like a mineral replacement fossil?

The salt and water went into the holes of the sponge. As the water evaporated, it left the salt in the sponge and the sponge turned hard like a rock.

Preserved Fossils

Preserved fossils are fossils that are found that look just like they did when they were alive. No impressions were made by the body parts, and the bones, claws, and teeth didn't turn to stone by mineral replacement.

1. What are the three types of coverings that can preserve animals?

- *Ice*
- *Sap turning into amber*
- *Tar*

Mineral Replacement Fossils

Mineral replacement fossils are sometimes called petrified, fossilized, or mineralized fossils. However, these words are not the right terms for what they really are. They are really called mineral replacement fossils because it is minerals that replace wood, bones, teeth, shells, claws and other hard body parts.

1. Describe how the mineral replaced bones and wood look and feel like.
 - *They look like the real thing.*
 - *The have the same shape as bones and wood.*
 - *We can see the lines in the wood.*
 - *We can identify the bone parts.*
 - *They are very hard.*
 - *They are not real wood or bones. They are stone.*
2. Describe how mineral replacement fossils are made by nature.
 - a. *The bone/wood is buried by sediments.*
 - b. *Water becomes present over the bone in the sediments.*
 - c. *Water seeps down through the sediments.*
 - d. *As the water seeps it dissolves the minerals in the soil and becomes part of the water.*
 - e. *As the water reaches the bone, the water dissolves the bone and replaces it with the minerals in the water.*

Experiment #2 Imprint Fossils

1. Take apart the leaf imprint fossil. Describe what you see.
 - *It has the shape of a leaf.*
 - *The edge is serrated/smooth, lobed, small bumps, etc.*
 - *The veins pattern of the leaf can be seen.*
 - *It is round/oval/oblong, pear-shaped, elliptical, etc.*
 - *It is _____ mm wide.*
 - *It is _____ mm long.*
 - *It has carbon in it.*
2. How can an imprint fossil help scientists know more about the organism they are studying?
 - *We can identify the plant it came from.*
 - *We know how long ago it lived.*
 - *We know the size of the tree.*
 - *We know the type of environment that existed then.*
 - *We know the type of climate that existed then.*
 - *Animals that ate those types of leaves therefore the types of animals that may have lived then.*

Experiment #3a Cast Fossils

1. Take apart the shell impression. Describe what you see.
 - *It has the appearance of a shell.*
 - *It has a round, oval, oblong, pointed, etc., shape.*
 - *It is smooth/rough.*
 - *It has a recognizable design or no design on the shell.*
 - *It is _____ mm wide.*
 - *It is _____ mm long.*
 - *It is about _____ mm thick.*
2. How can an impression of a shell help scientists know more about the organism they are studying?
 - *We know the type of animal that lived in the shell.*
 - *We know how long ago it lived.*
 - *We know that water was in that area at one time.*
 - *We know if it was a salt/fresh water animal.*
 - *We know if it was a warm/cold water animal.*
 - *We know the types of food that it ate that existed then.*

Experiment #3b Cast Fossils

Pour some sediment (Plaster of Paris) on the impression mold.

1. Take the hardened sediment (Plaster of Paris) off the impression mold. Describe what you see.
 - *It looks like the real shell.*
 - *It has the same marks as the real shell.*
 - *It has the same dimensions as the real shell.*
 - *It is rough/smooth like the real shell.*
2. What you see is the cast fossil. It is made by sediments flowing into the impression and hardening. How is a cast fossil different from the real shell?
 - *Even though it looks like the real shell, it is only made of dirt (plaster). If we crushed it with a hammer, it would turn back into sediments (plaster pieces) and not bits of shell.*