

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 B: Energy Resources Option

REQUIREMENT 1: List the top five Earth resources used to generate electricity in the United States.

REQUIREMENT 2: Discuss source rock, trap, and reservoir rock—the three components necessary for the occurrence of oil and gas underground.

Source rock

Trap

Reservoir rock

REQUIREMENT 3: Explain how each of the following items is used in subsurface exploration to locate oil or gas: reflection seismic, electric well logs, stratigraphic correlation, offshore platform, geologic map, subsurface structure map, subsurface isopach map, and core samples and cutting samples.

Reflection seismic

Electric well logs

Stratigraphic correlation

Offshore platform

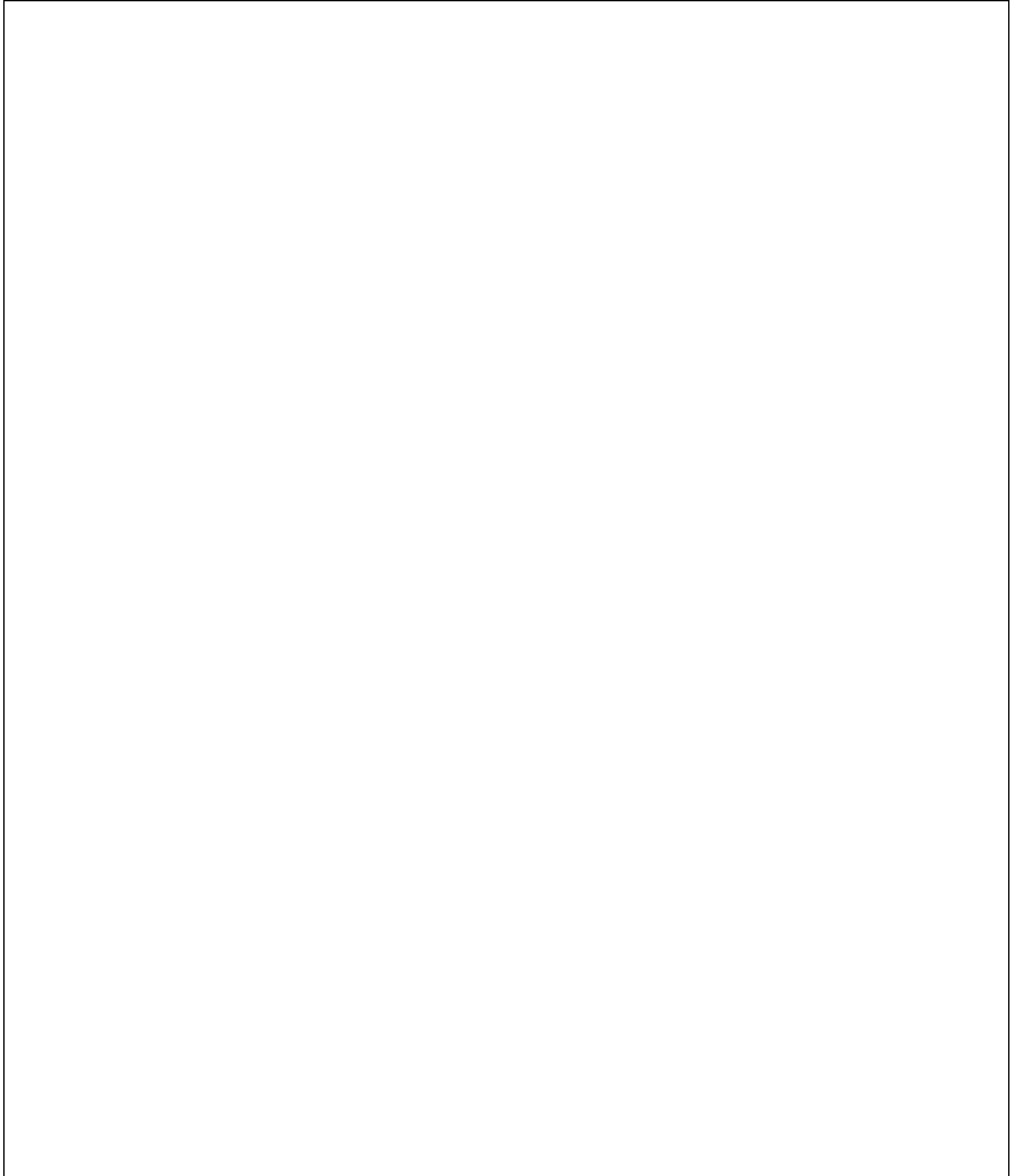
Geologic map

Subsurface structure map

Subsurface isopach map

Core samples and cutting samples

REQUIREMENT 4: Using at least 20 data points provided by your counselor, create a subsurface structure map and use it to explain how subsurface geology maps are used to find oil, gas, or coal resources.



REQUIREMENT 5: Do ONE of the following activities:

REQUIREMENT A: Make a display or presentation showing how oil and gas or coal is found, extracted, and processed. 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) in a five-minute presentation.

Created display

Presented five-minute presentation

REQUIREMENT B: With your parent's and counselor's permission and assistance, arrange for a visit to an operating drilling rig. While there, talk with a geologist and ask to see what the geologist does onsite. Ask to see cutting samples taken at the site.

Visited an operating drilling rig

Asked to see cutting samples taken at the site

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