FOSSIL EVIDENCE

differentiated passages

490L

Name: _____ Date: _____

What Do Fossils Tell Us?

Fossils help scientists understand our world. They have shown that organisms on Earth have changed. The environment is different, too.

Fossils can tell us about time and place. Many fossils are found in rock. Scientists can figure out how old a fossil is.

Leaf fossil in rock.

They examine the rock around it. The place where a fossil is found is important also. It tells us which animals lived in an area.

Herbivore teeth for grinding plants.

Carnivore teeth for tearing meat.

Fossils can tell us what animals and plants looked like. They show size and shape. Bones hint at how an animal moved. Footprints help, too. Animal teeth give clues to diet. Changes can be seen by comparing fossils to the plants and animals of today.

What Do Fossils Tell Us Questions

…e the 4 main things fossils tell us? Fill out the chart to answer the question.

…at do fossils tell?	Supporting Details
…Time and Place	
	They show size and shape of an animal, what it may have eaten and how it moved.
…vironment was like.	

…ts use fossils to show that changes have occurred in … or … Give an example from the article.

…the dinosaur skull. What can you le… …based on article and the fossil?

LEXILE

MagCORE

3rd Grade NGSS 3-LS4-1

ABOUT LEXILE LEVELS

MagiCore Learning, LLC is a certified Lexile® Partner. These texts are officially measured and approved by Lexile and MetaMetrics® to ensure appropriate rigor and differentiation for students.

The Lexile Framework® for Reading measures are scientific, quantitative text levels. When the Lexile of a text is measured, specific, measurable attributes of the text are considered, including, but not limited to, word frequency, sentence length, and text cohesion. These are difficult attributes for humans to evaluate, so a computer measures them.

Common Core State Standards uses Lexile level bands as one measure of text complexity. Text complexity ranges ensure students are college and career ready by the end of 12th grade. Lexile measures help educators scaffold and differentiate instruction as well as monitor reading growth.

Grade Band	Lexile® Bands Aligned to Common Core Expectations
K-1	N/A
2-3	420L-820L
4-5	740L-1010L
6-8	1185L-1385L

Keep in mind when using any leveled text that many students will need scaffolding and support to reach text at the high end of their grade band. According to Appendix A of the Common Core Standards, "It is important to recognize that scaffolding often is entirely appropriate. The expectation that scaffolding will occur with particularly challenging texts is built into the Standards' grade-by-grade text complexity expectations, for example. The general movement, however, should be toward decreasing scaffolding and increasing independence both within and across the text complexity bands defined in the Standards."

Fossil Evidence of Past Environments

3rd grade

Table of Contents

Each passage set includes two differentiated passages on a third-grade level (one at the beginning of the band, one towards the end) and a question set geared towards comprehension and science mastery. The first question is differentiated to include a fill-in-the-blank diagram (lower complexity) or an open-ended diagram (higher complexity).

How to Use This Resource

This resource was created with the NGSS Science Standards in mind. It includes six differentiated passages aligned to the following standard:

3-LS4-1: Fossil Evidence of Past Environments:
Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.

Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.

Here are some suggestions for using these passages:

- Use as independent work after you have taught an overview of this standard. Assign the different levels based on the passage students can read and comprehend independently.
- Use as a reading center to reinforce key comprehension and science concepts at the same time!
- Use as a homework or review packet.
- Use as an intervention for students who need to revisit science concepts.

450L

Name: _____ Date: _____

What is a Fossil?

Fossils are the remains of animals and plants that lived long ago. Scientists study these fossils. The scientists are called **paleontologists**. The fossils give clues about what plants and animals lived in the past. They show how life has changed over time. Some fossils are tiny. Others are huge. Fossils have been found all over the world. They are usually buried between layers of rock. Sometimes they are in mud. Sometimes they are in gravel.

Dinosaur fossil in rock.

Fossils form in steps. First, a plant or animal dies. Next, the **organism** settles somewhere. This is often underwater. Parts of the plant or animal rot. The dead plant or animal is covered with sand, dirt, and mud. The remains harden into rock. This process takes a very long time. Fossils are seen when weather, erosion, or digging brings them to the surface.

Most fossils are in rock. Some fossils are found in ice. Cast or mold fossils are made when an organism leaves a hollow space behind. Minerals fill the mold. This creates a solid fossil. Many insect fossils are in **amber,** as well. In dry areas, fossils can form through **mummification**. The organism dries out. This makes a fossil.

