



2017 Governor's Tourism Stewardship Award Winner

RocksROCK 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

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 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**.

Crystal Structure Study Experience

You will need: 2 balloons, 12-inch funnel, salt, sugar, hand lens, tray or plate (not white)

1. Fill one balloon with salt, pinch tight and tie off. Then fill the second balloon with sugar, pinch tight and tie off.
2. Using your hands, manipulate the balloons and observe differences between the sugar and salt.
3. Place a pinch of salt and sugar on a tray. Study the crystal using a hand lens. Compare and contrast the crystal shapes and structures



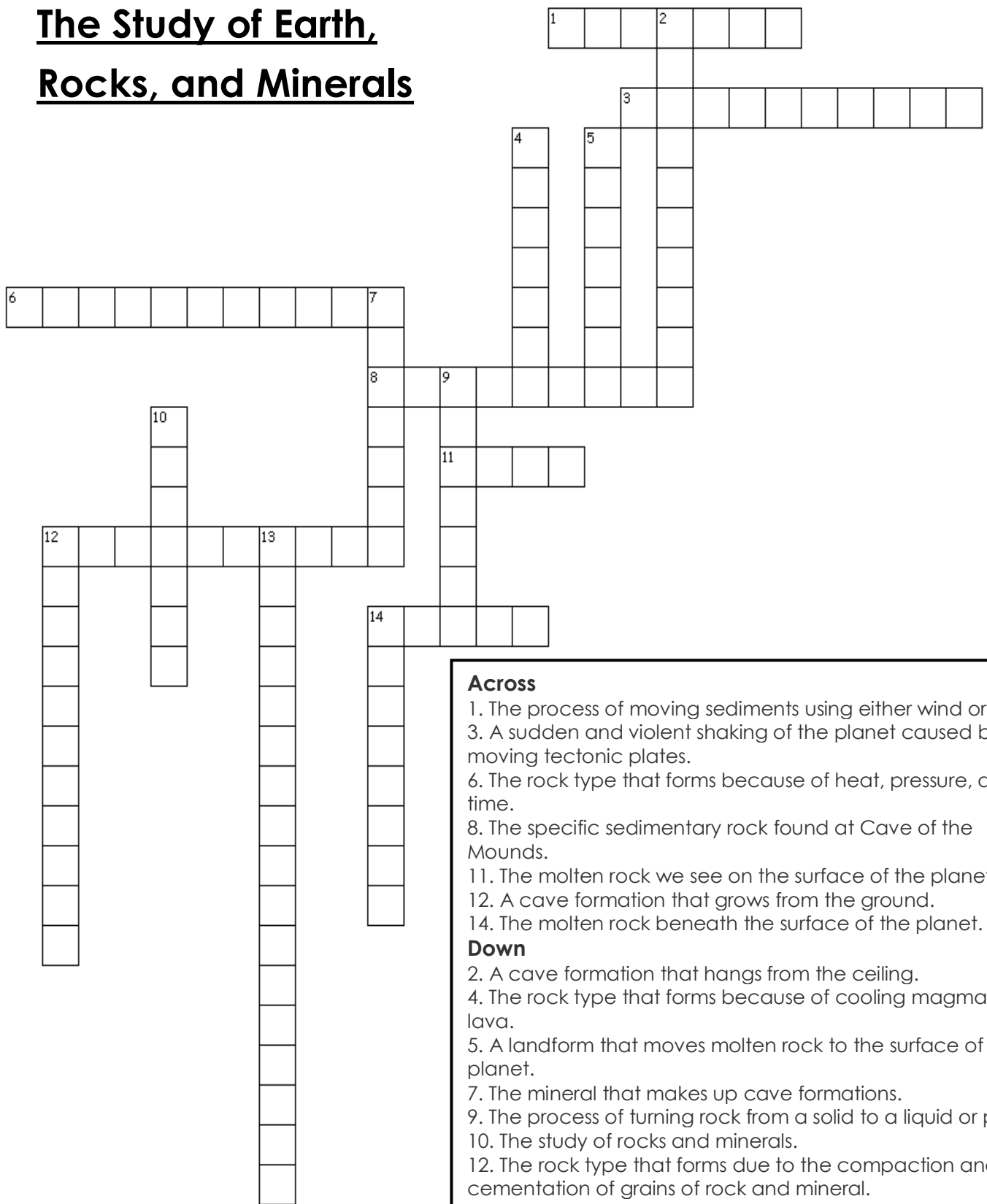
WHY?!?

Minerals have a crystal form (shape) that reflects their **atomic structure**.

Salt (NaCl), has angles that lock together more readily when confined by the barriers of a balloon. Sugar has a crystal form, but is not a mineral. **Crystal form** is one technique we can use to identify rocks and minerals. Our cave formations are made of crystals of the mineral **calcite**.



The Study of Earth, Rocks, and Minerals



Across

1. The process of moving sediments using either wind or water.
3. A sudden and violent shaking of the planet caused by moving tectonic plates.
6. The rock type that forms because of heat, pressure, and time.
8. The specific sedimentary rock found at Cave of the Mounds.
11. The molten rock we see on the surface of the planet.
12. A cave formation that grows from the ground.
14. The molten rock beneath the surface of the planet.

Down

2. A cave formation that hangs from the ceiling.
4. The rock type that forms because of cooling magma or lava.
5. A landform that moves molten rock to the surface of the planet.
7. The mineral that makes up cave formations.
9. The process of turning rock from a solid to a liquid or plastic.
10. The study of rocks and minerals.
12. The rock type that forms due to the compaction and cementation of grains of rock and mineral.
13. Physical traits used to identify an unknown mineral.
14. A large, natural elevation of the earth's surface.

Geology:

The Study of Earth, Rocks, and Minerals

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

CALCITE

COOLING

EROSION

GEOLOGY

HEAT

IGNEOUS

LAVA

LIMESTONE

MAGMA

MELTING

METAMORPHIC

MINERAL PROPERTIES

PRESSURE

SEDIMENTARY

VOLCANO

WEATHERING

Geology Quiz

Fill in the blanks using the given word bank:

1. _____ rocks form because of heat and pressure.
2. _____ rocks form from cooling lava or magma.
3. _____ rocks form from compacting and cementing sediments.
4. The process that moves sediments is called _____.
5. You need two or more _____ to make a rock.
6. You can use _____ to help identify a mystery mineral.
7. The Moh's _____ scale is tool in identifying a mineral.
8. _____ is one of the most common minerals on the surface of the planet.

Word Bank

Erosion

Properties

Quartz

Igneous

Minerals

Metamorphic

Hardness

Sedimentary



CAVE OF THE MOUNDS[®]
National Natural Landmark

Geology Quiz Answers

- | | |
|----------------|---------------|
| 1. Metamorphic | 5. Minerals |
| 2. Igneous | 6. Properties |
| 3. Sedimentary | 7. Hardness |
| 4. Erosion | 8. Quartz |

Crossword Puzzle Answers

Across

1. Erosion
3. Earthquake
6. Metamorphic
8. Limestone
11. Lava
12. Stalagmite
14. Magma

Down

2. Stalactite
4. Igneous
5. Volcano
7. Calcite
9. Melting
10. Geology
12. Sedimentary
13. Mineral Properties.
14. Mountain