SCIENCE GRADE 4

SPRING BREAK LEARNING

MARCH 10-14

2025

The Department of Curriculum & Instruction

Hello MSCS Family,

This resource packet was designed to provide students with activities that can be completed during the Spring Break Academy independently or with the guidance and supervision of family members or other adults. The activities are aligned to the TN Academic Standards for Science and will provide additional practice opportunities for students to develop and demonstrate their knowledge and understanding. A suggested pacing guide is included. However, students can complete the activities in any order over three days. Below is a table of contents that lists each activity.

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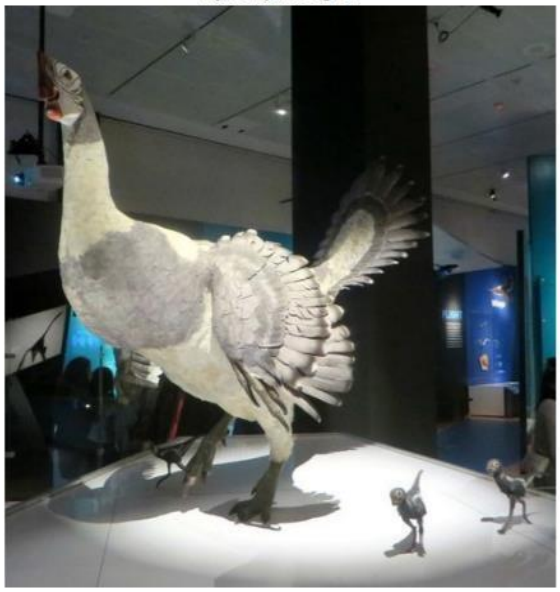
4th Grade Science: Citipati: A Nesting Dinosaur	
Grade Level Standard(s)	4.LS4.1: Obtain information about what a fossil is and ways a fossil can provide information about the past.
Caregiver Support Option	Help your student by guiding them through the reading.
Materials Needed	*Citipati: A Nesting Dinosaur* Article
Essential Question	What are fossils and what can we learn from them?
Learning Outcome	Students will explain what fossils are and what they tell us about the past.

Citipati: A Nesting Dinosaur

by Caitlyn Meagher



Eden, Janine and Jim (CC BY 2.0)

This is what the Citipati might have looked like.

Dinosaurs went extinct a long time ago. But some of today's most common and beloved animals are close relatives of dinosaurs: birds! Birds are descended from some prehistoric dinosaurs. How do scientists understand this bird-dinosaur connection? They look at dinosaur fossils, eggs, and footprints.

Birds evolved from dinosaurs called theropods. One of these theropods was the *Citipati*. Scientists have used the fossils of the *Citipati* to learn a lot more about how birds evolved from dinosaurs.

The *Citipati* was part of a group of dinosaurs called "oviraptorids." It lived about 71 to 86 million years ago, during the Late Cretaceous period. The *Citipati* was much bigger than a

modern-day bird. It was about 9 feet long, and its features made it look similar to an emu. The *Citipati* had a long neck and short tail. Its toothless beak looked like a parrot beak. It was an omnivore, and it likely ate mainly plants. The *Citipati* probably ate small animals, too. It would have used its sharp beak to grab and hold onto its meal. Its forearms also likely looked like a bird's wings.

Scientists think the *Citipati* had feathers, like today's birds. But unlike many modern birds, the *Citipati's* feathers did not help it fly. The *Citipati* most likely had feathers to keep its body temperature constant or to protect itself from predators. The *Citipati* also might have used feathers to attract a mate.

a nesting Citipati

This feathered dinosaur had even more in common with today's birds: it built nests and protected its young! When scientists found a fossilized nesting *Citipati*, they realized the strength of the connection between birds and dinosaurs. Over many years, scientists have found a few nesting *Citipati*. These nests reveal how the *Citipati* looked after its eggs. One of these fossils clearly shows a *Citipati* positioned at the center of its nest. It has its forearms spread out to protect its eggs. It would protect its eggs from the cold or the heat. Many modern birds protect their young in the exact same way. Finding these fossils was an important step for scientists to understand the close connection between some dinosaurs and birds.

Book of Knowledge

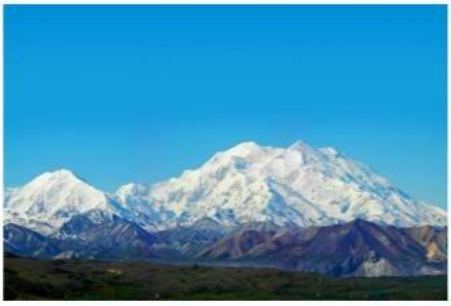
Directions: Please write 2 or 3 things you have learned from the article that you want to remember.

4th Grade Science: The Importance of Mountains	
Grade Level Standard(s)	4.ESS2.2: Interpret maps to determine that the location of mountain ranges, deep ocean trenches, volcanoes, and earthquakes occur in patterns.
Caregiver Support Option	Help your student by guiding them through the reading.
Materials Needed	*Word Mountains* Article
Essential Question	What are Earth's features?
Learning Outcome	Students will be able to analyze and interpret data from models to describe patterns in Earth's features.

The Importance of Mountains

This text is excerpted from an original work of the Core Knowledge Foundation.