Insect fossilized in amber.

There are two main types of fossils. **Body fossils** and **trace fossils**. Body fossils have part of the organism's body. Leaves and bones are body fossils. Trace fossils do not have body parts. They are things left behind by animals. Footprints are trace fossils.

Fossils are important. They tell the history of organisms on Earth. They also show changes over long periods of time.

What is a Fossil? Questions

1. What is a fossil?

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2. Fossils are created in steps. Fill out the chart to show how fossils are made.

3. What are the two main types of fossils. How are they different?

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4. Why is it important to study fossils? Why do scientists say they are important?

750L

Name: _____ Date: _____

What is a Fossil?

Dinosaur fossil in rock.

The preserved remains of animals and plants that lived long ago are called **fossils**. Scientists called **paleontologists** study fossils to better understand the past. Examining fossils gives these scientists clues about what plants and animals existed a long time ago. They can also show how life has changed over time. Some fossils are tiny, such as bacteria, and can only be seen with a microscope. Others are huge, such as an entire dinosaur skeleton with many pieces. Fossils have been found all over the world. They are usually buried between layers of **sedimentary rock**. They have also been found in mud and gravel.

Insect fossilized in amber.

There are several steps involved in forming a fossil. First, a plant or animal dies. Next, the **organism** settles somewhere, often underwater. Certain parts of the plant or animal **decay**, or rot. Over time, the dead plant or animal is covered with sand, dirt, and mud. These materials form layers over the dead plant or animal. After being covered with the layers, the remains harden into rock. This process takes a very long time. Fossils are revealed when the rock is disturbed by weather, erosion, or paleontologists digging at a site.

Trace fossil of a dinosaur footprint

Fossils are preserved in different ways. Most are enclosed in rock. Some fossils, however, are kept in ice. Freezing protects the remains for thousands of years. Cast or mold fossils are made when an organism leaves a hollow impression behind. Minerals fill the mold as time passes. A statue-like fossil then forms. Many insect fossils have been found in **amber**. In very dry areas, fossils can be formed through **mummification**. The organism's remains dry out, creating a fossil.

Two main types of fossils exist. **Body fossils** have some part of the organism's body in them. They include items such as leaves, teeth, shells, and bones. **Trace fossils**, on the other hand, do not contain actual body parts. Instead, they are things left behind by animals. Footprints and animal **scat** are examples of trace fossils.

Fossils are important because they tell the history of organisms on Earth. They also reveal changes in those plants and animals and the environment over long periods of time.

What is a Fossil? Questions

1. What is a fossil?

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2. Fossils are created in steps. Fill out the chart to show how fossils are made.

3. What are the two main types of fossils. How are they different?

---

4. Why is it important to study fossils? Why do scientists say they are important?

490L

Name: _____ Date: _____

What Do Fossils Tell Us?

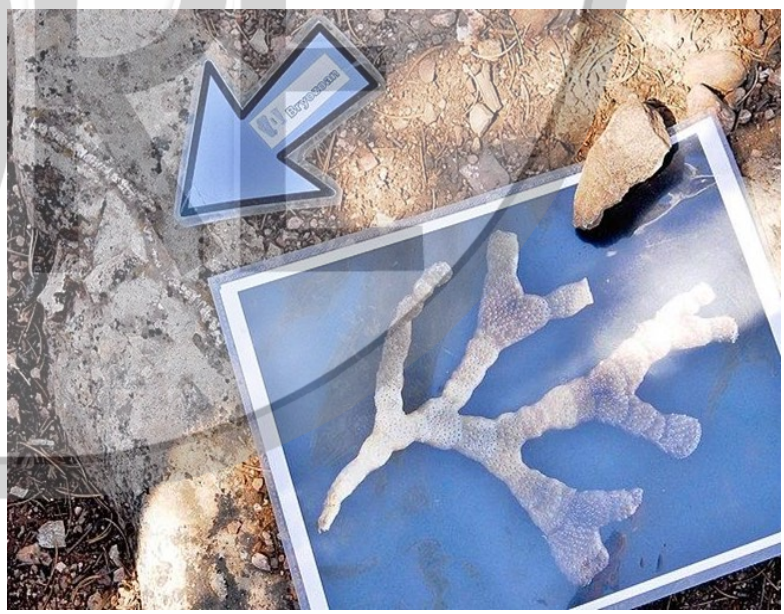
Leaf fossil in rock.

