



Amazing World Records of Geography

Caves

Geography Worksheets and Activities



To the Teacher

Welcome to a superlative of our planet!

This teaching packet is excerpted from the book, *Amazing World Records of Geography*; the activity sheet numbers are for reference only.

Learning Standards

The creation of each student activity sheet was guided by two sets of learning standards. First, the five themes of geography advanced by the National Council for Geographic Education and Association of American Geographers. Second, the 18 National Geography Standards established in Geography for Life, which was developed on behalf of the American Geographical Society, the Association of American Geographers, the National Council for Geographic Education, and the National Geographic Society.

The Five Themes of Geography

- Location (absolute and relative)
- Place (characteristics that make a place unique)
- Human/Environment Interaction
- Movement (of people, ideas, and things)
- Regions



The National Geography Standards

The geographically informed person knows and understands the following:

The World in Spatial Terms

1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective
2. How to use mental maps to organize information about people, places, and environments in a spatial content
3. How to analyze the spatial organization of people, places, and environments on Earth's surface

Places and Regions

4. The physical and human characteristics of places
5. That people create regions to interpret Earth's complexity
6. How culture and experiences influence people's perceptions of places and regions

Physical Systems

7. The physical processes that shape the patterns of Earth's surface
8. The characteristics and spatial distribution of ecosystems on Earth's surface

Human Systems

9. The characteristics, distribution, and migration of human populations on Earth's surface
10. The characteristics, distributions, and complexity of Earth's cultural mosaics
11. The patterns and networks of economic interdependence on Earth's surface
12. The processes, patterns, and functions of human settlement
13. How the forces of cooperation and conflict among people influence the division and control of Earth's surface

Environment and Society

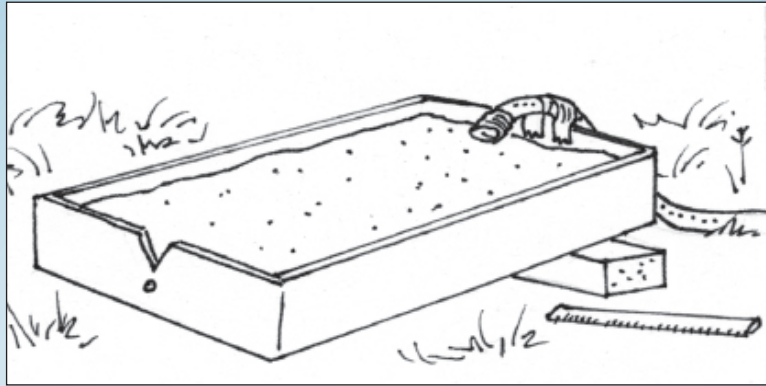
14. How human actions modify the physical environment
15. How physical systems affect human systems
16. The changes that occur in the meaning, use, distribution, and importance of resources

The Uses of Geography

17. How to apply geography to interpret the past
18. How to apply geography to interpret the present and plan for the future

Adapted from Geography for Life: National Geography Standards

Construction of a Land and Water Features Box



Materials

- shallow plastic box—the kind plants are sold in
- support (brick or board) to prop up one end of the box
- ruler or other small straightedge that will fit in the box
- sand
- duct tape
- small water hose

Constructing the Box

Cut a V- or U-shaped drainage notch in the center of one end of the plastic tray. The notch should be about $\frac{1}{2}$ inch deep. You can have it drain onto the ground outside or into a sink. Also, poke a small hole near the bottom of the tray, directly under the notch.

Completing the Box

Fill the tray with sand until it comes to within a half-inch of the top of the box. It should just reach the bottom of the drainage notch. Drag the ruler across the sand to make it level. Prop the tray up slightly at the end opposite the notch so that the landscape slopes.

Using the Box

Use the duct tape to secure the water hose at the end of the tray opposite the notch. Some activity sheets specify box activities. Use the box to model landforms and water features.

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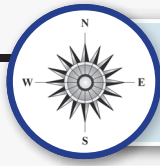
World Records of the Land

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3. The World's Largest Cave

Mammoth Cave

Objectives

- **Geographic Themes** location, place, and interaction
- **National Geographic Standards** 1, 2, 4, 14, 15, and 17

Time Required

- About one class period

Teaching Tips

The three activity sheets can be completed by students working independently, with partners, or in small groups. You may wish to assign the activities to the same groups of students consecutively, or to different groups concurrently. Group representatives could then share each group's findings with the rest of the class.

Activity Sheet 3A

- Ensure students' understanding of the simple definition of cave.
- Point out that today Mammoth Cave is a park where students may someday visit.

