



Royal Rangers

Merit Requirements: Silver-Bordered Merit

GEOLOGY MERIT

Note: This merit may be completed by earning at least a grade of B for one semester of high school or college geology OR by completing the following requirements.

1. Define the following terms:
 - a. Geology
 - b. Rock
 - c. Sedimentary Rock
 - d. Mineral
 - e. Fossil
 - f. Ore
 - g. Earth's Crust
 - h. Volcano
 - i. Oil and gas field
 - j. Quarry
 - k. Hydrologic cycle
 - l. Crystals
 - m. Magma
 - n. Intrusive igneous rocks
 - o. Extrusive igneous rocks
 - p. Anticline
 - q. Syncline
 - r. Fault
 - s. Metamorphic rock
 - t. Petrology
2. List five methods used to identify minerals or rocks and explain how each is used.
3. Do ONE of the following:
 - a. Collect at least five ores. List the name of each ore, the metals commonly produced from each, and how the metal is used.
 - b. Collect at least ten rock-forming minerals and list the name of each.
 - c. Collect at least ten different fossils.
4. Write a four-page report on volcanoes. Include information on structure (a diagram) and a map indicating the worldwide areas of high volcanic activity.
5. Do ONE of the following:
 - a. Tour a commercial operation that is currently running a mine, quarry, or an oil or gas field. Discuss the geology of the area with the manager or foreman. Write a report of your findings and place it in your workbook. Include how the deposit was formed, how it was found, and how it is being developed. Explain the ecological and environmental standards that are being met.
 - b. Research on the Internet two operation sites that are currently running either a mine, quarry, or an oil or gas field. Communicate with the contact person by e-mail and write a report of your findings to be placed in your workbook. Include the material being mined, how the deposit was formed, how it was found, and how it is being developed. Explain the ecological and environmental standards that are being met.

- c. Write a report explaining how land-use planning and geological awareness relate to each other. Include the geologist's role in helping developers understand faulting, landslides, waste disposal, pollution, water supply, and subsidence, and how these elements are important in land-use planning. Describe an example of poor use of land in your area or an environmental hazard in your area related to geologic features or processes.
6. Describe how geologists are involved in the utilization of nature for the development of energy sources. List at least two ways that geologists have used nature as a source of energy to create power.
7. Do ONE of the following:
 - a. Polish a rock-forming mineral and use it to decorate a piece of jewelry, such as a ring, a tie clasp, or a belt buckle.
 - b. Grow synthetic crystals at home. Study a crystal with a microscope and then draw its structure.
 - c. Describe industrial crystals and include how they are made and their uses.
8. Select a career in the field of geology. Write a job description for that career and list the educational requirements.
9. List three Scripture verses referring to rocks and minerals.