Forbidden Caverns

Unit: ........................................ Water
Grade: .......................................... 1
Time to Visit: ................................. March

NPS Significance Statement

The Park is the largest federally preserved and protected upland area east of the Mississippi River offering Park visitors a refuge from the stresses of everyday life.

The GSM are world-renowned for the diversity of plant and animal species found here. This great variety makes the Park an exemplary outdoor laboratory for the study of relatively undisturbed native flora, fauna, physical environs and processes of the Southern Appalachian Mountains.

NPS Critical Issue

Endangered species and special habitats, pollution, water quality, people issues (overuse).

Logistics

Divide the students into groups (10-15 students)

Field Trip Day Schedule
9:00 am - Leave school
10:00 am - Tour the Cave
11:00 am - Lunch on the grounds at FC
12:00 pm - Return to school

Make reservations at Forbidden Caves: 865-453-5972. Visitation is slower in early spring. A covered picnic shelter is available on-site.

Unit Rationale

In first grade, students begin to build knowledge about several areas of science. These areas include interactions between living things and their environment, physical and biological energy, diversity and adaptation, earth resources, and interaction of matter. A cave offers an opportunity for students to experience all these topics.

The “wild” caves located in the Park are not open to the public. A wild cave is one that has not been altered by people for commercial use. Most wild caves are not open to visitation because they are difficult and dangerous to enter or they are homes for endangered and threatened animals. Consequently, students will be visiting a limestone cave with similar geology history as caves found inside Great Smoky Mountains National Park.
Pre-site

Pre-test: Performance Assessment: Ask students to draw a cave. Use the following rubric to grade the picture.

<table>
<thead>
<tr>
<th></th>
<th>5 (100)</th>
<th>4 (80)</th>
<th>3 (60)</th>
<th>2 (40)</th>
<th>1 (20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Cave walls</td>
<td>Cave walls</td>
<td>Cave walls</td>
<td>Cave walls</td>
<td>Cave walls only</td>
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<tr>
<td>2.</td>
<td>Stalactites and stalagmites</td>
<td>Stalactites or stalagmites</td>
<td>Stalactites or stalagmites</td>
<td>Stalactites or stalagmites</td>
<td>Cave walls only</td>
</tr>
<tr>
<td>3.</td>
<td>3 or more animals</td>
<td>2 animals</td>
<td>1 animal</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td>Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5.</td>
<td>Reference to darkness or temperature</td>
<td></td>
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Read the story: Jenny and Carlos Get Out of the Rain: Bat shows off the Cave
Complete lesson 1.2: What is a Cave?
Complete lesson 1.4: Find a Cave
Complete lesson 4.2: Water Creates a Cave

Hands-on Activities:
- Make a soap bar cave by making two small holes (one hole near the top and one near the bottom) in a plastic bottle that will leak onto a bar of soap in a bowl or pan.
- Put the students in pairs to make salt crystals by using the instructions at: http://www.ehow.com/how_3864_grow_salt_cysts.html
- Discuss the other kinds of animals that might be found in association with a cave. Don’t use the difficult vocabulary on this website but talk about the creatures. http://www.umsl.edu/~joellaws/ozark_caving/mss/cavelife.htm

Read Caves: Mysteries Beneath Out Feet by David Harrison.

On-site

Forbidden Caverns Tour
**Post-site**

- Play the circle game *Bats and Moth.*
  [http://www.compusmart.ab.ca/yowochas/games/Circle_1.html](http://www.compusmart.ab.ca/yowochas/games/Circle_1.html)
- Compare birds and bats.
  [http://www.nps.gov/ozar/batnbird.htm](http://www.nps.gov/ozar/batnbird.htm)
- Complete lesson 2.3: Cave Diagram
- Complete lesson 5.2: Cave Art and History
- Break geodes by placing them in a pillow case and hitting with a hammer. Be sure to pass it around before you break it so that students can see it. Make sure you clean the broken geode before allowing students to touch it. Small sharp fragments can linger after it is broken.
- Read *Everybody Needs a Rock* by Bryd Baylor
- Post-test using the pre-test activity and rubric.

**Tennessee State Education Standards**

**Social Studies**

- Culture 1.1.01
- Geography 1.3.03

**Science**

- Interaction Between LT & TE 1.2.1, 1.2.2, 1.2.3, 1.2.4
- Food Production and Energy 1.3.1
- Diversity and Adaptation 1.5.1, 1.5.2
- Earth Features and Resources 1.9.1, 1.10.1, 1.10.2

**English/Language Arts**

- Reading 1.1.01, 1.1.02, 1.1.06, 1.1.07, 1.1.08, 1.1.09, 1.1.10, 1.1.11, 1.1.12, 1.1.13
- Writing 1.2.02, 1.2.06, 1.2.08

**Art and Physical Education**
Resources

- *Bat Loves the Night* by Nicola Davies
- *Everybody Needs a Rock* by Byrd Baylor
- *Rockheads* by Ziefert
- *Caves: Mysteries Beneath Our Feet* by Cheryl Nathan
- *Stellaluna* by Janelle Canon
- *Golden Guide: Bats*
- *Magic School Bus: Going Batty*
- *Geology Rocks* by Charlotte Vermont
- *Project Underground*
- *Usborne Spotter’s Guides: Rocks and Minerals*