

These pages were taken from the G3 Journal  
"Fossils Teach us About Life Long Ago"



STEMTaught®

# A Paleontology Expedition in Moab!

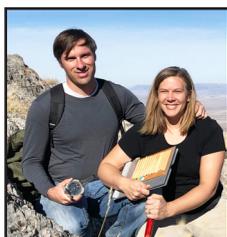




## Brooks Britt

Paleontologist, Brigham Young University (Featured Scientist)

Brooks began looking for fossils on his own at age ten. At 14, he and his cousin made plans to ride their bicycles on a 900-mile trek from Seattle Washington to Vernal Utah to go on their own dinosaur expedition. Although Brooks' parents did not let him ride his bike, they helped him get to Vernal where Brooks biked into the desert and discovered the remains of an enormous dinosaur – a Diplodocus. Now, Brooks teaches students about ancient life by helping them find and uncover fossils.



## Beth and Jake Hunter

Earth Scientist, Mechanical Engineer  
STEMTaught

We love looking for fossils. You can explore and find fossils too!



## Madelyn Burt

B.S. Biology  
Brigham Young University



You can practice making observations to solve the mysteries of the Earth. The whole Earth is filled with clues to discover! The more questions you ask, the more you learn!



## Anna Doloman

PhD Biological Engineering  
Utah State University



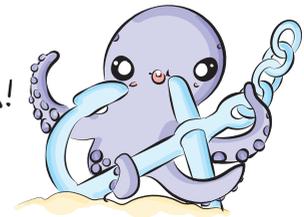
I decided to become a scientist, desiring to explore this amazing world of unknowns.

Engage!

Lesson Anchor

## A Paleontology Expedition In Moab

Explore the  
Phenomenon!



Imagine you are a paleontologist. Today we are going to fly to Moab, Utah and help a paleontology team uncover fossils! Get your desks and make a plane! When we finally land in a small airport we'll go out into the desert to the fossil dig site. Yesterday, the paleontologists discovered a tiny fragment of a fossil. What animal is it? Nobody knows. Let's pull out our tools and get to work to uncover more bones. We dig deeper, and by sunset at the end of a hot day, nine bones have been excavated. What are some questions you have about the bones?



### Activity

Pass out the paper bones that students will use today. "Talk are your questions as you look at these bones? Keep thinking and looking at them as we read the story. After the story we will get to cut them out and assemble them.

\*Cool fact! Your paper bones were modeled after the real bones that Dr. Britt is excavating in this picture.

## Fossils Explain Earth's Past

A **paleontologist** is a scientist that studies fossils. They are detectives that search for clues to solve mysteries. However, this mystery isn't, "Who drank the milk?" This is the mystery of what the Earth was like a long time ago! The Earth is 4.5 billion years old, and the plants and animals that we see today aren't the same as the ones that lived long ago. To know what these ancient creatures were like, we search in rocks for fossils! Fossils also help explain what Earth's environments were once like. For example, this tropical plant fossil was found in Antarctica!



## Fossils Are the Remains of Ancient Life

When plants and animals die, sometimes they are buried in the ground by sand and mud and they can be turned into rock and become a **fossil**. Fossils can be found in rocks all over the world, and they help us to understand what the world looked like at different time periods.



