TITLE: **Speleothems; Dating caves using stalagmites, Lesson 3**

TOPIC: Caves: speleothems

GRADE LEVEL: Middle

TIME REQUIRED: 45 minutes (combine 3 & 4 for 90 min block)

MATERIALS NEEDED:
Images on Explore Caves & Karst CD
Stalagmite Growth Activity
Metric ruler, calculator?

DIRECTIONS FOR INSTRUCTION:
Refer to pages 14-15

1. Begin with students observing their speleothem activity started the previous class period. Allow them access to rulers and a magnifying glass.
2. Discuss speleothems again, how they are formed, why they don't show up in ice caves, sea caves, erosional caves, or possibly even lava caves as secondary structures. This is a good short quiz question for the next day. Show a Power Point presentation of related images on the CD. Students love to see images of these strange structures.
3. Discussion on Lechuiguilla from text, a unique NM cave since only scientists (and select cavers/ photographers) have been inside. It is the deepest in the contiguous 48 U.S. states (Hawaii has the deepest caves in the U.S.) Bacteria on walls may accelerate cave formation. See great images of Lechuigulla and a discussion of the bacteria at: http://www.pbs.org/wgbh/nova/caves/jewel.html; have students go online or project for the class. Because this cave is off limits to all but a few scientists and cavers, these photos are available nowhere else. These photos of speleothems are gorgeous and unique, including chandeliers.
4. Have students do the Stalagmite Growth Activity. This activity is a paper one, and students need a metric ruler and a calculator.
5. If time start a discussion on life in caves. See lesson 4 for some video info.

Speleothem - A calcite deposit created when the calcium carbonate dissolved in water seeping through limestone cave walls is redeposited within the cave environment.

Stalactite - A deposit of calcium carbonate resembling an icicle hanging from the roof or sides of a cavern.

Stalagmite - A deposit of calcium carbonate formed on the floor of a cave by the drip of calcareous water.