CAVE OF THE MOUNDS™
National Natural Landmark

Educational Programs

SpeleoQUEST

Cave Mini-Course

Grade 7-8

Objectives:

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

- Define cave related vocabulary
- Explain what a cave is
- Explain how a solution cave forms in general terms
- Identify at least 5 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	Lifeline
Stalactite	Sedimentary Rock	Cephalopod	
Stalagmite	Geology	Calcite	
Acid	Limestone	Crystal	
Dissolve	Sinkhole	Cave Coral	
Column	Weathering	Erosion	

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? Would plain water have the same effect? Why? What if you used rain water? How would time effect results using rain water?
Discuss: Limestone will dissolve in acid. Vinegar is an acid that is strong, so the limestone dissolves relatively fast. Carbonic acid is weak and dissolution would take more time. Carbonic acid forms when rain picks up carbon dioxide from the atmosphere and soil. As this weak acid moves through cracks and fissures (such as the lifeline) in the limestone, the rock is slowly dissolved leaving behind cavities. After these cavities become open to air, cave formations can begin to grow.

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.

Sedimentary Rock - A solid, cohesive aggregate of one or more minerals or mineral materials formed from the compaction and cementation of sediments.

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.

Cephalopod – A mollusk with a distinct head and a foot divided into tentacles, such as a squid or an octopus.

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.

Cave Coral – Speleothem that forms at the surface of mineral rich pools of water in a cave.

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

Lifeline - A nickname given to the crack in the ceiling of a cave that permits mineral rich water to enter and deposit speleothems.