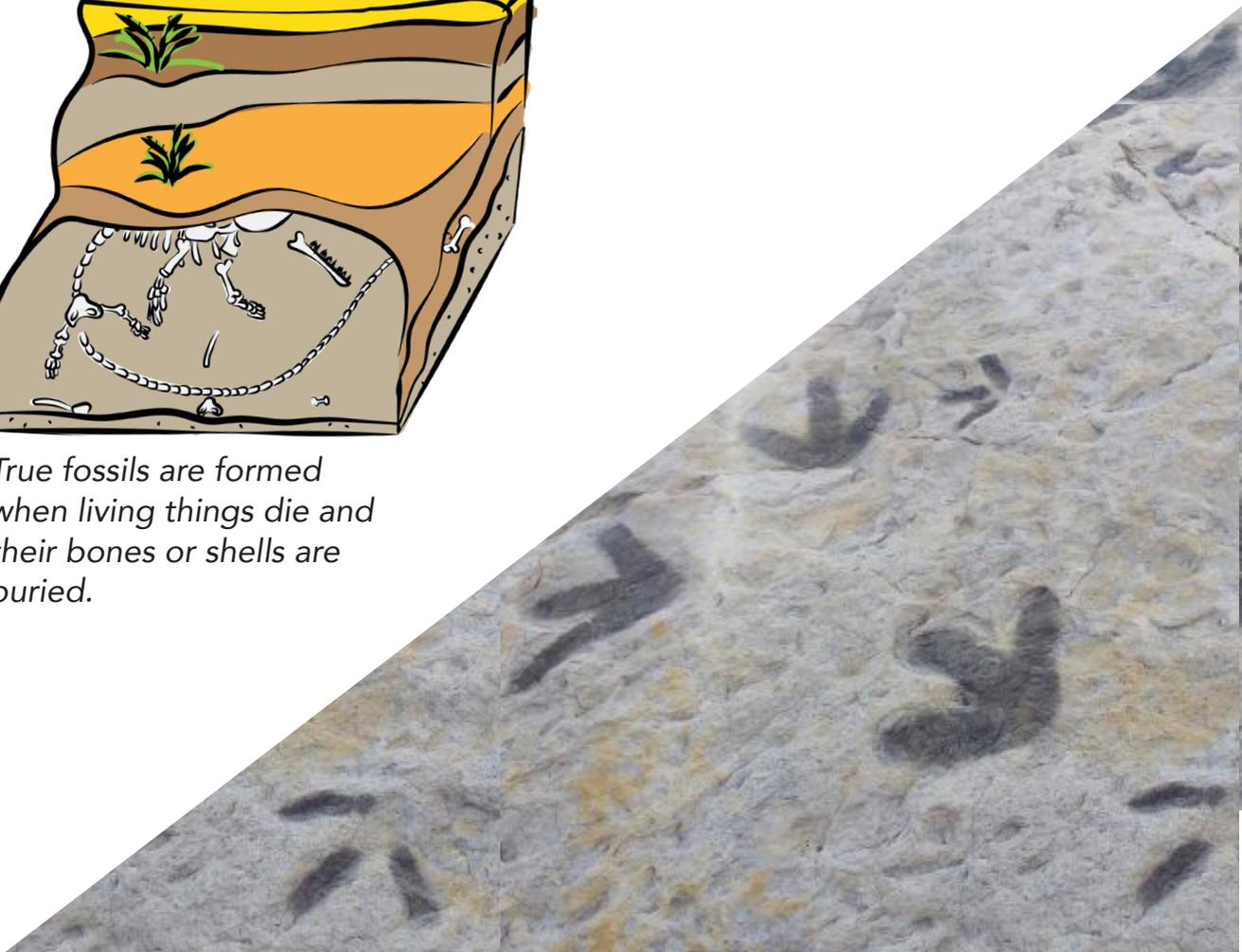
Fossilized trilobites just like this one are found all over western Utah. Trilobites once lived in oceans, but this one was found in the desert, in Utah. Now *that* is a mystery! These little fossils give us a clue that Utah didn't always look like it does now. Trilobites once lived in an ocean that covered western Utah and California around 543 to 248 million years ago!

## Fossils Form When Bones are Buried

When the soft remains of plants and animals (such as skin, scales and leaves) are buried in the ground they can leave **fossil imprints** in the mud that become preserved for us to find millions of years later. Hard materials such as bones are gradually replaced by minerals that transform them into rocks so that they become **true fossils**. **Trace fossils** are formed from animal tracks, burrows, or nests that become preserved in rock. In Utah, there are many dinosaur tracks preserved in sedimentary rocks.



*True fossils are formed when living things die and their bones or shells are buried.*



## Deeper Sands Are Older In Age

Fossils are always found within layers of sedimentary rocks.

**Sedimentary rocks** are made of small particles such as mud, sand, gravel, or volcanic ash. These sediments build up over time, forming sedimentary layers. We can order sedimentary layers from youngest to oldest because the layers on the bottom are older than the layers on top.

Finding the age of a fossil can be tricky. The clues within sedimentary layers can help us figure out about how old a fossil is.



