

GEOLOGY MERIT BADGE WORKBOOK

This Scoutmaster Bucky Merit Badge Workbook is based off the current *Scouts BSA Requirements*.

Consider also using the Geology merit badge class preparation page for clarification and expectations when participating in a Scoutmaster Bucky merit badge opportunity ([online](#) or [in-person](#)).

<https://scoutmasterbucky.com/merit-badges/geology/>

Scout's
Name:

Energy Resources Option

This workbook covers only one of the options for this merit badge. Check the Scoutmaster Bucky website for the other possibilities.

REQUIREMENT 1: Define geology. Discuss how geologists learn about rock formations. In geology, explain why the study of the present is important to understanding the past.

Define geology

How geologists learn about rock formations

Why the study of the present is important to understanding the past

REQUIREMENT 2: Pick three resources that can be extracted or mined from Earth for commercial use. Discuss with your counselor how each product is discovered and processed.

REQUIREMENT 3: Review a geologic map of your area or an area selected by your counselor, and discuss the different rock types and estimated ages of rocks represented. Determine whether the rocks are horizontal, folded, or faulted, and explain how you arrived at your conclusion.

Completed

REQUIREMENT 4: Do ONE of the following:

REQUIREMENT A: With your parent's and counselor's approval, visit with a geologist, land-use planner, or civil engineer. Discuss this professional's work and the tools required in this line of work. Learn about a project that this person is now working on, and ask to see reports and maps created for this project. Discuss with your counselor what you have learned.

This professional's work

The tools required

A project that this person is now working on

Asked to see reports and maps created for this project

What you have learned

REQUIREMENT B: Find out about three career opportunities available in geology. Pick one and find out the education, training, and experience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

Three career opportunities

Education, training, and experience required for one profession

REQUIREMENT 5: Do ONE of the following (a OR b OR c OR d):

REQUIREMENT A: Surface and Sedimentary Processes Option

REQUIREMENT 1: Conduct an experiment approved by your counselor that demonstrates how sediments settle from suspension in water. Explain to your counselor what the exercise shows and why it is important.

Completed

REQUIREMENT 2: Using topographical maps provided by your counselor, plot the stream gradients (different elevations divided by distance) for four different stream types (straight, meandering, dendritic, trellis). Explain which ones flow fastest and why, and which ones will carry larger grains of sediment and why.

Plotted stream gradients (straight streams)

Plotted stream gradients (meandering streams)

Plotted stream gradients (dendritic streams)

Plotted stream gradients (trellis streams)

Which ones flow the fastest and why

Which ones will carry larger grains of sediment and why

REQUIREMENT 3: On a stream diagram, show areas where you will find the following features: cut bank, fill bank, point bar, medial channel bars, lake delta. Describe the relative sediment grain size found in each feature.

Cut bank

Fill bank

Point bar

Medial channel bars

Lake delta

Relative sediment grain size found in each feature

REQUIREMENT 4: Conduct an experiment approved by your counselor that shows how some sedimentary material carried by water may be too small for you to see without a magnifier.

Completed

REQUIREMENT 5: Visit a nearby stream. Find clues that show the direction of water flow, even if the water is missing. Record your observations in a notebook, and sketch those clues you observe. Discuss your observations with your counselor.

Observations

Clues you observed

REQUIREMENT 6: Do ONE of the following:

REQUIREMENT A: Visit a science museum or the geology department of a local university that has fossils on display. With your parent's and counselor's approval, before you go, make an appointment with a curator or guide who can show you how the fossils are preserved and prepared for display.

Completed

REQUIREMENT B: Visit a structure in your area that was built using fossiliferous rocks. Determine what kind of rock was used and tell your counselor the kinds of fossil evidence you found there.

REQUIREMENT C: Visit a rock outcrop that contains fossils. Determine what kind of rock contains the fossils, and tell your counselor the kinds of fossil evidence you found at the outcrop.

REQUIREMENT D: Prepare a display or presentation on your state fossil. Include an image of the fossil, the age of the fossil, and its classification. You may use maps, books, articles from periodicals, and research found on the internet (with your parent's permission). Share the display with your counselor or a small group (such as your class at school). If your state does not have a state fossil, you may select a state fossil from a neighboring state.

Completed