

Digging Through the Past



What do searching for dinosaur bones and unearthing artifacts of an ancient culture have in common? These exciting pursuits revolve around the physical history of our planet. Today, people from all walks of life are coming together to study the history of the earth: its extinct creatures, ancient peoples, volcanoes, or vanished ecosystems. Embark on an adventure into the earth's past as you do some of these activities.

Skill Builders

1 Go on a day hike and examine the geology or archaeology of the region: for example, streams, fossils, and rock formations. Make sketches or take photographs of the major environmental features.

2 Grow your own crystals. Keep track of the crystal formation with sketches, descriptions, or photographs. Here is one crystal-growing method to try. Dissolve an ounce of table salt or sugar in a half pint of boiling water. Pour the solution into a saucer or low dish. Place a string in the solution and over the edge of the dish. Let the solution evaporate for one or two days. Use magnifying instruments to analyze the crystal structure.

3 Make a collection of at least 20 specimens of rocks, minerals, and fossils. Before you collect anything, make sure you have the landowner's permission to do so if you are on private property. Also, in many places, such as national parks and nature preserves, the removal of artifacts, fossils, or any natural material is against the law, so check before you collect! The best sources for collecting are excavations in bedrock, road cuts in solid rock, and cuts made by streams. Be able to tell about the mineral composition of at least five specimens and how each was formed. Accurately identify and label each specimen.

4 Find out how archaeologists and anthropologists make discoveries about past cultures. Learn what skills and scientific aids are needed for an excavation, and what different objects reveal about the past. Find out about one recent archaeological discovery.

5 Find out about different types of fossils, including how they are formed and the clues they give us about the history of the earth and the life it has supported. Try to observe actual fossil samples.

Technology

1 What technology is used to map the ocean floor or the surface of the earth? Try making a simple topographical map of a local area. Pages 106–109 of *Outdoor Education in Girl Scouting* will provide you with helpful information.

2 Put together a geologist's adventure kit that includes the equipment and tools geologists need in the field. Keep handy a list of the items in your kit for easy reference. Consult *Safety-Wise* for safety rules when using tools or equipment. For example, wear protective goggles if you use a hammer or a chisel to crack open rocks.

3 Investigate how modern technology (photographic equipment, microscopes, computers, lasers, chemicals, etc.) assists archaeologists and paleontologists in recreating art and artifacts from

the past. Arrange to speak with scientists or natural history museum personnel about how ancient artifacts or fossils are dated and preserved. Or talk to an artist who makes models of prehistoric animals. What research must she do to reconstruct these animals?

4 Find out about earthquakes and the frequency with which they occur in your state. Learn about faults and plate tectonics. Visit a facility where earthquakes are monitored, or find out how a seismograph works. Learn the safety precautions to take during an earthquake.

Service Projects

1 Set up a rock and mineral search for younger Girl Scouts at their meeting place. Buildings have many things in or around them that are made from minerals, rocks, petroleum, or coal. Make sure to include items on your list that fall into any of these categories.

2 Do a project to reduce erosion in your area. Devise a method to show that your project has halted or reduced erosion. The project might include planting trees, shrubs, or dune grasses. You might reduce trail erosion at a natural area or campsite by relocating the trail to avoid steep grades or wet areas, or adding steps and barriers in appropriate places.

3 Find out how weathering occurs and what effect it has on rocks and soils. Visit places in your area where you can observe the effects of weathering. Possibilities include cemeteries, old stone buildings, and areas with severe soil erosion. What effects do heat, freezing temperatures, wind, plants, water, and acid rain have on weathering processes? Take part in a pro-

ject that will offer protection from or repair the effects of weathering.

4 Collect some objects, such as a tooth, a shell, or a cleaned (boiled) chicken bone, to use as mock fossils with younger girls. Make the "fossil" by mixing plaster of Paris, gravel or sand, and water. Pour the solution into aluminum baking pans coated with petroleum jelly. Embed one or two fossils in the mixture in each pan and let dry for 24 hours. Find an area with soft soil or sand (you may have to import some for the activity) to use as a fossil bed and hide each of the fossils you created in it so that younger girls can find them. Take along the tools that the girls need for digging and demonstrate their use. To make fossil prints with the girls, see the Outdoor Happenings Try-It on page 240 of the *Brownie Girl Scout Handbook*.

5 Find out about an environmental issue in your area, such as agricultural, mining, foresting, or irrigation practices. Devise a plan to raise public awareness about the issue and, with the help of other Girl Scouts, present it in a public forum.

Career Exploration

1 Invite someone who works in a geology-related field to speak to your troop or group. Ask the speaker to discuss the local geology of your area. What geological hazards are faced by your local area and your state? What schooling is necessary to become a geologist? The speaker can also highlight specialty careers within geology, such as marine geology or hydrology. What other fields are involved and how?

2 Read about an individual who has done work in one of the earth sciences. Some names to start with are Mary and Louis Leakey and their son, Richard Leakey; Donald Johanson, and Tim White. What has been the significance of their work?

3 Geology and related sciences offer a wide variety of careers to explore, including fields such as engineering, geophysics, petrology, hydrology, geochemistry, paleontology, planetary geology, and oceanographic geology. Select an area of each science that interests you and interview someone who has made a career in that field. If possible, spend a day with that person to learn more about her area of expertise.

4 Do a college search to find out which schools offer programs in any of the fields related to earth history or geology. Write to one or more colleges that interest you to find out about their course offerings.

And Beyond

DIG UP YOUR OWN BACKYARD! THAT IS, find out what's beneath the surface of your soil, from rubble to ruins. You may want to dig up more facts and fossils with these related interest projects:

- Plant Life
- Wildlife
- Eco-Action
- Heritage Hunt
- Women Through Time
- It's About Time