



2017 Governor's Tourism Stewardship Award Winner

SpeleoQUEST Activity Packet

Thank you for bringing your group to Cave of the Mounds National Natural Landmark – Wisconsin's oldest classroom! We are proud to assist educators in reaching their goals with fun, hands-on activities.

Within this PDF, we have provided a few options for you to incorporate into your classroom, or as a take-home activity for your students! These additional activities can help to enhance lesson plans. Also included is a quiz that you can issue to your students before and/or after your visit to Cave of the Mounds. Along with this, we have included a Crossword puzzle and a word search. These can also be used as a before or after tool, or alternative activity. If you would like to extend the learning experience after your visit, you can find other lessons and ideas, or more information about our programs, by visiting our website at www.caveofthemounds.com.

Our objective for your visit is to present the unique geology of our area in an effort to strengthen their learning about the world around them. Our hope is to inspire your students to become good stewards of all natural environments in the future.

Please contact us personally if you have questions or concerns about your visit. We can be reached at (608)437-3038 ext. 103 or you may contact us by e-mail at groups@caveofthemounds.com.

Sincerely,

Education Team

Grow-your-Own Speleothem Replicas

YOU WILL NEED: water; thick, natural fiber string (cotton butchers twine works well); cardboard; 2 jars; Epsom salts

1. Fill each jar with water. Add enough Epsom salts in each jar of water to form a thick solution.
2. Place the jars on the piece of cardboard about six inches apart. Soak the string in the solution until it is completely saturated.
3. Place one end of the string in one jar of solution. Place the other end of the string in the other jar of solution. Leave enough slack so there is a bow in the string, but do not let the string touch the cardboard.

4. Leave the jars and the string in an accessible and observable location for several days while a salt "stalactite" and "stalagmite" begin to form.

CAUTION: Once these salt "speleothems" begin to form, any movement of the string could cause them to break.

As the water moves into the cave, it dissolves small amounts of limestone also called calcium carbonate. When water drips from a cave ceiling, small amounts of the mineral calcite (also called calcium carbonate) are left behind, eventually leaving an icicle shaped stalactite; water droplets that fall to the cave floor deposit calcite to form stalagmites.

Charcoal Briquette Crystal Growing Project

YOU WILL NEED: 1 charcoal briquette, 1 pie tin, **Charcoal crystal solution** (10ml Ammonia, 50ml laundry bluing, 50ml salt, 100ml water)

1. Mix a batch of crystal solution, stirring well.

*For colorful crystals, add food coloring to solution!

2. Place a piece of charcoal into the pie tin. Pour crystal solution over the top of the charcoal.

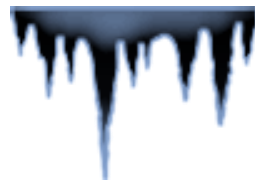
3. Over time, crystals will form on top of the charcoal.

*Add more solution to the pie tin for continued crystal growth.

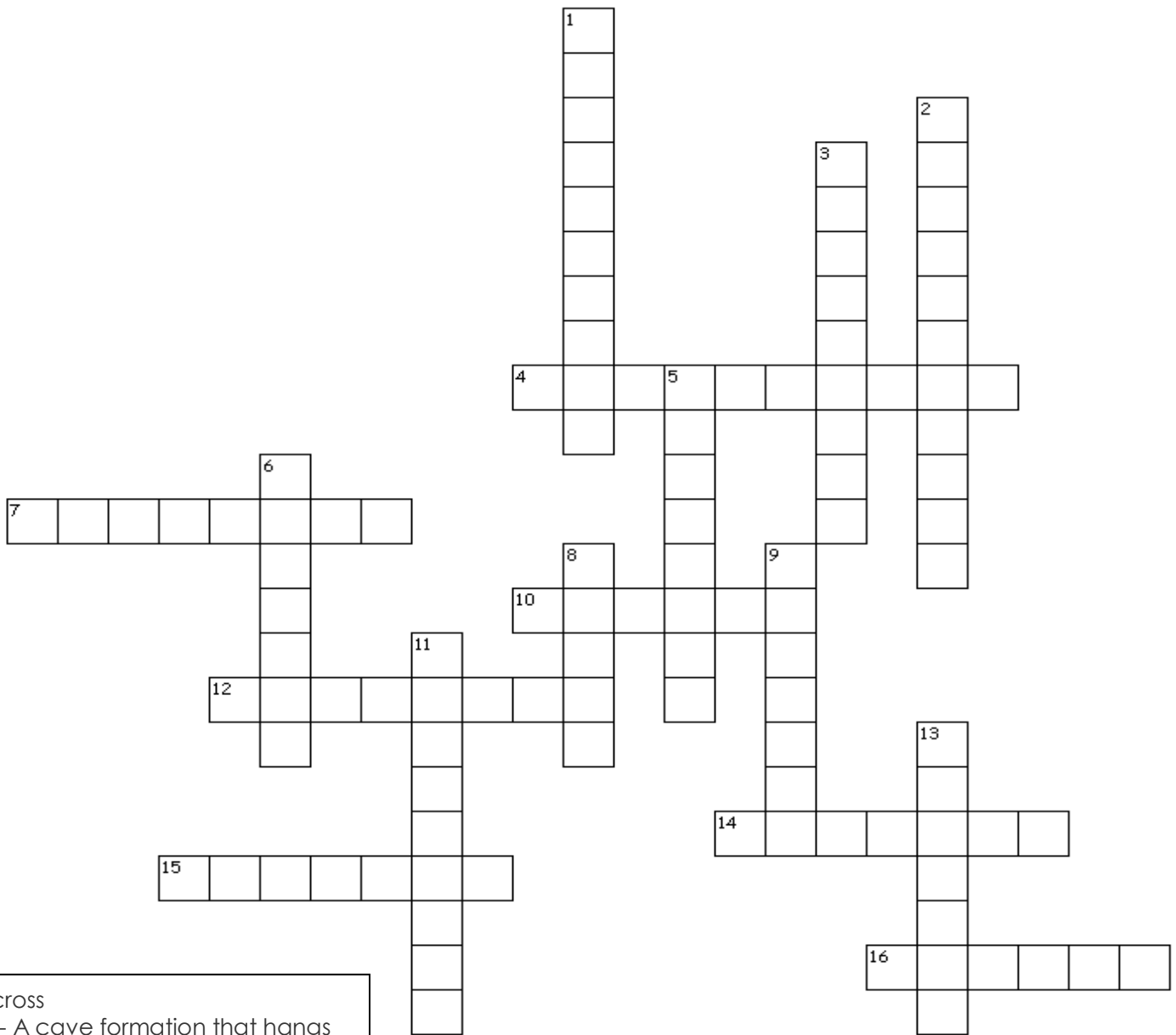
HOW?!?

