

CRYSTAL CAVE

Wisconsin's Longest Show Cave Educational Program

Cave Tour Lesson Plan Grades K-2

Objectives:

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

- Identify cave related vocabulary
- Describe what a cave is
- Tell how a cave forms in general terms
- Name at least 2 cave formations
- Recognize a connection between what is above ground and what is below ground
- Define rock related vocabulary
- Name the 3 main rock types

Wisconsin DPI Standards

Science:

A.4.1, A.4.2, A.4.3, A.4.4, A.4.5, B.4.1,
B.4.3, C.4.1, C.4.2, C.4.8, D.4.1,
D.4.2, D.4.3, D.4.4, D.4.8, E.4.1,
E.4.2, E.4.3, E.4.5, E.4.6, E.4.7, E.4.8

Social Studies:

A.4.1, A.4.2, A.4.5, A.4.7, B.4.7, E.4.1

Minnesota Academic Standards

Science:

0.1.1.2.1, 0.2.1.1.1, 0.4.2.1.1, 1.1.1.1.1,
1.1.3.1.1, 1.3.1.3.1, 1.3.1.3.3, 1.4.2.1.1,
1.4.2.1.2, 2.1.1.2.1

Activities:

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

10 minutes: The visual presentation provides the history and discovery of the cave, definition of a cave, formation of sedimentary rocks, how caves form, fossils in the cave, different types of cave formations, the type and hibernation of bats, and the ecology of caves.

60 minutes: The Cave Tour fosters a connection between previously discussed cavern features and formations with the experience of the actual cave environment. A knowledgeable guide shows the group through 11 rooms on three levels.

Pre-teach Vocabulary:

A glossary of terms is provided for your convenience.

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

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

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.

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

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

Geologist- A scientist who studies 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

Mineral- The materials that make up rocks (naturally occurring solid element or compound with an internal crystal structure).

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

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.

Learning Extension:

Try this activity after your visit to reinforce important concepts.

Recommended for Kindergarten

1. Have the children help you make fruit punch using uncolored Kool-Aid and sugar.
2. Give children a sample of plain water to taste. Then, give a sample of the drink mixture.

Questions: How did each look? How did each taste? Why?

Discuss: Water can combine with other substances to make a solution. Sometimes you cannot tell if there is another substance just by looking at it. A weak acid solution (rain + carbon dioxide) is what caused the cave to form inside the rock at Crystal Cave.

Recommended for Grades 1 & 2

1. Give each child 3 cups (4 oz.). Place $\frac{1}{2}$ tsp salt in 1 cup and $\frac{1}{2}$ tsp sugar in another cup.
2. Pour 2 oz of warm water into each of the three cups and ask the children to stir each for 1 minute.
3. Have the children make observations about each cup by color & taste.
4. Have each child (or in partners) make a simple chart to record observations and compare solutions.

Discuss: See Kindergarten discussion above. Add: As the weak acid solution moved through cracks in the rock, it dissolved and carried other minerals with it.