Fossils help scientists understand our world. They have shown that **organisms** on Earth have changed. The **environment** is different, too.

Fossils can tell us about time and place. Many fossils are found in rock. Scientists can figure out how old a fossil is. They examine the rock around it. The place where a fossil is found is important also. It tells us which animals lived in an area.

Fossils can tell us what animals and plants looked like. They show size and shape. Bones hint at how an animal moved. Footprints help, too. Animal teeth give clues to diet. Changes can be seen by comparing fossils to the plants and animals of today.

Fossils tell about the environment, too. Sometimes seashell fossils are found far from water. This tells scientists that water was there in the past. Coral has been found in the arctic. Coral only lives in warm waters. This suggests that the arctic wasn't always cold. Something happened to change these areas.



Coral fossil found in the Grand Canyon.

Some scientists think fossils tell about the future. They study fossils of **extinct** plants and animals. That can help find which ones are in danger now. They can use what they learn to protect future plants and animals.

What Do Fossils Tell Us Questions

1. What are the 3 main things fossils tell us? Fill out the chart to answer the question.

What do fossils tell?	What do they say?
Time and Place	
	They show size and shape of an animal, what it may have eaten and how it moved.
What the environment was like.	

2. How can scientists use fossils to show that changes have occurred in either animals or the environment? Give an example from the article.

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3. The article says that fossils can help scientists learn about the future. How do fossils do this? What can we learn from them that could help future plants or animals?

500L

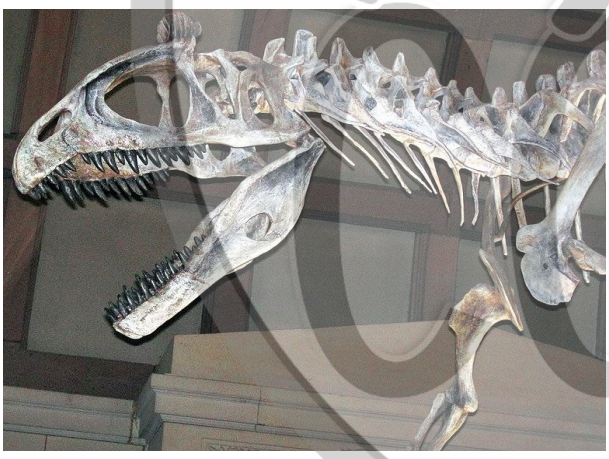
Name: _____ Date: _____

Antarctic Fossils

Think of Antarctica. You are probably picturing ice, freezing temperatures, and penguins. But was Antarctica always so cold? Fossils tell us it wasn't.

Leaf fossil found in Antarctica.

Antarctica once had a warmer climate. Forests covered it. Fossil trees from 100 million years ago are still on Alexander Island. This island is on the west coast. The roots of these fossil trees suggest they lived beside large rivers. There is sand around the trunks of the fossil trees. This is **evidence** that powerful floods happened. There are leaf fossils, too. They prove many kinds of plants lived there. They did well in temperatures ranging from 55°F to 69°F. These fossil trees would have needed moisture in the air to grow. This environment is very different from today.



