



# GEOLOGY

## Merit Badge Requirements

1) Explain what geology means.

### Earth Materials

2) Make a collection of at least 10 different earth materials or geological specimens from your locality or an area of special interest to you. Label, to the best of your ability, classify, and explain the origin and use of the materials collected.

\* Alternatives: In place of requirement 2, you may present a collection of 10 different rocks, with specimens of sedimentary, igneous, and metamorphic rocks properly marked, cataloged, and displayed.

\* Or you may present a collection of 10 different minerals (or ores) properly marked, cataloged, and displayed. Also identify each of the 10 minerals, and give their sources and possible uses.

3) Define *rock*. Discuss and define three classes of rocks. List the characteristics of each class, how they are formed, and how they are named.

4) Define *mineral*. Tell how to identify minerals. Tell how rocks and minerals differ. List five of the most common rock-forming minerals. Tell how they are identified. Tell how hardness, specific gravity, color, streak, cleavage, luster, and crystal form are useful in identifying minerals.

### Earth Processes

5) Secure a topographic map of your locality or an area of special interest to you. Explain the origin of the landscape, including any unusual features. Account for any influences of the landscape on the location of towns, parks, highways, railroads, airports, industries, or similar structures.

6) Draw a diagram of the hydrologic cycle and discuss it and its effects with your counselor.

7) Do ONE of the following:

A) Tell about the occurrence of volcanoes on land and in the ocean. Describe the difference between intrusive igneous rocks and extrusive igneous rocks.

B) Describe the major steps in the geologic history of a mountain range. Describe the anticline, syncline, fault, strike, dip and an unconformity. Discuss the relationship between mountain building and erosion in forming the present landscape.

C) Describe the major features of an ocean floor between the shorelines on either side.

### Earth History

8) Make a chart showing the geological areas and periods and show in what geologic time the rocks in your region were formed.

9) Do ONE of the following:

A) Tell what fossils are and how they aid in understanding the story of the earth's history.

B) Make a collection of 10 different fossils and identify them to the best of your ability.

C) Discuss with your counselor the theory of continental drift.

### Geology and People

10) Discuss two environmental problems related to geology. Tell how land-use planning relates to geology. Tell why faulting, landslides, waste disposal, pollution, water supply, and subsidence are important in land-use planning. Give an example of poor use of land in your area or an environmental hazard in your area related to geologic features or processes.

11) Do ONE of the following:

A) Describe five energy sources, how they occur, and how they are used today. Describe the source of the products supplied by your local utilities. Tell which of these products are related to geologic processes.

B) Visit a mine, oil or gas field, gravel pit, stone quarry, or similar area of special interest to you. Make a collection of geologic specimens found at the site visited. Tell about the geology of the place.

### Careers in Geology

12) Do ONE of the following:

A) Read a pamphlet about careers in geology. Tell what you learned.

B) Visit with a geologist, other than your counselor. Tell what he or she does. Find out how he or she prepared for the job.

13) Discuss with your counselor what you have learned about careers in geology and how to prepare for them.

## Requirement 1

Explain what *geology* means: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## EARTH MINERALS

### Requirement 2

For this requirement you have been given 3 options. Select and complete one of them.

Make a collection of at least 10 different earth materials or geological specimens from your locality or an area of special interest to you. Label, to the best of your ability, classify, and explain the origin and use of the materials collected. Show your collection to your counselor.

**OR**

Present a collection of 10 different rocks, with specimens of sedimentary, igneous, and metamorphic rocks properly marked, cataloged, and displayed.

**OR**

Present a collection of 10 different minerals (or ores) properly marked, cataloged, and displayed. Also, identify each of the 10 minerals, and give their sources and possible uses.

Once you have made your collection from the above choices, fill in the information below:

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

Material Collected: \_\_\_\_\_

Location Collected: \_\_\_\_\_

Classification: \_\_\_\_\_ Origin/Source: \_\_\_\_\_

Possible Uses: \_\_\_\_\_

### Requirement 3

Define *rock*: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Discuss and define three classes of rocks:

Class: \_\_\_\_\_

Characteristics: \_\_\_\_\_

How is it formed? \_\_\_\_\_

How did it get its name? \_\_\_\_\_

Class: \_\_\_\_\_

Characteristics: \_\_\_\_\_

How is it formed? \_\_\_\_\_

How did it get its name? \_\_\_\_\_

Class: \_\_\_\_\_

Characteristics: \_\_\_\_\_

How is it formed? \_\_\_\_\_

How did it get its name? \_\_\_\_\_

### Requirement 4

Define *mineral*: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How can you identify minerals? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How do rocks and minerals differ? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

What are five of the most common rock-forming minerals?

