

GEOLOGY ROCKS

SUMMARY

This program discusses and examines minerals and rocks with hand samples and lecture. Students will also complete experiments testing both physical and chemical properties to identify unknown minerals.

GRADE LEVEL: 3-6

ACTIVITY DURATION: 1 hour

SETTING: Classroom and outdoor sluice

OBJECTIVES: This program uses both traditional lecture and hands-on experimentation. The students use information presented to them, applied to the results of the hands-on experiment, to determine answers. At the end of the programs students should be able to:

- Name and identify three main rock types
- Describe how a rock and mineral differ
- Investigate rock and mineral specimens
- Explain the connection between the different rock types

COOPERATIVE APPROACH: This program can work well with both the *Cave Boat Tour* and the Sinking into Karst program as the hands-on experiment to test the chemical property of calcite is a basis for understanding the chemical erosion of limestone to create karst features and cave passageways.

MAKING CONNECTIONS: Students will understand that minerals are building blocks of rocks. This is in relation to other situations in science where the developmental organization of materials result in the building of a system. i.e. atoms build molecules, cells build tissue, biotic and abiotic components build an ecosystem. students will go home with their own collection of minerals to encourage personal inquiry.

ALTERATIONS:

GRADES K-2

Without changes, this program may be too intense for a K-2 audience. Therefore to provide a K-2 group with the *Geology Rocks* program, several alterations would be required. Changes would include:

- Altering the informational content connected to the slides used in the instructional component.
- Distributing more hand samples to increase the visual and texture experience.
- Removing the physical property experiment and altering the informational content of the chemical property experiment to better fit the knowledge base of the students.

GRADES 7-12

Without changes, this program may not reach the expectations of the 7-12 knowledge base. Therefore, to provide grades 7-12 with the *Geology Rocks* program, guides will incorporate more of the background information within each presentation. It is recommended that the STEM extensions also be applied.

EXTENSION:

STEM

The *Geology Rocks* program can be extended into a longer program in which principles of critical thinking and team work are applied. Such extensions can include:

- Adding a local sedimentary rock identification challenge. Student groups must identify 15 different sedimentary rocks by their grain size and main mineral compositions. Discussion about their depositional environments follow.

VOCABULARY: Crystal, Igneous, Rock, Gemstone, Metamorphic, Rock Cycle, Geologist, Mineral, Geology, Sedimentary