



CAVE OF THE MOUNDS®

National Natural Landmark

Educational Programs

RocksROCK

Rock Mini-Course

Grade 7-8

Objectives:

At the end of this program, the student should be able to:

- Apply rock related vocabulary
- Name & identify the three main rock types
- Describe how sedimentary, igneous, and metamorphic rocks form
- Describe the way rocks & minerals differ
- Investigate rock and mineral specimens
- Understand the connection between the different rock types
- Identify at least five different rocks and five different minerals

Wisconsin DPI Standards:

Science:

*D.8.1, D.8.2, D.8.3, D.8.5, D.8.6,
D.8.8, d.8.9, E.8.1, E.8.2, E.8.3, E.8.4,
E.8.5, E.8.6*

Activities:

Times are approximate and specific reinforcing activities will vary based on the needs of each individual group.

- 30 minutes The interactive audio visual presentation provides the definition of a rock, a mineral & a gem, rock types & how each forms, and how scientists identify rocks, gems & minerals.
- 30 minutes Sluicing gives participants a hands-on experience to uncover their own collection like a true geologist. Guided identification shows examples of both local/non-local rocks & minerals.
- 60 minutes The Cave Tour fosters a connection between previously discussed rock, mineral, and gem concepts with the experience of observing large scale rocks & minerals inside the cave.

Pre-teach Vocabulary:

A glossary of terms is provided for your convenience.

Mineral	Sedimentary	Crystal	Gneiss
Rock	Igneous	Rock cycle	Calcite
Geologist	Metamorphic	Granite	Weathering
Geology	Gemstone	Limestone	Erosion

Learning Extension:

Try this after your visit to reinforce important concepts.

Activity:

1. Students should have a basic understanding of the rock cycle and weathering before attempting this lab activity.
2. Distribute the materials to each team (2 - 4 students).
3. Instruct them to sort their sand into groups based on color, luster, shape, magnetism, etc. Allow several short periods over 2 - 3 days for sorting.
4. After the students have sorted their sand into groups, challenge them to identify their finds by comparing them to the sample rocks provided as well as the descriptions provided on the Sand Hunt worksheet.
5. Once they have identified the groups, provide glue to adhere the samples to the Sand Hunt worksheet. They should also glue a "pile" of sand in the middle of the page.

You will need:

- | | | |
|----------------------|-----------------------|-----------------|
| - Bags of sand | - Egg cartons | - Small magnets |
| - Magnifying glasses | - Samples of rocks | - Glue |
| - Toothpicks | - Sand Hunt Worksheet | |

Glossary of Terms

Mineral – A naturally occurring, solid element or compound, with a definite composition and a regular internal crystal structure.

Rock – A solid, cohesive aggregate of one or more minerals or mineral materials.

Geologist – A scientist who studies the earth and the materials that form it.

Geology – Scientific study of the earth and the materials that form it.

Sedimentary – A type of rock formed from the accumulation of sediment, which may consist of fragments and mineral grains of varying sizes from pre-existing rocks, remains or products of animals and plants, or the products of chemical action.

Igneous – A type of rock formed from molten or partially molten material cooling and hardening either above or below the surface of the earth.

Metamorphic – A type of rock changed from its original form (sedimentary or igneous) and/or composition by heat, pressure, or chemically active fluids, or some combination of them.

Gemstone – A mineral that is valued for its beauty, durability, and rarity.

Crystal – A solid whose atoms are arranged in an orderly, repeating, three-dimensional pattern. All minerals, such as calcite, are composed of crystals.

Rock Cycle – All rock at or near Earth's surface is being continuously modified by the processes of metamorphism, melting, crystallization, sedimentation and weathering.

Granite – A light-colored, coarse-grained igneous rock formed by cooling of silica-rich magma below the surface of the earth.

Limestone – A carbonate-rich sedimentary rock which usually forms from layers of the remains of marine life and other marine sediments.

Gneiss – Metamorphic rock characterized by strong two colored banding that appears folded, as a result of metamorphic processes.

Calcite – A mineral composed of calcium carbonate. Most cave formations are made of calcite.

Weathering – The breakdown of earth materials by natural processes such as wind, water, & ice.

Erosion – The set of processes by which materials are removed or transported by wind, water, ice or gravity.