\_\_\_\_\_

How are these rock-forming minerals identified? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tell how each of the following are useful in identifying minerals:

Hardness: \_\_\_\_\_  
\_\_\_\_\_

Specific Gravity: \_\_\_\_\_  
\_\_\_\_\_

Color: \_\_\_\_\_  
\_\_\_\_\_

Streak: \_\_\_\_\_  
\_\_\_\_\_

Cleavage: \_\_\_\_\_  
\_\_\_\_\_

Luster: \_\_\_\_\_  
\_\_\_\_\_

Crystal Form: \_\_\_\_\_  
\_\_\_\_\_

## **EARTH PROCESSES**

### **Requirement 5**

Secure a topographic map of your locality or an area of special interest to you.

Explain the origin of the landscape: \_\_\_\_\_  
\_\_\_\_\_

Are there any unusual features on your map? \_\_\_\_\_  
\_\_\_\_\_

Describe how the landscape has influenced each of the following items:

Towns: \_\_\_\_\_  
\_\_\_\_\_

Parks: \_\_\_\_\_  
\_\_\_\_\_

Highways: \_\_\_\_\_  
\_\_\_\_\_

Railroads: \_\_\_\_\_  
\_\_\_\_\_

Airports: \_\_\_\_\_  
\_\_\_\_\_

Industries: \_\_\_\_\_  
\_\_\_\_\_

Other Structures: \_\_\_\_\_  
\_\_\_\_\_

## Requirement 6

In the space below draw a diagram of the hydrologic cycle.



Describe the hydrologic cycle and its affects: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Requirement 7

For this requirement you have been given three options. Select and complete ONE of them.

If you selected *Option A*:

Tell about the occurrence of volcanoes on land and in the ocean: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe the difference between intrusive igneous rocks and extrusive igneous rocks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If you selected *Option B*:

Describe the major steps in the geologic history of a mountain range: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Describe the following:

Anticline: \_\_\_\_\_

Syncline: \_\_\_\_\_

Fault: \_\_\_\_\_

Strike: \_\_\_\_\_

Dip: \_\_\_\_\_

Unconformity: \_\_\_\_\_

Discuss the relationship between mountain building and erosion in forming the present landscape: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

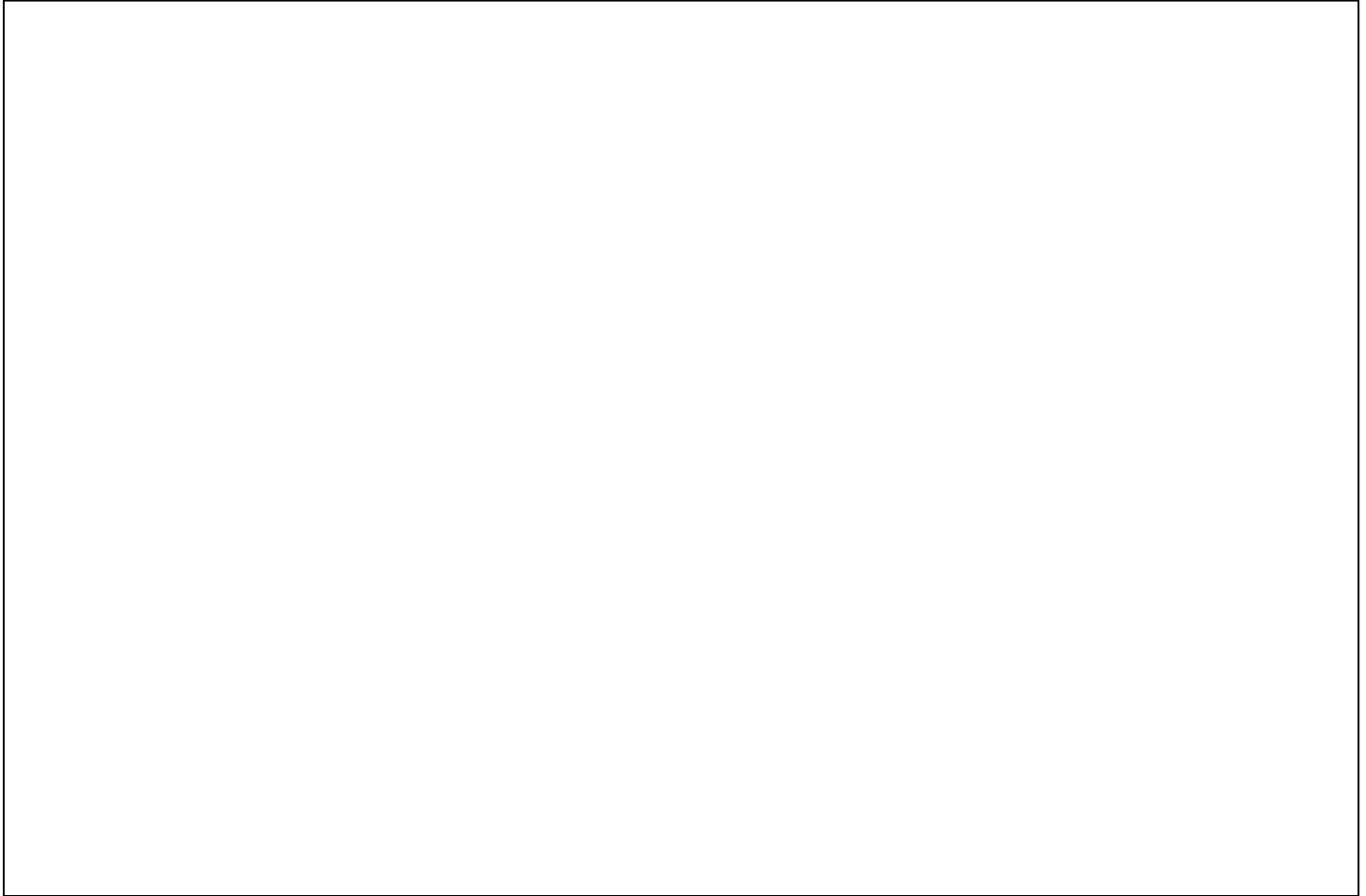
If you selected *Option C*:

