



# CAVE OF THE MOUNDS®

National Natural Landmark

## Educational Programs

### SpeleoQUEST

Cave Mini-Course

Grade 5-6

#### Objectives:

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

- Define cave related vocabulary
- Explain what a cave is
- Tell how a solution cave forms in general terms
- Name at least 4 cave formations
- Describe the connection between what is above ground and what is below ground

#### Wisconsin DPI Standards:

##### *Science:*

*A.8.1, C.8.1, D.8.2, D.8.3, D.8.4, D.8.5, D.8.6, D.8.7, D.8.8, E.8.1, E.8.2, E.8.3, E.8.4, E.8.5, E.8.6*

##### *Social Studies:*

*A.8.1, A.8.2, A.8.4, A.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 cave, process of the formation of sedimentary rocks, how caves form, and how cave formations are deposited.
- 30 minutes      Outside Karst Tour shows above ground features that indicate the presence of caves, shows examples of local geology, and traces the path of Cave of the Mounds from above the ground.
- 50 minutes      The Cave Tour fosters a connection between previously discussed cavern features and formations and an experience of the actual cave environment.

#### Pre-teach Vocabulary:

A glossary of terms is provided for your convenience.

Cave	Flowstone	Mineral
Speleothem	Fossil	Speleology
Stalactite	Rock	Calcite
Stalagmite	Geology	Crystal
Acid	Limestone	Environment
Dissolve	Sinkhole	Erosion
Column	Weathering	

#### Learning Extension:

Try this after your visit to reinforce important concepts.

##### You will need:

White vinegar  
Shallow pan  
Eye droppers  
Limestone sample  
Other rock samples

1. It may be helpful to break into partners or teams of 3.
2. Place rock samples in the shallow pan.
3. Use eye droppers to coat each rock with the vinegar.
4. Make and record observations.

**Questions:** What happened to each rock as the vinegar was added? Why do you think vinegar reacted that way? What do you think would happen if you coated the rocks with just plain water? Would the reaction be the same or different? Why?

**Discuss:** You have just performed what is called a bubble test. Limestone will dissolve in acid. Vinegar is an acid that is strong compared to carbonic acid. Carbonic acid forms when rain picks up carbon dioxide from the atmosphere and soil. As this weak acid moves through limestone, the rock is slowly dissolved leaving behind cavities. The dissolved limestone is then re-deposited into the cave as speleothems made of calcite.

## Glossary of Terms

**Cave** - A hole in a rock that was made by nature and is large enough for a person to fit into.

**Speleothem** - A general term for any mineral deposit or formation found within a cave, such as a stalactite or stalagmite.

**Stalactite** - A formation which develops when water deposits minerals in successive rings downward from the ceiling of a cave.

**Stalagmite** - A formation which builds upward from a cave floor as the result of water dripping from above. They are usually located beneath a stalactite.

**Acid** - A substance that produces ions when it is dissolved in water. Acids can breakdown (dissolve) rocks and minerals.

**Dissolve** - To breakdown a substance into smaller more dilute particles.

**Column** - A formation which is formed when stalagmites meet overhanging stalactites. Water flowing down the sides of the column gradually enlarges it by adding layers of flowstone to the surface.

**Flowstone** – Sheets of calcite deposited in a cave as mineral rich water flows over the wall or floor.

**Fossil** - Any remains or traces of animals or plants that lived in the past. These can include bones, tracks, casts or imprints.

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

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

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

**Sinkhole** - A circular depression formed by ground collapse into a solution cavity.

**Weathering** - The breakdown of earth materials by some force of nature such as wind, water or gravity.

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

**Speleology** - The scientific study of caves.

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

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

**Environment** - All the external conditions which surround a living thing.

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