*Sedimentary layers containing fossils can be seen in this hill.*

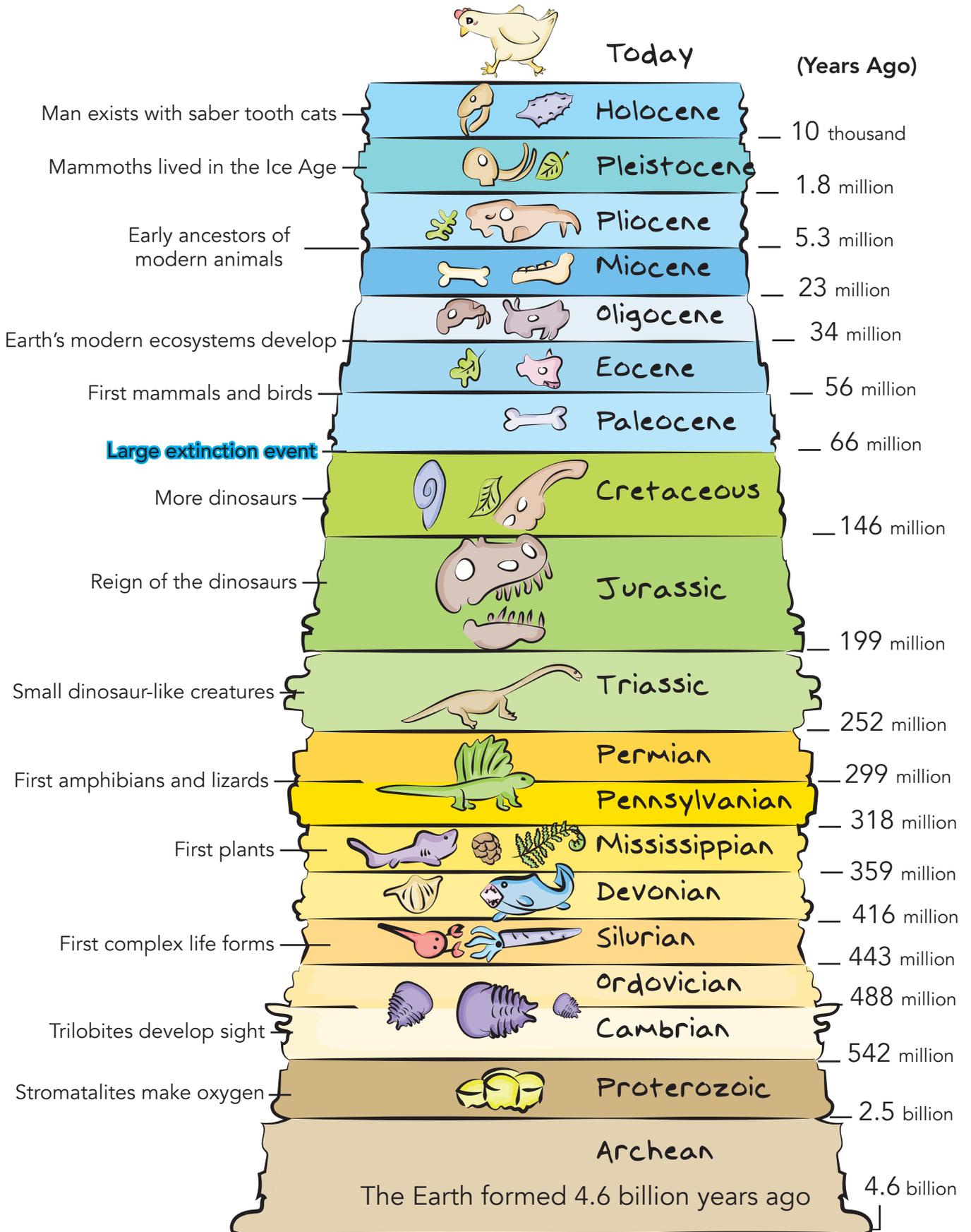
# Fossils Teach us About Earth's History

Geologists have organized the history of the Earth into different time periods. Scientists have discovered species of plants and animals that have lived at each time period. These fossils give us clues about what life was like long ago. We can observe the fossils to discover what a species ate, what predators it had, and what type of environment it lived in!



*This is the skull of the fossil found in Moab by the BYU research team.*

# The Geologic History of the Earth



## The Final Fossils Are Uncovered

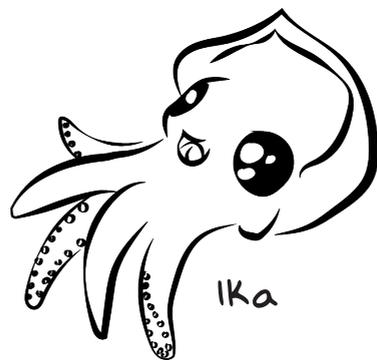
BYU paleontologist Brooks Britt has been traveling to Moab with students for years and has uncovered lots of fossils. It takes a long time to collect, prepare, sort and describe all the bones. In order to assemble one museum quality specimen of the animal, over 5,500 bones were excavated!



*Paleontologist, Brooks Britt works on assembling the fossil skeleton of a new dinosaur species which he named Moabasaurus. (Credit: Jarren Wilkey/BYU)*

The bones from over 18 different members of the same dinosaur had been brought to their resting place by an ancient stream. The fossilized bones in the rock were all mixed up and broken. Brooks and his students used all the best fossil pieces they found to reconstruct the animal. They named the new species Moabasaurus.

**\*Now you get to assemble the same skeleton but out of paper.**



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