

# Geologist Activity Badge

**Learning Objectives** As a result of this training session, participants should be able to teach the following activities for the Geologist activity badge:

- Describe what a fossil is.
- Demonstrate the mineral hardness scale and show how to use it to identify three specimens.
- Explain the cause of a volcano.

**Trainer Preparation**

- Study the training outline.
- Review the information on the Geologist activity badge in the *Webelos Handbook* and the *Webelos Leader Guide*.
- Gather displays such as those suggested below.
- Gather materials needed for demonstrations and hands-on activities.
- Practice and time your presentation in advance to help you stay within the time limit.

**Materials**

33452, *Webelos Handbook*, Geologist activity badge  
33853A, *Webelos Leader Guide*, Geologist activity badge  
Supplies for a mineral hardness kit (see *Webelos Leader Guide* for list of materials)  
Supplies to make mini-volcanoes:

- Bottle of vinegar
- Box of baking soda
- Jar lids or film canisters
- Cone-shaped paper cups (one per person)

Pocket magnifiers (several)  
Small hammers  
Chisels  
Ceramic tile  
Field guide to rocks and minerals (several copies)  
Safety glasses

**Display Ideas**

- Papier-mâché mini-volcano
- Samples of common rocks and minerals
- Samples of fossils found in your area
- Geologist's equipment (see list in the *Webelos Handbook*)
- Rock collecting and displaying examples

<b>Before You Begin</b>	The four activity badge sessions—Naturalist, Geologist, Forester, and Outdoorsman—can be presented as a round-robin for up to four training dens by setting them up as stations in close proximity to each other. The dens could then rotate from station to station every 20 minutes for a small-group learning experience. For five dens, Health and Safety can be added as a station. Up to 10 training dens can be accommodated by having pairs of dens travel together.
<b>Time</b>	20 minutes. Start on time. End on time.
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<b>Activity Badge Requirements</b>	Briefly review the requirements for the Geologist activity badge.
<b>Fossils</b>	Show examples of fossils that can be found in your area. Share information about what kind of fossils can be found and where to look for them (road cuts, stream banks, etc.).
<b>Geologist's Equipment</b>	Show the equipment a geologist would use and explain why each item is used. Refer to the Geologist activity badge section of the <i>Webelos Handbook</i> .
<b>Rock Identification</b>	Using samples of rocks on display and the <i>Webelos Handbook</i> as a guide, show how geologists identify specimens: <ul style="list-style-type: none"> <li>• Color</li> <li>• Luster</li> <li>• Cleavage</li> <li>• Chemical reactions</li> <li>• Hardness</li> </ul>
<b>Chemical Testing</b>	Additional tests might include the acid test and the streak test. Demonstrate these tests on one or more rock samples.
<b>Mineral Hardness Testing</b>	Show the mineral hardness kit. Have participants use it to test several rock specimens. Provide field guides for participants' use.
<b>Collections</b>	Discuss various ways to label rocks. Show ways to display rock and mineral collections.
<b>Volcanoes</b>	Volcanoes are simply vents in the ground formed by the pressure of magma building up. Not many years ago, there was a violent eruption of Mount Saint Helens in Washington State. While some volcanoes are called "extinct," it is possible for them to "come back to life." <p>One example of a volcano you might see if you took a trip to Philmont Scout Ranch in New Mexico is Mount Capulin. Its picture is in the <i>Webelos Handbook</i>. You can drive to the top, then take a one-mile hike around the rim.</p>

You can make a mini-volcano with papier-mâché, wire coat hangers, red food coloring, vinegar, and baking soda. Instructions are in the *Webelos Leader Guide*.

A quick and simple volcano can be made using a cone-shaped paper cup, a film canister, red food coloring, vinegar, and baking soda. Show how to make one by cutting out the top of the paper cup just enough to allow the film canister to rest inside it.

Have participants make their own mini-volcanoes. Place about 1 teaspoon of baking soda in the film canister. Mix about  $\frac{1}{4}$  cup of vinegar with a little red food coloring. Add the vinegar to the film canister. The baking soda and vinegar react to form carbon dioxide gas. It will squirt out of the film canister and bring foamy red liquid to the surface.

**Safety**

Remind leaders that if the boys are to chip rocks, they must wear safety glasses. Simple, inexpensive, plastic safety glasses are all that are needed.

**Summary**

Looking for rocks and examining them can be a fun hobby enjoyed by the whole family. Ask for ideas of people who may be able to help with this activity badge—local rock hounds (collectors), merit badge counselors, or high school science teachers, for example.