

Cave of the Winds
Activity Four:
Don't Touch
For Grades 3-8

Lesson for Grades 3-8
About 30 minutes

Satisfies Colorado Model
Content Standards for
Science:

Grades 3-5: Standard 1,
Benchmark 1. Design, plan
and conduct a variety of sim-
ple investigations (for exam-
ple: formulate a testable
question, state a hypothesis,
make systematic observa-
tions, develop and commu-
nicate logical conclusions
based on evidence.

Grades 6-8: Standard 1,
Benchmark 1. Ask questions
and state hypotheses that
lead to different types of sci-
entific investigations (for
example: experimentation,
collecting specimens, con-
structing models, researching
scientific literature).

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GEO|VENTURE



CAVE OF THE WINDS

Don't Touch!

Objectives

1. Students will demonstrate that skin contains oil.
2. Students will theorize concerning the effects skin oils have on speleothems.
3. Students will calculate human impact on cave formations given a specific number or time.

Method

Students demonstrate how touching can damage a speleothem.

Materials

Mirror
Limestone rock
Water

Vocabulary

Limestone
Speleothem

Background

Oil and dirt from hands can damage speleothems. By simply touching speleothems, oils are left behind. Touching can also dull the color of speleothems, sometimes staining them. Touching can also stop the growth of speleothems. Since speleothems are formed with water, oil creates a barrier that does not allow dissolved minerals to continue to deposit.

Activity One: Suggested Procedure for Mirror Activity

(Adapt as needed for age/ability of your group).

1. Have each student touch the mirror. This works best after lunch or recess when their hands are likely to be dirty and sweaty.
2. Show the class the mirror covered with finger prints. Explain that they have changed the appearance of the mirror. A mirror can be cleaned with cleaner, speleothems in a cave cannot. Why would you not want to use cleaners such as Windex, to clean cave speleothems?
3. Facilitate class discussion.
 - a. What happens to rain water when it falls on an oily spot on your driveway?
 - b. What comparison can be made with oil-coated speleothems?
4. Students use a calculator to determine the following. Cave of the Winds has more than a 200,000 visitors a year. If five percent of were to touch speleothems, how many people would that be?
5. Do you think that many people touching speleothems damages the cave? Do you think the Cave's "No-Touch Rule" is a good one? Have students justify their answers and discuss.



CAVE OF THE WINDS

Activity Two: Suggested Procedure for Limestone Rock Activity

(Adapt as needed for ageability of your group).

1. At the start of the school day, give students the following instructions with no background information.
“I have two limestone rocks. Do not touch the rock on my desk. At all times, someone in the class must be touching the rock in my hand. Pass it around so everyone will have an opportunity to handle the rock. Before school is out for the day, we will compare the two rocks.”
2. An hour before school is dismissed, ask students to form an hypothesis. Which rock will be water-resistant?
3. Test the hypothesis by having one student drop water on the rock on the desk. Have students observe and record their observations.
4. Have another student drop water on the handled rock. Have students observe and record their observations.
5. Facilitate a class discussion. What happened? Why?



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