Activity Sheet 3B

- Encourage student cooperation and brainstorming to complete the diagram.
- Explain how caves are some of the most fragile ecosystems on earth.

Activity Sheet 3C

- Emphasize the dangerous nature of spelunking.
- Emphasize the environmental awareness that spelunkers are known for.

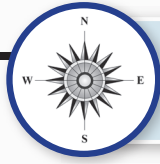
Answers

- **Activity Sheet 3A** 1. any natural hollow or opening in the ground that is large enough for a person to enter; 2. a group of many chambers connected by passageways; 3. about 365 miles of passageways in an area about 10 miles in diameter; 4. Answers will vary. Possible answers may include the following responses: fossils or remains of mammoths were found there, or that *mammoth* means huge. Reward thoughtful responses.
- **Activity Sheet 3B** Encourage students to search the Web to learn more about caves.
- **Activity Sheet 3C** 1. exploring caves, from an old Latin word meaning "cave"; 2. Answers will vary. Reward thoughtful responses; 3. Answers will vary. Possible responses may include the following: comfortable in tight spaces, doesn't fear the dark, and comfortable with bats. Reward thoughtful responses; 4. Don't change the cave any more than necessary.

Extension and Enrichment

- Invite a spelunker to class to give a presentation and answer students' questions.
- If possible, organize a field trip to a local cave that is open to the public.

Visit WorldRecordsBooks.com for more images and activities!



Exploring Mammoth Cave

Activity Sheet 3A

Name _____ Class _____ Date _____

One of nature's greatest spectacles is located in the heart of the United States, in Kentucky. It's Mammoth Cave—the largest cave system on earth.

FOCUS

As you read about Mammoth Cave, try to visualize it. Then answer the questions that follow.

Mammoth Cave

A **cave** is defined as any natural hollow or opening in the ground that is large enough for a person to enter. But the largest cave in the world is big enough for thousands of people to enter—all at once!

Of course, this cave isn't just a single large chamber. It is a **cave system**, a group of many chambers connected by passageways. The Mammoth Cave system, and smaller systems that are connected to it, contain about 365 miles of explored passageways. Driving at highway speeds, it would take you about four hours of non-stop driving to travel this distance. Moreover, geologists are sure there are many more miles of passageways in an area about 10 miles in diameter. And Mammoth Cave wasn't explored at highway speeds—far from it. Exploring Mammoth Cave took decades as brave explorers inched through passageways that were just barely big enough to squeeze through.

The Mammoth Cave system is located in a ridge of mountains that are made mostly of limestone. Over millions of years, water trickled through the limestone, dissolving the rock and leaving spaces that formed the cave system. Caves formed in this way are called **solution caves**. Most of the caves in the world are solution caves.

