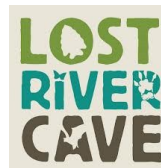


GEOLOGY ROCKS



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

Grade Level: 3-6

NGSS: 2-PS1-1-4, 3-LS4-1, 4-ESS1-1, 4, ESS2-1-2, 5-PS1-1-4, MS-PS1-1-2, MS-PS1-4, MS-LS4-1-2, MS-ESS2-1-3,

Duration:

Activity: 1 hour

Setting:

Classroom and outdoor sluice

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.

Vocabulary:

Crystal

Igneous

Rock

Gemstone

Metamorphic

Rock Cycle

Geologist

Mineral

Geology

Sedimentary

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 program, the student should be able to:

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

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. Student 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 class 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.



Cost:

Program: \$5.00 / student (includes program and gemstone bag)

Program + Boat Tour: \$10.00 / student