AGES 4–8; 8–12

TIME
60 minutes

REAL SCIENCE! CUPCAKE FOSSILIZATION

Lilly Girls & Young Women In STEM
At The Children's Museum of Indianapolis

CHILDREN'S MUSEUM INDIANAPOLIS®

REAL SCIENCE! CUPCAKE FOSSILIZATION

Investigating STEM as a family is a great way to build a child's confidence and interest in STEM topics. This short investigation is designed to be completed with an adult. A video is available on the museum's website to help with the investigation.

INVESTIGATION QUESTION

- What is a fossil?
- How are fossils formed?
- Where are the oldest fossils found in sedimentary rock?

MATERIALS

- 1 box white cake mix (including additional ingredients listed on the box)
- 4 small bowls
- 4 different colors of food coloring
- 4 spoons
- Muffin baking pan
- Cupcake liners
- Mini Oreos
- Frosting
- Sprinkles

WHAT'S THE SCIENCE?

Fossils are the remains or traces of plants and animals that lived a long time ago. Fossils are found in **sedimentary rocks**, which are formed through layers of sediment (like mud or sand) that are pressed into rock over time. Fossils get trapped between the layer; different types of fossils can be found in different layers of sedimentary rock. The further a scientist goes down in the sedimentary rock, the older the rock and the older the fossil! Some scientists, like a geologist, use a method of **core sampling** to remove multiple layers of rock at one time.

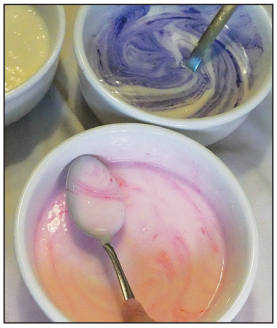
Sedimentary rock

Baking Fossilized Cupcakes

INSTRUCTIONS

1. Preheat the oven according to the directions on the cake mix box. *Note: Have an adult help you with the oven for safety reasons.*

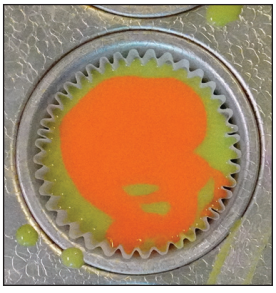
2. Mix the white cake mix batter according to the package directions. Divide the batter into four separate bowls. To each bowl, add a few drops of food coloring. Mix each batter with a spoon to create different colors.



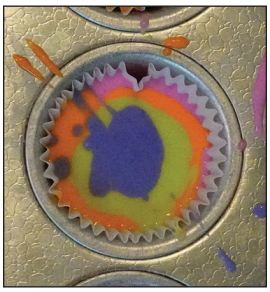
3. Place the cupcake liners into the muffin baking pan. Place one to two spoonfuls of one color cake mix into a single cupcake liner. Carefully, spoon a second color on top. Be careful not to mix the two colors together. The cake mix represents the different sedimentary rock layers.

4. Next, break up a few of the mini Oreos and place them on top of the batter. The cookies represent fossils.

5. Cover the Oreos with one to two spoonfuls another color of cake mix, once again being careful not to mix the colors together.



6. Fill the rest of the cupcake liners with your own combination of "sedimentary rock" and "fossils."



7. Bake the cupcakes according to the instructions on the package. *Don't forget to ask an adult for help!*

8. Once the cupcakes are baked and cooled, decorate them with frosting and sprinkles to act as the top layer of the Earth's crust.

9. Cut a cupcake in half and make an observation. Are there distinct layers of sedimentary rock? Where do you find the fossils? Which layer of the cupcake would be considered the "oldest" layer?

Resources

- ***Gutsy Girls Go For Science: Paleontologists*** by Karen Bush Gibson
- ***Bucky, the Adventures of the Dinosaur Cowboy*** by Kay Cunningham
- ***What Do You Know About Rocks and Fossils?*** by Anna Claybourne
- ***Unearthing Fossils*** by Tamra B. Orr
- ***Super Simple Fossil Projects: Science Activities For Future Paleontologists*** by Jessie Alkire

FAMILY SCIENCE TIPS

- Fossils take thousands of years to form. Fossils can be categorized as body fossils (like a dinosaur bone) or trace fossils (like a footprint or the outline of a plant). Fossils generally can be found near sedimentary rocks, which are rocks formed in swamps, rivers, lakes, and oceans when clay, silt, mud, and sand harden over millions of years. Many fossils are found near bodies of water or spaces that water bodies used to occupy.
- Encourage children to think about each layer of the cake mix. Bigger layers of cake mix will represent longer periods of time, while smaller layers of cake mix will represent shorter periods of time. Is each layer a short or long amount of time?
- Take this experiment a step further. In addition to Oreos, use pretzels, chocolate chips, or nuts as different fossils. Add a combination of the "fossils" to the different "sedimentary layers." Would you find different fossils in the same sedimentary rock layer?
- Children can also mimic core sampling like a geologist. Instead of cutting the cupcake in half, use a wide straw (like a boba tea straw) and carefully push down the straw through the top of the cupcake. Your core sample will be in the bottom of the straw. Gently squeeze out the cupcake from the straw and you will see all the different layers just like in a real core sample!

VOCABULARY

- **Fossil**
- **Sedimentary Rocks**
- **Core Sample**

INTERESTED IN MORE SCIENCE INVESTIGATIONS?

- Visit The Children's Museum website for more at-home science investigations.
- Visit the Dinosphere's Paleo Prep Lab to observe our scientists in action and to ask any questions.
- Explore the museum's Dinosphere exhibit to discover more about dinosaurs and fossils.
- Participate in a Dino Program at The Children's Museum or visit the STEMLab, located in ScienceWorks, for a fun, family science experience.

Sandstone with fossil shells

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