

## 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:

### Earth History 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.

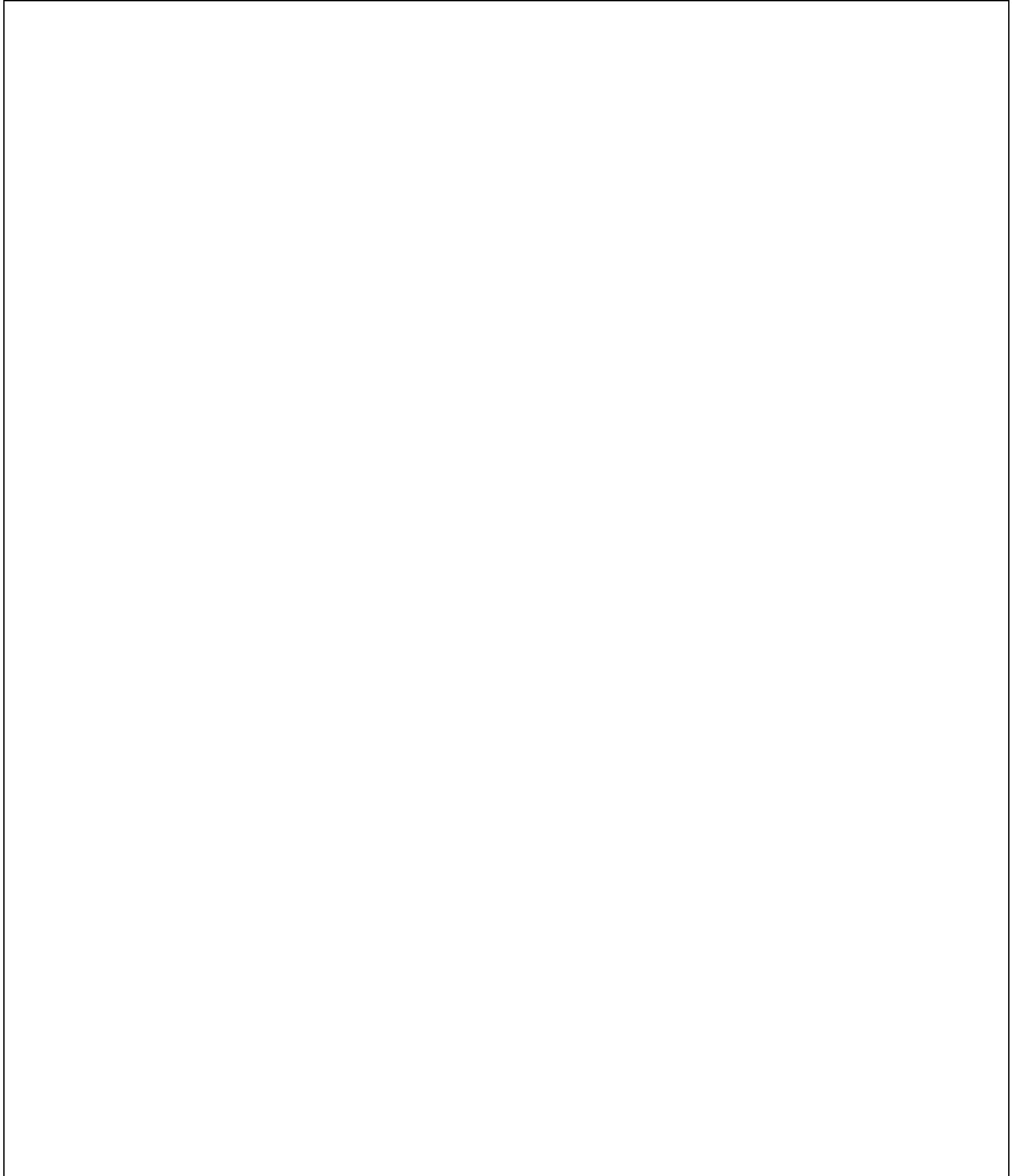
Three career opportunities

Education, training, and experience required for one profession

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

**REQUIREMENT D: Earth History Option**

**REQUIREMENT 1:** Create a chart showing suggested geological eras and periods. Determine which period the rocks in your region might have been formed.



**REQUIREMENT 2:** Explain the theory of plate tectonics. Make a chart explaining, or discuss with your counselor, how the processes of plate tectonics work. Discuss how plate tectonics determines the distribution of most of the Earth's volcanoes, earthquakes, and mountain belts.

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**REQUIREMENT 3:** Explain to your counselor the processes of burial and fossilization, and discuss the concept of extinction.

Burial and fossilization

Concept of extinction

**REQUIREMENT 4:** Explain to your counselor how fossils provide information about ancient life, environment, climate, and geography. Discuss the following terms and explain how animals from each habitat obtain food: benthonic, pelagic, littoral, lacustrine, open marine, brackish, fluvial, eolian, protected reef.

How fossils provide information about ancient life

How fossils provide information about ancient environment

How fossils provide information about ancient climate

How fossils provide information about ancient geography

Benthonic

Pelagic

Littoral

Lacustrine

Open marine



Brackish

Fluvial

Eolian

Protected reef

**REQUIREMENT 5:** Collect 10 different fossil plants or animals OR (with your counselor's assistance) identify 15 different fossil plants or animals. Record in a notebook where you obtained (found, bought, traded) each one. Classify each specimen to the best of your ability, and explain how each one might have survived and obtained food. Tell what else you can learn from these fossils.

Specimen #1

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #2**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #3**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #4**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #5**

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #6**

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #7**

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #8**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #9**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #10**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #11**

Name	Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #12**

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #13**

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #14**

Name

Where obtained

Classification to the best of your ability

How it might have survived and obtained food

**Specimen #15**

Name	Where obtained
Classification to the best of your ability	
How it might have survived and obtained food	
Overall	
What else you can learn from these fossils	

**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