Cryolophosaurus fossil

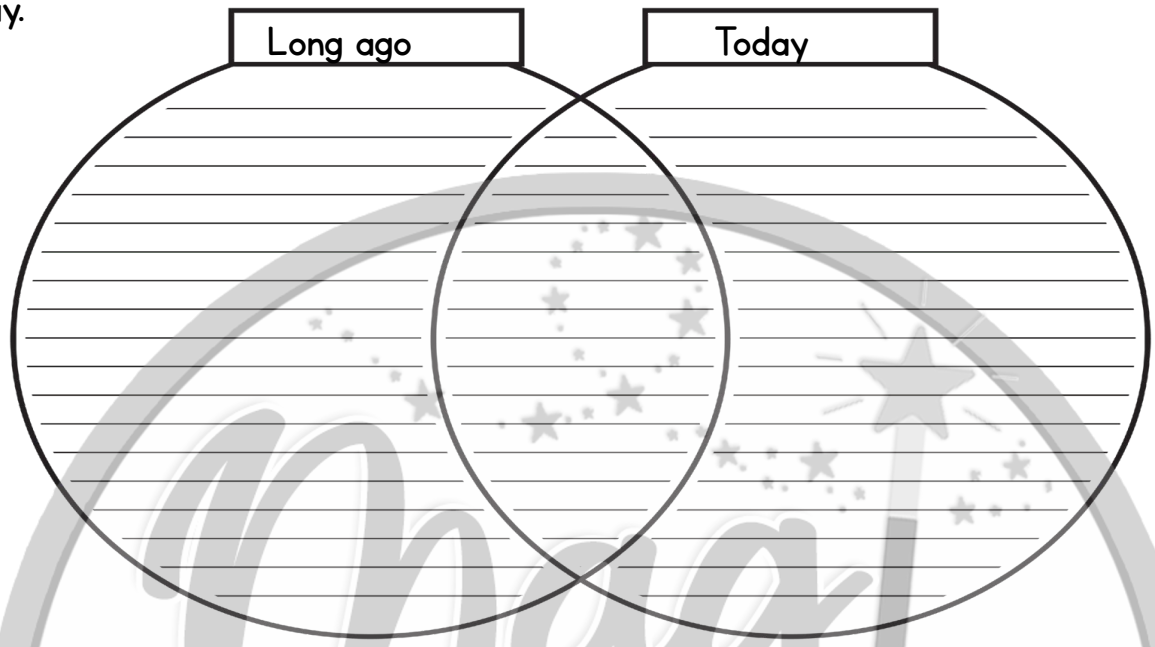
Fossilized pollen is in Antarctica's rock. It gave scientists details about how long it took for changes to occur. The forests disappeared about 35 million years ago. Ice took over about 13 million years ago. Glaciers formed slowly. Scientists studied tree ring fossils. They learned Antarctic trees could switch from summer to winter living in about a month's time. This is different from trees of today. They take several months to do that.

Fossils also show animals that lived in Antarctica. In the past, there were birds, **amphibians**, and dinosaurs. The Cryolophosaurus was discovered in Antarctica. It was a 26-foot-long dinosaur. Some of the best-known fossils found in Antarctica were of dolphins. These dolphins were different from today's dolphins. They had no teeth. They were much larger than modern ones. Scientists think they ate squid. They sucked them into their slim jaws.

The fossils in Antarctica show how our planet has changed. They've unlocked secrets of the past.

Antarctic Fossils Questions

1. Fill out the chart below to compare and contrast Antarctica from long ago to Antarctica today.



1. Describe how scientists used fossils to discover a forest that once covered Antarctica.

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3. The article says scientists discovered fossils of Cryolophosaurus and ancient dolphins in Antarctica. Based on the information in the article, what other animal fossils do you think they might find? Use evidence to support your ideas.

470L

Name: _____ Date: _____

Himalayan History

Himalayan mountains

The Himalayan mountains reach the sky. Their heights don't make people think of sea life. These mountains, however, have fossils of ocean life. How did that ocean life get there?

The Himalayas are in South Asia. They have the highest mountains on Earth. Mount Everest is one of them. The peaks are always covered in snow. These mountains are far away from the sea. The area was different millions of years ago, though. The world didn't look as it does today. There were huge landmasses instead of separate **continents**. **Continental drift** is the movement of the continents across Earth's surface. This motion caused shifts. The landmasses broke apart.

The Tethys Sea was between India and Eurasia. This sea had many creatures. India drifted north. About a hundred million years passed. India banged into Eurasia. Mountains rose up from these two pieces of land hitting. The huge Himalayan mountains formed where the sea had been. The seabed became the mountain peaks.

Marine fossils found in the Himalayan mountains.

Sea creatures were trapped in the layers of rock that made the mountains. Their remains turned into fossils. Fossils of fish, coral reefs, **marine** plants, and shells were found. They are **evidence** that water was once there. We learn about the history of the Himalayas by studying these fossils.

Himalayan History Questions

1. How can scientists tell that the Himalayan mountains weren't always tall, snow-covered peaks?

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2. A series of interactions occurred to form the Himalayan mountains. Fill out the chart to show how this happened.

Cause	Effect
1. India drifted north and banged into Eurasia. 1.	1. 2. Sea creatures were trapped in the layers of rock that formed the mountains and turned into fossils.

3. Do you think any ancient creatures that once lived in the area where the Himalayan mountains are could have survived? Give an example and tell how you know.

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