

DON'T TOUCH

Adapted from: Carlsbad Caverns National Park's Teacher Guide: *About Bats, Caves, & Deserts*.

GRADE LEVEL:

Elementary/Intermediate

SUBJECT: Science (Unifying Concepts), Mathematics (Unifying Concepts)

Related Colorado Content

Standards: SC2.1, SC4, SC6, MA(3-12).6 benchmark 6.1

TIME: 30 Minutes

OBJECTIVE: Students will demonstrate skin contains oil. Students will theorize concerning the effects skin oils have on speleothems by demonstrating how touching can damage a speleothem.

MATERIALS:

- Mirror
- Limestone rock
- Water

BACKGROUND:

Oil and dirt from hands can damage speleothems. By simply touching speleothems, oils are left behind.

Touching can 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.

Touching can also dull the color of speleothems, sometimes staining them.

PROCEDURE:

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 fingerprints. Explain that they have changed the appearance of the mirror. A mirror can be cleaned with cleaner, speleothems in a cave cannot. Fingerprints are often "frozen" on formations and cannot be easily erased.
3. Facilitate class discussion.
 - Why would you not want to use cleaners, such as Windex, to clean cave speleothem?
 - What happens to rain water when it falls on an oily spot on your driveway?
 - What comparison can be made with oil-coated speleothems?
 - Glenwood Caverns has more than 38,000 visitors a year. If five percent of them were to touch speleothems, how many people would that be?

DON'T TOUCH (continued)

- Do you think that many people touching speleothems damages the cave?
- Do you think the cave's "No-Touch Rule" is a good one?

Suggested Procedure for Limestone Rock Activity

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 the students to form a 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?

