



United States  
Department of  
Agriculture

Forest  
Service

Sylamore  
Ranger District

1001 East Main  
Mountain View, AR 72560  
Phone 870-269-3228  
FAX 870-269-3000

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**File Code:** 2300

**Date:**

Dear Educator,

The Forest Service welcomes you to the cave world best known by the bat and the salamander. Although it seems to be a world apart, it is very much connected to our everyday world by the water that we drink and the soil beneath our feet. This packet of cave materials is intended to enrich your school group's visit to Blanchard Springs Caverns. These activities are also supposed to be fun; to be treated like educational games. The activities are aimed at 4<sup>th</sup> grade and up. Some can be easily adapted to higher or lower level classes by adding or deleting the clues that are given. Each answer sheet notes the skills from the science curriculum guide for grades 4-8 that are taught for each activity. Copy the activity sheets as you need them for your students.

Before your tour, we encourage you to see the video "The Amazing World Below". It provides an excellent introduction to Blanchard Springs Caverns. You'll note on the following sheets that some games and activities may be used after the movie. Other activities are intended for use before or after the caverns tour. Each student will need to bring a pencil.

You'll want to make reservations for your tour by calling or writing ahead. With reservations you qualify for the group rate as long as you have fifteen or more paying customers for the caverns tour. Details of the group policy are enclosed. Nearby the Caverns is a recreation area with picnicking, swimming, camping, and hiking. You may want to visit the shelter cave at the picnic area and see where ancient Bluff Dwellers lived.

We encourage your comments and suggestions to make this packet work better for you. Please feel free to call 870-757-2211 if you have any questions. Happy discovery!

Sincerely,

The Blanchard Springs Caverns staff



## For the Educator: Ideas and Suggested Use of the Packet

### Introduction: “The Amazing World Below”

Seeing the 20-minute movie is an excellent way to introduce the idea of caves and cave life. For many this is a totally new realm filled with mystery, awe, and perhaps fear. After the movie or tour, try discussing the similarities and differences about the cave compared to our surface world.

(N.S.1.4.1)

- Differences: The cave is dark, maintains a constant temperature and humidity year-round (Blanchard is about 58 degrees). There is no weather, no sunshine, no energy, and little food. Animals are specially adapted to cave life, etc.
- Similarities: Natural laws are the same – animals that live in the cave have the same needs as those on the surface: air, pure water, food (energy) and living space. Cave air is the same as surface air since air comes through the cracks and crevices that the water passes through. The cave temperature is an average of the annual surface temperature, etc.

### Activities

- The Cavern History Mystery will help reinforce the geologic sequence of events that led to the formation of Blanchard Springs Caverns. The “Geology of BSC” handout will provide additional information.
- The Flying Mammal Connect the Dots will ease some of the anxiety about bats. Experience has shown that there are more questions and misinformation about bats than any other cave-related topic. Do stress that real bats are timid and mild-mannered and quite unlike the evil, vicious animals shown on horror films. Bats are not blind, contrary to the popular saying. Vampire bats do exist, but not in the United States. Although vampire bats feed on blood, they are small bats that creep up to sleeping animals, especially cattle. If the large animal doesn’t stir, the bat will make a small cut on the animal’s foot and lap up the drops of blood with its tongue. It’s also true that bats might carry rabies. However, in Arkansas, rabies is most frequently reported in skunks, foxes, cattle and dogs. Of course, no one should handle a bat, especially one that’s on the ground. That’s true of any wild animal. The section on bats will provide additional material. (LS 2.4.1)
- There are many good references to learn more about bats, including:
  - Barbour, Roger W. and W. H. Davis, Bats of America, The University Press of Kentucky, Lexington, 1969.
  - Fenton, M. Brock, Just Bats, University of Toronto Press, 1984
  - Harvey, Michael J., Arkansas Bats: a Valuable Resource, Arkansas Game and Fish Commission, 1986.
  - Johnson, Sylvia, A., The World of Bats, Learner Publications Company, Minneapolis, 1985.
  - Mohr, Charles E., The World of Bats, J. B. Lippincott and Co., Philadelphia, 1976

You’ll undoubtedly find more books, and there are many that are written especially for children. You’ll find a lot of good information on the Internet, so check various websites, or type “bats” into a search engine.

### **At Blanchard Visitor Center**

You should plan on being at the Visitor Center 30 minutes before your tour time. If you have already seen the movie, your group will have time to use the restrooms and see the exhibit hall before your tour.

Activities:

- The “Exploring the Exhibit Hall” activity sheets are designed to be used in the exhibit hall to promote better understanding and encourage some active reading of the displays. All of the questions can be answered from the exhibit information. Some concepts such as “adaptations” may be new and need more explanations.
- The “Most Dangerous Animal” sheet can be used before or after the tour. Most of the sheet can be answered from information in the exhibit hall. The concept that you may not touch the cave rocks or formations is stated in the exhibits. We would appreciate your stressing that rule. We may not touch cave rocks because the oil from our skin can damage the formations by stopping water from depositing calcite. In fact our skin oil actually “kills” the active formations. This rule is emphasized at the beginning of every cave tour.
- The energy maze “Follow the Flow” is intended as a game to reinforce some of the concepts introduced in previous activities. You can make the puzzle easier by giving the first letter in each word, or solving the clues as a class, then letting the individual find the words.

### **Projects (NS 1.4.1)**

To be assigned before visit: Work individually or in groups to further research and report on specific aspects of Blanchard Springs Caverns. You can find this information at <http://www.fs.usda.gov/detail/osfnf/specialplaces/?cid=stelprdb5351305> . The projects could be written reports, bulletin boards, drawings, models, etc.

Suggested topics:

- How was Blanchard Springs Caverns formed? (ESS.9.4.1)
- Learn more about bats. Discuss reproduction, navigation, conservation, different species, etc. (LS 2.4.1)
- Describe the three zones in a cave and the plants and animals found in each. (LS 4.4.1, LS 4.4.2)
- How are cave formations made? What different kinds are there? (ESS.8.4.7)
- Cave conservation – how human activity can damage caves and cave life; what can be done to prevent damage. (ESS.8.4.5, ESS.8.4.6)

### **Suggested Additional Post-Tour Projects and Activities:**

- Create-A-Cave (NS1.4.3)  
Divide class in groups to create their own cave with formations made of clay or salt-and-flour dough. (ESS.9.4.1)
- Be A Specialist  
Divide class in three groups to report to the group on Blanchard Springs Caverns from the standpoint of a biologist, geologist, and hydrologist. You may have to define these terms for your students. (LS.4.4.1, LS.4.4.2)
- Write  
Write essays or poems focusing on caves and cave life.