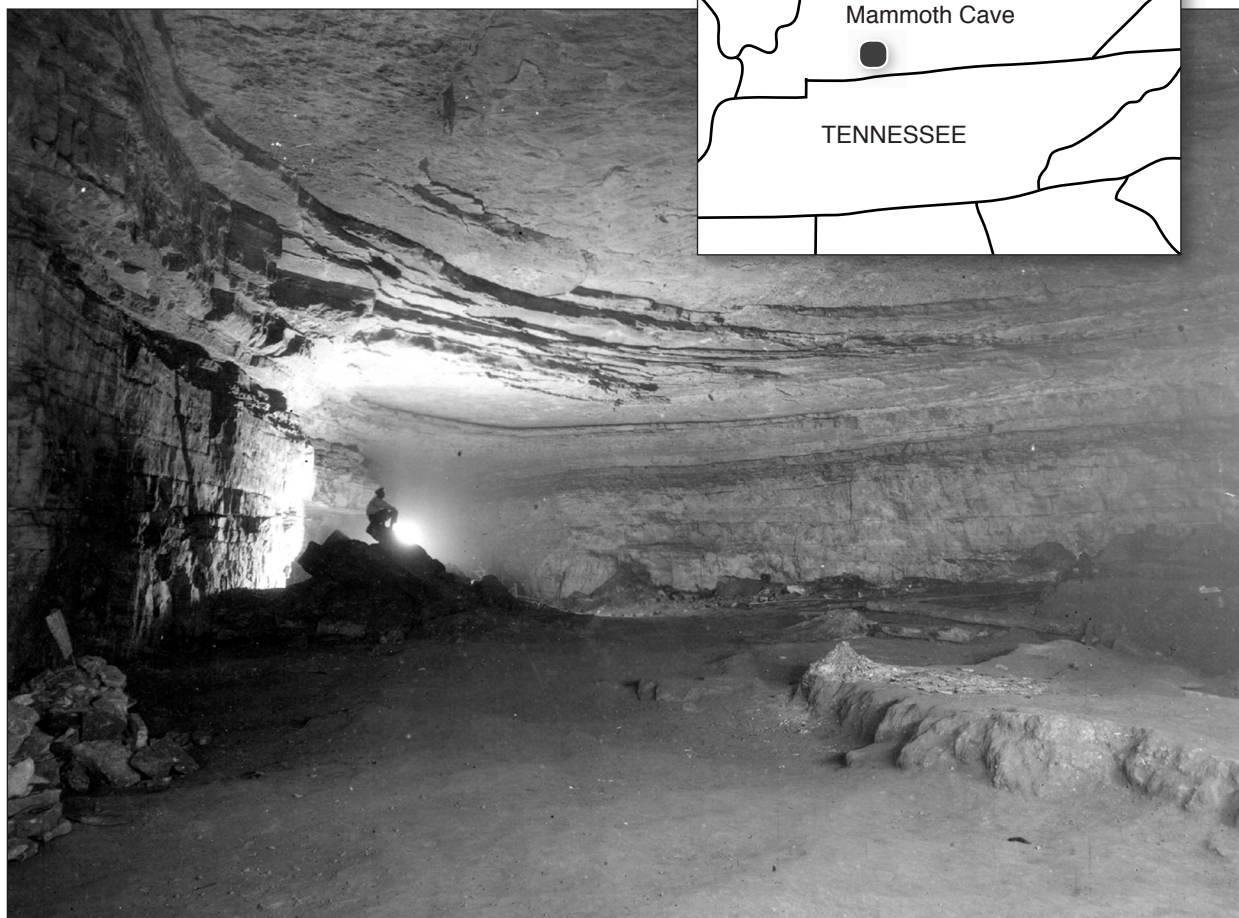
If you want to visit Mammoth Cave, you're more than welcome. Mammoth Cave National Park was created to let visitors see this natural wonder. You can travel through about 12 miles of the cave and go nearly 400 feet underground. The temperature in the cave averages a cool but pleasant 54° F.

1. What is a *cave*?

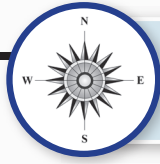
2. What is a *cave system*?

3. Describe the size of Mammoth Cave.

4. Where do you think Mammoth Cave got its name?



Exploring a cavern in Mammoth Cave.



Understanding Caves

Activity Sheet 3B

Name _____ Class _____ Date _____

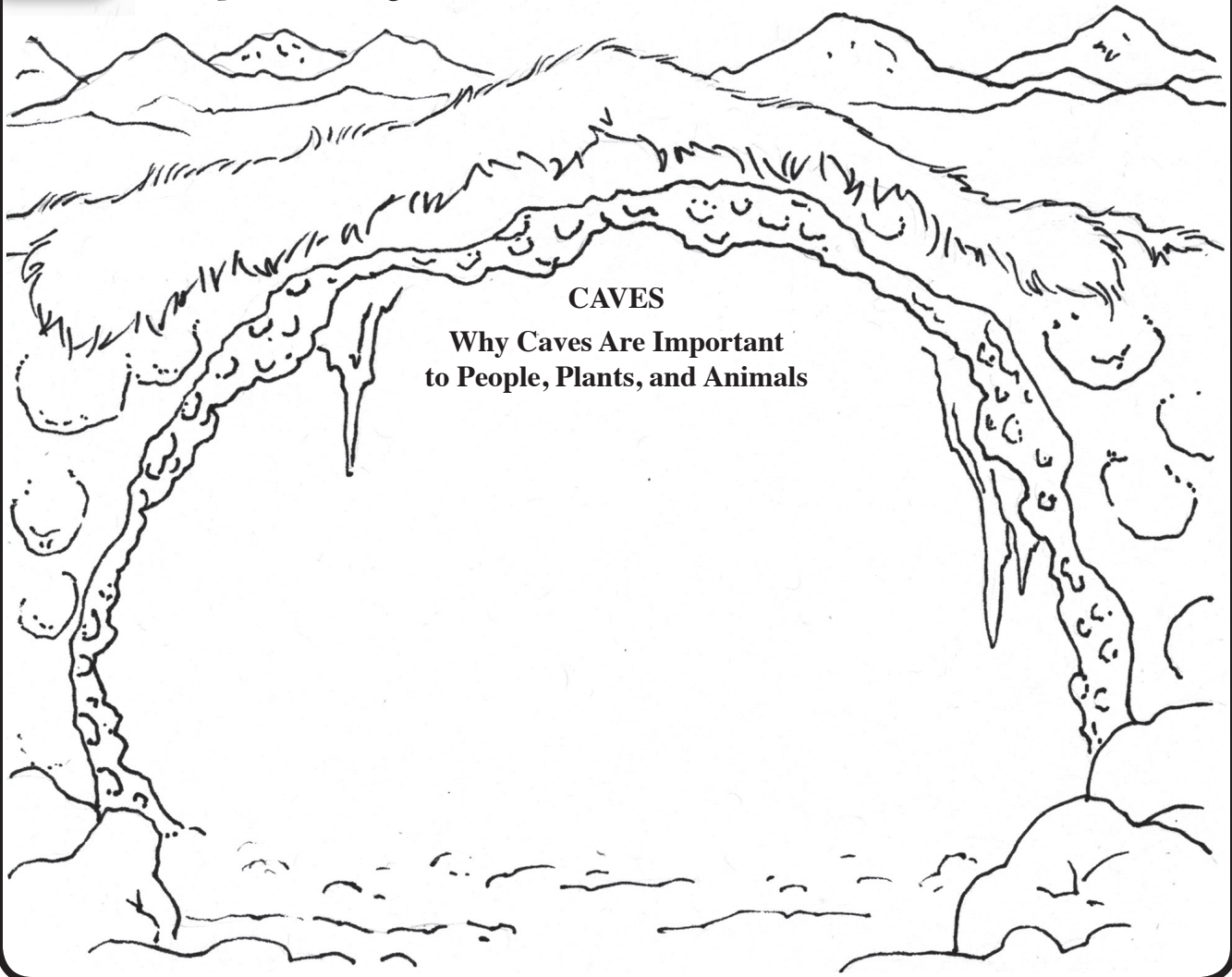
You probably think of “cavemen” as simple people who lived long ago. But at this very moment, there are millions of “cavemen”—and cave women and children, too.

