Fossils and Dinosaurs for Little Eyes

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The Northwest Treasures Curriculum Project

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Lesson 3 – Types of Fossils

Lesson 3.1 - Types of Fossils – casts, molds, and permineralization

Fossils come in all shapes and sizes and types. There are several different types of fossils that you should be familiar with. The type of fossil describes the conditions it was formed in and the evidence the living creature left.

- **Fossil casts** – A cast is the impression that the living plant or animal made, usually in some kind of limy mud. The original living thing was then lost or decomposed, leaving evidence that it had once been there.

- **Fossil molds** – A mold takes place when a cast is filled usually with limy mud, hardens and then is separated from the original cast.

The above picture shows both a mold and a cast of a trilobite, a marine sea creature.

- **Permineralization** What a big word! (per-min-er-al-ih-ZA-shun) This is the most abundant type of fossil. This takes place when a plant's or animal's original cells were filled with mineral-rich water and then hardened into colorful patterns.

This is an example of permineralized wood where the wood's original cells have been replaced by silica-rich water leaving the original structure of the wood but it is now preserved with beautiful colors because of the minerals that were in the water. The colors are due to different elements that were carried by the water.

Author standing next to a permineralized tree in Arizona

Activity 19 – Making a Cast and a Mold P,K,1,2,3

Supplies:

Plaster of Paris

2 small wide mouth plastic containers

Spoon, or something to mix with

A couple of objects (to make casts from, like a shell, leaf or twig)

Vaseline

Newspaper to cover your work surface

Let's make a cast and a mold. This project can be done over a couple days.

Directions:

1. After gathering all your materials together, cover your work area with newspaper. Mix a small amount of plaster of Paris in your container. The amount depends on the size of your container. It should be about the consistency of cake batter. (Don't worry, the Plaster of Paris can be cleaned from the spoon with water.)
2. Spread a small amount of Vaseline on your object or seashell.
3. While the plaster is still soft, press your seashell or other object into the plaster of Paris.
4. When the plaster is almost set, very carefully pull your object out of the plaster and let the plaster fully harden. Remove the cast from the container when it is dry. You have just made a cast.
5. When the cast is dry, cover the entire top surface of it with a thin layer of Vaseline.
6. Mix up some more plaster of Paris and spread it over the entire top surface of the cast (the impression). Let it dry (usually overnight).
7. When the plaster is dry, carefully separate the new plaster from the cast. What you have just made is a mold. Museums

often make molds of very rare fossils and bones so that other museums can exhibit a likeness of the original.

Activity 20 – Cast and Mold II P,K,1,2,3

Supplies:

Cast and mold (from your kit)

Magnifying glass

In your kit you will find an example of a cast and a mold. Get those out and study them with your magnifying glass. What do you see?

Activity 21 – Permineralized Wood P,K,1,2,3

Supplies:

Permineralized wood (from your kit)

Magnifying glass

In your kit you will find a piece of permineralized wood. Take that out and examine it with your magnifying glass. What do you see?

Lesson 3:2 Types of fossils - Ichno fossils

- Ichno fossil - the word ichno (IK-no) means *track*. Therefore, an ichno fossil is a *petrified* track. (The word petrify means *turned to stone.) (To the parents:* People often

use the words *petrify* and *fossilize* interchangeably, even though that is technically incorrect.) These fossils are not the remains of any plant or animal, but the evidence that it was living. It is most often called a *trace* fossil.

An example of a trace or ichno fossil is a petrified track left by a dinosaur. The dinosaur no longer lives, but he has left traces of his movement. Look at the following pictures of dinosaur tracks.

Dinosaur tracks

Cast of a dinosaur track

Activity 22 – Ichno Fossils P,K,1,2,3

Supplies:

Ichno fossils (from your kit)

Magnifying glass

In your kit you will find a couple of ichno fossils. Take those out and look at them very closely. What do you see?

Activity 23 – Make an Ichno Fossil! P,K,1,2,3

Supplies

Sand

Plaster of Paris

Plastic bag

Water

1. Line the shoe box with your plastic bag.
2. Put the sand in the lined box and mix with enough water to create a mix that will hold an impression.
3. Press something into the sand that will leave an impression. You could even use your own foot!
4. Remove the object from the sand.
5. Prepare the plaster of Paris, enough to fill the impression.
6. Pour it into the impression. Let dry. This may require overnight drying.
7. When the plaster is dry, remove it from the sand. You have just made a trace fossil!

Double Take:

1. What does the word *ichno* mean?
2. _____ takes place when a plant's or animal's original cells were filled with mineral-rich water and then hardened into colorful patterns.

Time to Think:

Why are the petrified trees in Petrified Forest National Park located there? They do not have roots on them. What could you guess about why they are located where they are? Did they grow there? Were they washed in to that location? Which do you think is more likely and why?