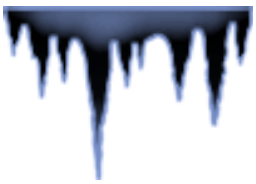
CAVE OF THE MOUNDS®
National Natural Landmark™



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 the 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.

CAVE OF THE MOUNDS®
National Natural Landmark

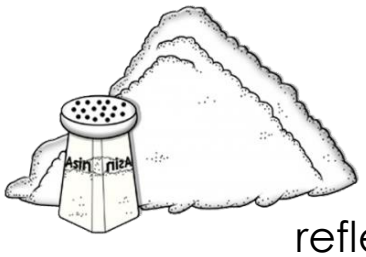
Crystal Structure Study Experience

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. 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. Cave formations are crystals of the mineral ***calcite***.

CAVE OF THE MOUNDS®
National Natural Landmark™

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.***

CAVE OF THE MOUNDS®
National Natural Landmark™

Create-A-Fossil Investigation

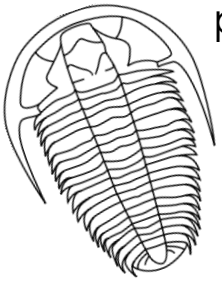
YOU WILL NEED: **fine sand, 2 containers (one for the molds/casts, one to mix plaster), quick-set Plaster of Paris and various items to create molds/casts.**

1. Fill 2/3 of your container with moistened sand.

2. Press found objects into the moist sand—Leaves, plastic dinosaurs or bugs, shells and twigs; other items with interesting textures work well.

3. With the help of an adult, mix Plaster of Paris and carefully pour into the impressions in the sand.

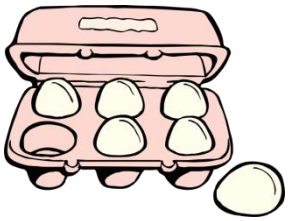
4. Wait patiently for the plaster to dry to the touch, about 30-40 minutes. Then turn container out onto a flat work surface, remove the excess sand, and let the remaining plaster dry. Finally, whisk away dried sand using a small brush and uncover your creation!



What is a fossil?

Fossils *are remains of life from the past preserved in rock. The most common types of fossils are molds and casts A* ***mold*** *forms when something is pressed into soft mud and removed by decomposition or pulled out, leaving an impression of the object. A* ***cast*** *is a three-dimensional (3-D) example of an object of the past created when a mold fills up with sediment like mud, sand or volcanic ash.*

CAVE OF THE MOUNDS®
National Natural Landmark™



Grow-your-Own Geode Replica

YOU WILL NEED: a clean egg shell, paintbrush, glue, food coloring, alum powder, water, paper towels, glass jar, a spoon

1. With a paintbrush spread glue over the entire interior surface of a clean, dry egg shell all the way to the edges. Cover completely with alum powder. Set aside and let glue dry **overnight**.

2. The next day, bring two cups of water to almost boiling. Pour into a beaker or glass jar and stir in 40 drops of food coloring and ¾ cup alum. **Allow solution to cool 30 minutes.**

3. Once cool, with a spoon, push egg shell (opening up) to bottom of solution. Set aside jar undisturbed for 12-15 hours. Then pull egg shell from solution and place on a paper towel to dry. Clean up!

What is a geode?!?

Geodes are usually formed in "bubbles" and other cavities in both igneous and sedimentary rock. Mineral-rich groundwater or rainwater slowly seeps through the porous rock and mineral layers are deposited in its hollow interior. Over thousands of years, these layers of minerals build crystals, eventually filing the cavity. Some geodes look like miniature caves.