



«[Science Lesson Plans](#)

Careful Cave Treading

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Description

Students will learn about solution cave ecosystems through literature, on-line virtual caves, and Missouri Department of Resources materials. The students will conduct simple inquiry investigations as they work to develop cave formation models. They will also use independent research evaluate their scientific predications based on those models. The students will produce a RAFT, writing sample, identifying the importance of caves in the overall environment and the steps people need to take to be "responsible cavers". Students will expand their knowledge of caves by collecting and organizing information on various types of caves.

Grade Level

3rd Grade

Lesson Objective

Students will identify components of a cave ecosystem.

Students will conduct simply inquiry experiments.

Students will evaluate hypothesis based on experimental evidence and research.

Students will demonstrate an understanding of human impact on caves.

Students will collect information through the research of various cave types.

GLEs

1 1 D a. Compare the observable physical properties of solids, liquids, or gases (air) (i.e., visible vs. invisible, changes in shape, changes in the amount of space occupied)

1 1 D b. Identify everyday objects/substances as solid, liquid, or gas (e.g., air, water)

1 2 C a. Identify the Sun as the primary source of light and food energy on Earth

3 1 A a. Describe the basic needs of most plants (i.e., air, water, light, nutrients, temperature)

7 1 A a. Pose questions about objects,
materials, organisms, and events
in the environment

7 1 B a. Make qualitative observations
using the five senses

7 1 B b. Make observations using simple
tools and equipment (e.g., hand
lenses, magnets, thermometers,
metric rulers, balances,
graduated cylinders)

7 1 B c. Measure length to the nearest
centimeter, mass using grams,
temperature using degrees
Celsius, volume using liters

7 1 B d. Compare amounts/measurements

7 1 C d. Analyze whether evidence
supports proposed explanations

7 1 D a. Communicate simple procedures
and results of investigations and
explanations through:
_ oral presentations _

Depth of Knowledge

Level 4

Instructional Strategies

Shared Reading, Independent Research, Internet Research, Science Inquiry Lab, Demonstration, Graphic Representation, Pre/Post Tests

Time Needed

8 Days

Materials

Crystals on a String

You will need: water, alum, a narrow glass, and thread. (Epsom salt, sugar, table salt: both iodized and plain, if you wish)

Crystals in a Dish (Stalagmites)

You will need: two cups of hot water, a dish, charcoal briquettes, a spoon, a container of Epsom salt, and food coloring if you wish.

Stalactites

You will need: 2 glasses, warm water, Epsom salts, 12-18 inches of cotton yarn or thread, and 1 plate.

Other materials:

Drawing paper and coloring supplies

Paper for notes

Science Notebooks

Large Construction Paper for Cave Research Project

Academic Vocabulary

cave, caver, cavern, guano, spelunker, speleologist, stalagmite, stalactite, cave formations

Lesson Plan

 [Careful Cave Treading](#)

Resources

 [Missouri Department of Resources PDF Missouri Caves](#)

Student Practice Page-Caves-included in lesson file

Pre/Post Test and Answer Key-included in lesson file

 [Responsible Guide to Caving PDF](#)

Responsible Caving RAFT-directions embedded into lesson

Literature links

Caves (Nature in Action) (Paperback) by [Stephen P. Kramer](#)

Caves and Caverns (Paperback) by [Gail Gibbons](#)

Cave by Donald M. Silver, Patricia Wynne, Patricia Wynne (Illustrator)

Additional Books:

Gaff, Jackie I Wonder Why Stalactities Hang Down: and Other Questions About Caves

Waltham, Tony [Great Caves of the World](#)

Text book link(s)**Textbook Resources:**

Scott Foresman Text Book

Grade 4 Textbook – Page 238 (Cave) and Chapter 8 Pages 233-256 (Rock Formations)

Grade 5 Textbook - Page 262 (Cave) and Pages 170-173 (Adaptations)

Technology Connection: Scott Foresman Take it to the Net Games: "Inside a Cave" (Grade 4 Chapter 8, Grade 5 Chapter 9)

Key concepts: [cave formation](#) [weathering](#) [erosion](#) [caving safety](#) [cave dwelling animals](#) [human impact](#)

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