



Girl Scouts of Black Hawk Council

Fossil Safari Try It

For Brownie Girl Scouts
Created by Kimberly Anderson
Cave of the Mounds, National Natural Landmark



*To order this Try-It, contact the Trefoil Shop at renaer@girlscoutsofblackhawk.org or call 800-236-2710 ext. 1173 or 608-237-1173.

You can discover a lot about the natural history of the earth just by looking at special rocks we call fossils! The study of the forms of life existing in prehistoric or geologic times, as seen in the fossils of plants, animals, and other organisms, is called *paleontology*. Do you ever wonder what the earth was like long ago? Much of the earth was covered by a shallow sea filled with plants and animals. The remains of these sea creatures are preserved in rocks called fossils. There is so much to uncover about the amazing earth of long ago – filled with fascinating life stories of the creatures who lived there. Let's go on a Fossil Safari!

To earn this try-it, you must complete 4 of the 6 suggested activities below.

1. Practicing Paleontology

The body structure, trace impressions, or even waste materials of creatures and plants that lived in ancient times tell stories about how these animal and plants lived, and sometimes even how they died. *Paleontologists* look closely at fossils to learn about earth's geologic past. In order to find fossils to study, these scientists dig deep into the earth, collect a sample of rock, and clean off possible specimens for their collection.

ACTIVITY:

- Collect and identify at least 8 fossil specimens. Be especially careful not to remove rocks or fossils from protected areas or from areas that may become damaged. If you find a fossil that you like, but that cannot be removed, you can make a picture of it. First, draw its shape, note its color, and record other characteristics that will help you identify it. Are there examples of creatures in your collection that look similar to those that exist today? What unique characteristics does each fossil have (color, shape, size, etc.)? Where did you find your fossil and what can that tell you about it?

2. Tell-A-Type

Fossils come in a variety of sizes and shapes. There can be fossils of plants, animals, or even algae. Fossils are classified by type and each *fossil type* is determined by the kind of impression left behind by the remains. *Animal parts* are actual fragments of the animal that have become petrified, or turned to stone. A *mold fossil* is a hollowed out space in rock that is in the exact shape of the creature after the remains dissolved away. A *cast fossil* is a solid form of the plant or animal that is created when a mold fills in with minerals. Finally, a *trace fossil* is a sign of animal activity, such as footprints, burrows, or waste (that's right, fossilized POOP!).

ACTIVITY:

- Study and determine the types of fossils in your collection using the information above.

3. Travel through Time

Scientists can determine that a sea once covered an area by the types of fossils that they find within the sedimentary **bedrock**. In Wisconsin, the bedrock is primarily **limestone**, formed by sediments that compact and cement together over **geologic time**, that is, time before human history began. A geologic time scale is a tool that scientists use to plot the development and formation of the earth, including the existence of plants, and animals. The geologic time scale is divided into three **eras** – Paleozoic (Old Life), Mesozoic (Middle Life), and Cenozoic (New Life). Periods and epochs are also categories on the geologic time scale.

ACTIVITY:

- Look at and discuss the geologic time scale. Decide where the creatures that created the fossils in your collection might have existed. Think about what a day in their life might have been like – what they eat, where they sleep, etc. Could you live that way? Why or why not?

4. Forming Fossil Replicas

Mold and cast fossils form when **minerals** (pure substances) inside rocks and water trade places with animal remains trapped within a rock. A mold fossil is **concave**, curved inward like the inner surface of a sphere. A cast fossil is **convex**, with a surface that bulges outward, like the outside of a sphere. Shells, leaves and other objects from nature can help you make a fossil replica (copy) while learning more about fossil formation.

ACTIVITY:

- Gather some natural objects to make a copy of – sea shells work really well. Mix a batch of plaster of paris and pour enough to cover the bottom 2 inches of a small container. Spray each shell with a small amount of cooking spray and press into the plaster of paris, being careful not to bury the shell. When the plaster dries, the shell can be removed and a mold fossil replica can be observed. Using the mold fossil replica you have created, you can also make an edible gelatin cast fossil replica. Mix together 1 box of flavored gelatin, 1 box unflavored gelatin, and 1 cup of very hot water until gelatin is dissolved. Spray a coating of cooking spray onto the mold fossil replica and pour gelatin mixture into the mold. Let harden; refrigeration makes a harder fossil. Remove and observe a cast fossil replica. Which replica is concave? Convex? How are they the same and how are they different? Which is most like the original organism, the mold or the cast?

5. See what you can Sea

The whole world's collection of fossils and where they are found within rock formations is referred to as the **fossil record**. The most common fossils are not dinosaur bones, but are in fact sea creatures that once lived in the shallow seas that covered much of North America. In Wisconsin, most sea creature fossils are dated to be from the seas present during the Devonian, Silurian, Ordovician, or Cambrian Periods of geologic time – beginning more than 500 million years ago!

ACTIVITY:

Use reference materials such as encyclopedias, library books, and the internet to discover all you can about one of the above geologic time periods. Individually, or as a group, create a poster/mural of one of the ancient seas above. Did you find that some examples of the creatures that left behind some of the fossils in your own collection? What do you think caused some of the organisms to die out?

6. Go on a Fossil Safari

Looking for fossils can be hard work. They can be very small or very large. Fossils can be the same color as the surrounding rock it is found in. They are often only seen with a certain direction of light shining on them. Physical features of an area of rock can sometimes “hide” a fossil, making it hard to observe. Exploring caves is a great way to search for and discover fossils. A *cave* is an underground hole made by nature that is large enough for a person to fit into. Fossils that are found in a cave can help *speleologists* (cave scientists) determine the age of the rock in a cave, and sometimes the age of the cave itself!

ACTIVITY:

- Go on a Fossil Safari by visiting a cave or other fossil site and observing the fossils found inside. How are the fossils displayed for visitors? What would happen if a visitor tried to remove a fossil to take home as a souvenir?