

## **Boy Scout Geology Merit Badge Summary**

**May 1, 2010**

### **Dinosaur Ridge, Morrison CO**

**Note: This is an summary of the short list of requirements in the Geology Merit Badge book and is not intended to replace the book in any way.**

1. Define Geology. Discuss how geologists learn about rock formations. In geology, explain why the study of the present is important to the past.
2. Pick three resources that can be extracted or mined from Earth for commercial use. Discuss with your counselor how each produce is discovered and processed. (SCOUT STATION ON RIDGE)
3. Review a Geologic Map of your area with 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 arrive at your conclusion. (SCOUT STATION ON RIDGE)
4. Do ONE of the following:
  - 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. (RIDGE or any SCOUT STATION).
  - b. Learn about the career opportunities available in geology. Pick one that interests you and explain how to prepare for such a career. Discuss what courses might be useful for such a career. You may use resources found on the Internet (with your parent's permission), at the library, in books and articles from periodicals, from television programs and at school. (HOME, some at the RIDGE)

### **5C. Mineral Resources Option**

1. Define rock. Discuss the three classes of rocks including their origin and characteristics.
2. Define mineral. Discuss the origin of minerals and their chemical composition and identification properties, including hardness, specific gravity, color, streak, cleavage, luster and crystal form.
3. Do ONE of the following:
  1. Collect 10 different rocks or minerals. Record in a notebook where you obtained (found, bought, traced) each one. Label each specimen, identify its class and origin, determine its chemical composition and list its physical properties. Share your collection with your counselor.

2. With your counselor's assistance, identify 15 different rocks and minerals. List the name of each specimen, tell whether it is a rock or mineral, and give the name of its class (if it is a rock) or list its identifying physical properties (if it is a mineral)
4. List three of the most common road building materials used in your area. Explain how each material is produced and how each is used in road building.
5. Do ONE of the following activities:
  1. With your parent's and counselor's approval, visit an active mining site, quarry or sand and gravel pit. Tell your counselor what you learned about the resources extracted from this location and how these resources are used by society.
  2. With your counselor, choose two examples of rocks and two examples of minerals. Discuss the mining of these materials and describe how each is used by society.
  3. With your parent's and counselor's approval, visit the office of a civil engineer and learn how geology is used in construction. Discuss what you learned with your counselor.

#### **5D. Earth History Option**

1. Create a chart showing suggested geological eras and periods. Determine which period the rocks in your region might have been formed.
2. Explain to your counselor the process of burial and fossilization and discuss the concept of extinction. Identify three plants or animals on the threatened or endangered list of the US Fish and Wildlife Service.
3. 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.
4. Collect 10 different fossil plants or animals. Record in a notebook where you obtained (found, bought or 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.
5. Do ONE of the following:
  1. 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.
  2. 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.