



WEBBING THE WONDERS

SUBJECTS: Language Arts and Science

GRADES: K-3

KERA GOALS: Meets KERA goals 1, 2, 4, 5 and 6

ACADEMIC EXPECTATIONS: The application of basic communication skills; accessing information and ideas; visualizing; classifying; patterns, models and scale; productive team membership; decision making; conceptualizing; expanding existing knowledge

DURATION: One 30-45 minute period

GROUP SIZE: One classroom of 20-30 students (or less)

SETTING: Indoors

KEY VOCABULARY: sandstone, limestone, water, time, acid, surface, silt

ANTICIPATORY SET: Does anybody know what a web is? Today we are going to make a web that includes what it takes to make a cave. The cave we are going to talk about is Mammoth Cave

OBJECTIVES: The students will be able to:
1. Classify the elements in creating a cave; 2. Make decisions using cave vocabulary

MATERIALS:

- ◆ Webbing The Wonders Activity Sheets (the teacher will need to cut out the circles prior to the lesson)
- ◆ string
- ◆ tape
- ◆ magnets or clips
- ◆ scissors

BACKGROUND: The basic elements needed to make Mammoth Cave include rocks, water, and time. The two most common rocks are limestone and sandstone. Limestone is the “soft” rock (more water soluble) that is dissolved more easily by water. It is grey in color and has a smooth texture. This rock is the older of the two rocks and is made from shells and bones of animals that once lived in an ancient sea. The cave is found in the dissolved limestone rock. Sandstone is found on top of the cave, making it the younger rock. It is made from sand and silt that was left behind by historic rivers. Since the rock is made of sand it has a rough texture, feeling much like sandpaper. This rock is red or brown in color. Sandstone is “harder” (less water soluble) and does not let water soak into the cave.

Water can be found in many forms such as snow and rain. Water in the Mammoth Cave area can be found in surface rivers and surface streams. Surface streams normally occur after a heavy rain and then disappear. These waters disappear into holes and cracks in the rock.

When the water hits the surface it runs over dead plant material. From this decaying vegetation it picks up carbon dioxide to make carbonic acid. The water holds the acid. This acid dissolves limestone but runs off the sandstone. This carbonic acid is the same acid that is found in carbonated drinks.

Time is also an important ingredient in making a cave. It has taken millions of years. Long before the dinosaurs roamed the earth the rock that makes up the cave was being put in place.

WEBBING THE WONDERS

PROCEDURE:

1. The teacher asks the students if they remember what it takes to make a cave. The teacher writes the student's answers on the blackboard (rocks, limestone, sandstone, water, acid, time, etc.).
2. The teacher will pass out a circle to each student. The circles are found on Webbing the Wonder Activity Sheets.
3. The teacher asks, "Who has the circle that we need to start with? The circle with our main idea?" The student with the Mammoth Cave circle should be the one to go first. They tape or clip their circle to the board. (Note- If you have under 30 students in your class, the teacher may wish to place the Mammoth Cave circle on the board. There may be a need for the teacher to place several circles or for several students to have more than one circle.)
4. The teacher asks, "Does anyone remember the three big things that it takes to make a cave?" The students with rock, water, and time should be the next students to tape or clip their circles to the board. The students draw a line from Mammoth Cave to their word.
5. The teacher asks, "Who has the two rocks found at Mammoth Cave?" The students with limestone and sandstone will be next. The students hang them close to the rock sign and draw a line from the word "rock" to each rock name.
6. The students with rock descriptors need to decide where they belong. Then they can place their circle on the board, and draw their lines. The class with the teacher reads the circles to make sure they have been placed with the correct rock. Any adjustments are made.
7. The students with water and time descriptors decide and place their circles on the board. They need to draw lines from their topic to their descriptor. The class with the teacher reads the circles to be sure that they have been placed correctly. Any adjustments are made.
8. Together the teacher and students review the results

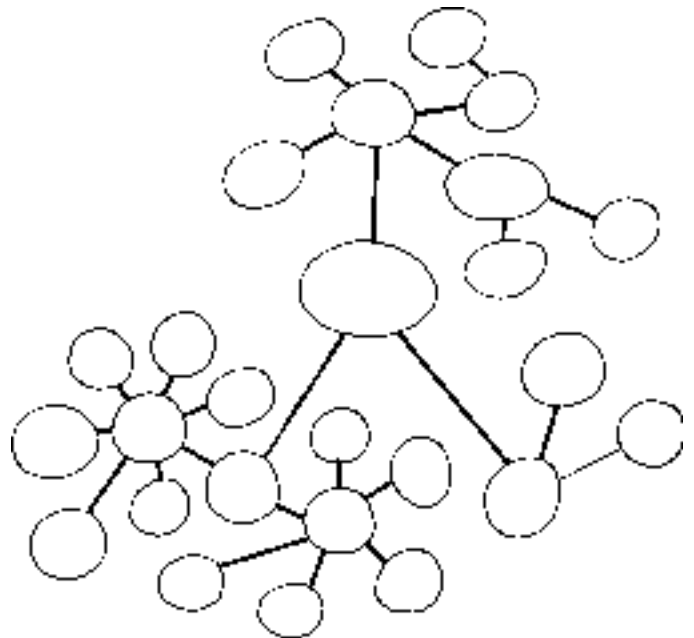
of the web by reading it.

CLOSURE: Today we have webbed what it takes to make Mammoth Cave. All of these things are important in making our web strong. If we lost a piece to our web we would not have Mammoth Cave.

EVALUATION: The teacher is able to evaluate the students as they place their pieces of the web on the board. They can also be evaluated while reviewing the web results.

EXTENSIONS:

1. This activity could be done on a bulletin board, using string for lines. This project could be displayed for several days or during the unit to reenforce the concept taught in this lesson.
2. The class may wish to web animals and plants found within Mammoth Cave National Park. This could be done by using words or pictures.
3. The students may wish to draw their own web on a piece of paper with Mammoth Cave National Park as the center topic.



MAJOR TITLES

**MAMMOTH
CAVE**

ROCK

LIMESTONE

TIME

WATER

SANDSTONE

LIMESTONE WORDS

MADE FROM
SHELLS AND BONES

GREY IN COLOR

SOFTER ROCK

SMOOTH

ROCK THE CAVE
IS MADE OF

OLDER ROCK

SANDSTONE WORDS

RED OR BROWN
IN COLOR

ROUGH

THE ROOF OF ROCK
ON TOP OF THE CAVE

MADE OF SAND
AND SILT

HARDER ROCK

YOUNGER ROCK

WATER WORDS

HAS ACID
IN IT

DISSOLVES
LIMESTONE

RUNS OFF
SANDSTONE

GETS ACID
FROM DEAD
PLANTS

SURFACE RIVERS

MORE WATER WORDS

GOES IN
HOLES

SNOW

SURFACE STREAMS

RAIN

GOES IN
CRACKS

TIME WORDS

TAKES MILLIONS
OF YEARS

BEFORE THE
DINOSAURS