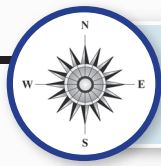
That’s right. In various places throughout the world, caves provide shelter to the people who live in them. In China, for example hundreds of thousands of people call caves their homes. These caves aren’t just dusty holes in the ground. Their residents have improved them considerably, turning them into moderately comfortable homes.

For tens of thousands of years, caves have provided people with shelter. They’re important for other reasons, too. And caves are important for plants and animals.

FOCUS

To understand just how important caves are to life on earth, conduct research to complete the diagram.





Spelunking

Activity Sheet 3C

Name _____ Class _____ Date _____

Have you ever dreamed of being an explorer? Would you like to be the first to step foot in a place no one has ever been? You might think that the entire world has already been explored, but it hasn't. If you really want to see things no one else ever has, you should think about spelunking.

FOCUS

To understand spelunking, read the article below. Then answer the questions that follow.

Spelunking is a funny-sounding word. It comes from a Latin word that means “cave.” **Spelunking** means exploring caves. Someone who goes spelunking is called a **spelunker**.

Spelunkers have to be brave, because exploring caves is a dangerous activity. Good spelunkers never enter a cave alone, and inexperienced spelunkers should always travel with an experienced guide.

Someone once called spelunking “mountain climbing in reverse.” This is because spelunkers go down into a cave instead of up the side of a mountain. But spelunkers have a lot in common with mountain climbers. For example, they need a lot of the same equipment. They wear helmets to protect their heads, and they carry ropes to help them get up and down steep walls. Like mountain climbers, spelunkers wear special clothes as protection from sharp rocks and cold temperatures.

But spelunkers always carry something you don't normally think of as mountain-climbing equipment: light. Good spelunkers carry at least two reliable sources of light on their adventures. No sunlight is visible when you get deep enough into a cave. There is utter, complete darkness. Deep in a cave, it is so dark that you can't see anything—not even if it is a small fraction of an inch away from your face.

The lights spelunkers carry reveal wondrous sights. Bizarre rock formations, strange animals, mystical underground lakes—all are found in caves. These beautiful cave environments are also fragile environments—some rock formations that took thousands of years to form can be ruined in a moment by a careless touch. So spelunkers are very careful not to disturb what they find. In fact, spelunkers are so environmentally responsible that they have a reputation not just for bravery, but also for respecting the earth.

1. What is *spelunking*? Where does the word come from?

2. Would you like to try spelunking? Why or why not?

3. What qualities do you think a good spelunker has?

4. A motto of spelunkers is “Take only pictures. Leave only footprints.” Explain what you think this means. Tell whether you think it is a good motto, and why.



Spelunkers travelling across an underground lake in Mammoth Cave.