Charcoal is a very porous and absorbs the solution. Water evaporates from the solution leaving salt crystals behind.

Cave of the Mounds is a "living" solution cave. Water brings calcium carbonate into the cave. Crystals of calcite are deposited, creating cave formations called **speleothems**.



Speleology: The Study of Caves



Across

- 4. - A cave formation that hangs on tightly to the ceiling.
- 7. - A common structure found above a cave system when the ceiling has fallen into the cave.
- 10. - A cave is a hole in a rock made by _____.
- 12. - Large chunks of ice that covered much of Wisconsin during the last Ice Age.
- 14. - The study of earth; earth science
- 15. - The mineral that makes up the cave formations.
- 16. - A cave formation that spans the distance between the floor

Down

- 1. - A cave formation that might grow up to reach the ceiling one day.
- 2. - A general name for cave formations.
- 3. - A young stalactite that is hollow.
- 5. - A cave made by moving magma.
- 6. - The remains of an animal, or something left behind by an animal that has been turned to stone.
- 8. - A region of land with limestone and caves.
- 9. - A cave type made by waves crashing into rocks along a coastal region.
- 11. - The type of sedimentary rock that makes up the cave.
- 13. - The movement of sediments by using water or wind.

Speleology: The Study of Caves

S E H C Z K F C A S J V A E S R Z A U P
Y P H S A X A D T J O F V Z E I X B P D
R K E R A L V A S E A A J O D B N Y W S
P C S L C F L Q N D C V G P I B T V M N
Y T O I E A G O P A O K H Q M O W R L I
G G T L G O T H E S U P O M E N Q M M H
O E A M U S T S H F R I O H N T P G O B
L X I X E M D H T O V U W L T I N H Z G
O T C M O M N A E E T I T C A L A T S H
E S I E Y R I E Q M B S D I R H W P F N
G L E R U S S I F T S H I O Y U P V U O
C A R B O N I C A C I D S N K R K E R C
V E T M E Y E F I W J V S L K B H T C A
G M I A I V V E E N C O O V I H K D H B
Y H H Y Y O R J K L H T L O D S O G I E
C G B P H T O O J U R R V A E S S L G V
H R V F M X S X T K M D E O S Z V O E A
I A D J X X T S O K L K P E S A J A F C
R V G U L E R O S I O N P X F I V Y H X
L A V A T U B E B S T M Q J W W K I K I

CALCITE
CARBONIC ACID
CAVE BACON
CEPHALOPOD
COLUMN
DISSOLVE
EROSION

FISSURE
FOSSILS
GEOLOGY
KARST
LAVA TUBE
LIMESTONE
RIBBON

SEA CAVE
SEDIMENTARY
SINKHOLE
SPELEOTHEMS
STALACTITE
STALAGMITE

Speleology Quiz

Fill in the blanks using the given word bank:

1. _____ are the formations that hang tightly to the ceiling.
2. _____ are the formations that might grow up to reach the ceiling one day.
3. A _____ is when a formation reaches from the ground to the ceiling.
4. _____ is the mineral that makes up all of Cave of the Mounds' formations.
5. The type of rock that makes up the cave is called _____.
6. Carbonic acid would _____ the rock to make the cave.
7. Cave bacon is a nickname for _____ stalactites.
8. A _____ region is a term used to describe a limestone area with caves.
9. A cave is a hole in a rock, made by _____, that you can fit a person inside of.
10. The Southwest corner is referred to as the _____ region because glaciers did not reach it during the last Ice Age.

Word Bank

Limestone Stalactites Dissolve Ribbon Driftless
Column Karst Calcite Stalagmites Nature



Geology Quiz Answers

- | | |
|----------------|---------------|
| 1. Stalactites | 6. Dissolve |
| 2. Stalagmites | 7. Ribbon |
| 3. Column | 8. Karst |
| 4. Calcite | 9. Nature |
| 5. Limestone | 10. Driftless |

Crossword Puzzle Answers

Across

- 4. - Stalactite
- 7. - Sinkhole
- 10. - Nature
- 12. - Glaciers
- 14. - Geology
- 15. - Calcite
- 16. - Column

Down

- 1. - Stalagmite
- 2. - Speleothems
- 3. - Soda Straw
- 5. - Lava Tube
- 6. - Fossils
- 8. - Karst
- 9. - Sea Cave
- 11. - Limestone
- 13. - Erosion