People have long admired the beauty of mountains. Some people long ago even worshipped them. They placed offerings on mountain slopes in the hope of good crops, good weather, or good luck.



Denali is a mountain in the U.S. state of Alaska. It is the highest mountain in North America.

Mountains play a part in many religions. Moses, for example, received the Ten Commandments on the top of a mountain. The ancient Greeks believed that their gods lived in the mountains.

Mountains are important in many ways. They affect Earth's weather and climate. They provide a home for many animals. They contain valuable minerals.

Mountains have historically made trade and travel difficult. They have also acted as barriers to keep out or slow down invading armies. More recently, mountains have attracted tourists, skiers, hikers, and climbers.

Cool Facts About Mountains:

- For a landform to be called a mountain, it must rise at least one thousand feet (three hundred meters) above its surrounding area.
- Some mountains, such as the Himalayas, are still growing. Others, such as the Appalachians, are being worn down by weathering, erosion, and mining.

Directions: Please write 2 or 3 things you have learned from the article that you want to remember.

4th Grade Science: Rock Formation	
Grade Level Standard(s)	4.ESS1.1: Generate and support a claim with evidence that over long periods of time, erosion (weathering and transportation) and deposition have changed landscapes and created new landforms.
Caregiver Support Option	Help your student by guiding them through the directions.
Materials Needed	*Rock Formations* text
Essential Question	How do living and nonliving things change Earth's surface?
Learning Outcome	Students will be able to make observations and measurements that provide evidence to show that erosion and weathering change Earth's surface.

Rock Formations

There are some amazing natural rock structures in the world. They are either naturally formed or formed in various ways of erosion: (worn away) by glaciers, blowing sand in the desert, water or weathering such as wind and rain. There are three types of naturally formed rocks:

1. ***Sedimentary.*** This means they formed grain by grain, layer by layer, either in the water where rocks and dirt settle to the bottom or on land by erosion.

2. ***Metamorphic.*** This means the rocks are made from other kinds of rocks or minerals. This happens with heat, pressure and chemical reactions.

3. ***Igneous.*** These kinds of rocks are made when lava or molten rocks cool and become solid. Sometimes these have crystals that form in them. Erosion then forms the lines and curves of these rock formations. One igneous rock formation is Half Dome in Yosemite National Park.

A Mushroom Rock formation in Mushroom Rock State Park in Kansas. It was formed by the erosion of a harder rock on top of a softer rock. Part of the rock is sandstone.

Half Dome Photo by: Rainer Hübenthal posted on Wikipedia

Jug Rock

Jug Rock is made of sandstone. It is in Shoals Indiana in the Valley of the East Fork of the White River. Jug Rock is the largest free-standing table rock formation or "tea table" in the USA east of the Mississippi River. It is 60 feet high and 20 feet in diameter.

Rock Trivia

1. What are the three types of naturally formed rock formations?

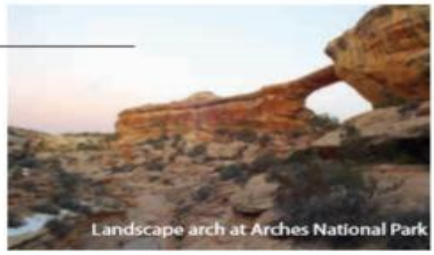
_____

2. What kind of rock is Half Dome in Yosemite National Park?

_____

3. What is another name for a table rock formation like Jug Rock?

Owachomo Bridge at Natural Bridges National monument



Landscape arch at Arches National Park

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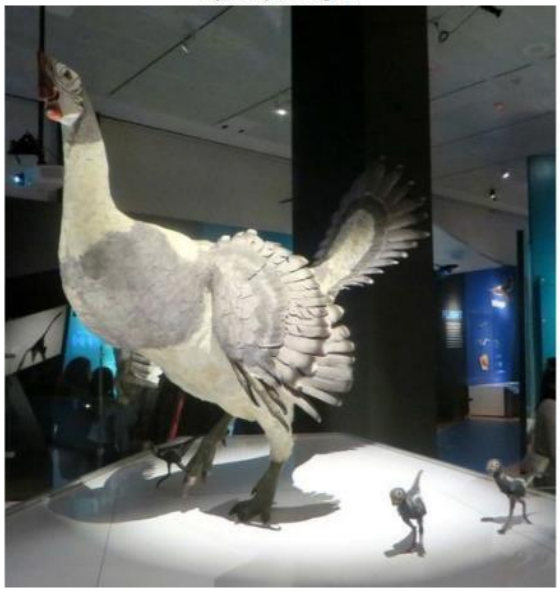

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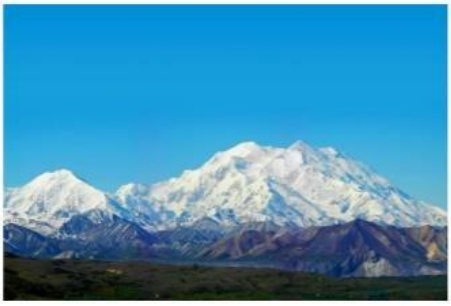

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Sedimentary; metamorphic; igneous

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igneous

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Tea table

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Landscape arch at Arches National Park