Describe the major features of an ocean floor between the shorelines on either side: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## EARTH HISTORY

### Requirement 8

Use the space below to make a chart showing the geological eras and periods and who in what geologic time the rocks in your region were formed:



### Requirement 9

For this requirement you have been given three options. Select and complete ONE of them.

If you selected *Option A*:

Tell what fossils are: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

How do fossils aid in understanding the story of the earth's history: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If you selected *Option B*:

Make a collection of 10 different fossils. Identify them to the best of your ability, listing them below:

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If you selected *Option C*:

Discuss the theory of continental drift: \_\_\_\_\_

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## GEOLOGY & PEOPLE

### Requirement 10

Identify and explain two environmental problems related to geology:

Problem: \_\_\_\_\_ Explanation: \_\_\_\_\_

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Problem: \_\_\_\_\_ Explanation: \_\_\_\_\_

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Tell how land-use planning relates to geology: \_\_\_\_\_

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Tell why each of the following are important in land-use planning:

Faulting: \_\_\_\_\_

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Landslides: \_\_\_\_\_

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Waste Disposal: \_\_\_\_\_

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Pollution: \_\_\_\_\_

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Water Supply: \_\_\_\_\_

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Subsidence: \_\_\_\_\_

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Give an example of poor use of land in your area or an environmental hazard in your area related to geologic features or processes: \_\_\_\_\_

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### Requirement 11

For this requirement you have been given two options. Select and complete ONE of them.

If you selected *Option A*:

Describe five energy sources, how they occur, and how they are used today:

Source: \_\_\_\_\_ How do they occur? \_\_\_\_\_

How is it used today? \_\_\_\_\_

Source: \_\_\_\_\_ How do they occur? \_\_\_\_\_

How is it used today? \_\_\_\_\_

Source: \_\_\_\_\_ How do they occur? \_\_\_\_\_

How is it used today? \_\_\_\_\_

Source: \_\_\_\_\_ How do they occur? \_\_\_\_\_

How is it used today? \_\_\_\_\_

Source: \_\_\_\_\_ How do they occur? \_\_\_\_\_

How is it used today? \_\_\_\_\_

Describe the source of the products supplied by your local utilities: \_\_\_\_\_

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Tell which of these products are related to geologic processes: \_\_\_\_\_

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If you selected *Option B*:

Visit a mine, oil or gas field, gravel pit, stone quarry, or similar area of special interest to you.

Where did you visit? \_\_\_\_\_ Date: \_\_\_\_\_

Briefly describe your visit and what you learned: \_\_\_\_\_

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Make a collection of geologic specimens found at the site visited. What did you collect? \_\_\_\_\_

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Tell about the geology of the place you visited: \_\_\_\_\_

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## CAREERS IN GEOLOGY

### Requirement 12

For this requirement you have been given two options. Select and complete ONE of them.

If you selected *Option A*:

Read a pamphlet about careers in geology. Tell what you learned: \_\_\_\_\_

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If you selected *Option B*:

Visit with a geologist, other than your counselor. Tell what he or she does. Find out how he or she prepared for the job: \_\_\_\_\_

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### Requirement 13

Describe what you have learned about careers in geology and how to prepare for them: \_\_\_\_\_

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