# Grade 5: Unit 6, Lesson 28

**Title:** *Fossils: A Peek into the Past*

**Essential Question:** How do scientists use fossils to learn about life long ago?

**Week 1**

Questions to ask and discuss while reading:

**What does the author call Mary Anning and why?**

*The author calls Mary a “super successful young fossil hunter” because she found the first ichthyosaur fossil when she was about eleven years old and then went on to find more fossils.*

**What are at least two main ideas of the text on pages 40-41?**

*Mary Anning made important fossil discoveries in a coastal area that was, and still is, full of fossils. Mary Anning was an expert fossil hunter.*

**What are some supporting details?**

*Most of the fossils in this area are from the Jurassic period. Mary was the first to discover a plesiosaurus fossil. Although she wasn’t a trained scientist, professors acknowledged her expertise.*

**Why does the writer think that fossils are nature’s memory keepers?**

*The writer thinks fossils show things that existed in the past and support these opinions with facts.*

(Reader’s Notebook Questions)

**Write two opinions that are given on page 36.**

*Jared Post’s discovery was a fantastic find. The engravings on the underside of the fossil were weird.*

**Write two facts that are given on page 36.**

*The fossil was the size of a toaster. The Ice Age occurred between 1.6 million and 10,000 years ago.*

**Write two opinions that are given on page 38.**

*Scientists believe the mammoths use their tusks to dig for plants under the snow. Mammoths walking around the neighborhood would be amazing.*

**Write two facts given on page 38.**

*Mammoths disappeared about 10,000 years ago. Mammoths stood about nine feet tall.*

**A natural history museum is building an exhibit on the discoveries of Mary Anning. You have been asked to create signs for each fossil.**

**Reread pages 39-40. Then write the signs. Tell when each dinosaur fossil was discovered. Then write facts about each fossil.**

*Specimen: Ichthyosaurus*

*Discovered: 1810*

*Facts: The name comes from words for fish and lizard. Fossils range from five to twenty feet long. It lived during the Jurassic period between 206 and 144 million years ago.*

*Specimen: plesiosaur*

*Discovered: 1823*

*Facts: The name means “almost a lizard.” It lived during the Jurassic period. The fossil is nine feet long and six feet wide. Its head is five inches long.*

**The museum also wants to include a display about Miss Anning’s work. Reread page 41. Then write facts about her work.**

*The Work of Mary Anning (1799-1847)*

*Mary Anning learned to hunt for fossils from her father. She cleaned and polished the fossils. She earned money to support her family.*

**Written Response**

**Option 1:**

Describe the fossils found by Mary and Jared. What did these fossils tell scientists about life long?

**Sample Student Response**

 *Jared and Mary are both children who found fossils that inform scientists about life long ago. Jared found an amazing fossil. Although it just looked like a weird looking rock, it was actually the fossil of a woolly mammoth tooth. This is an animal that lived long ago during the Ice Age. Mary Anning found a fossil that belonged to an ichthyosaur-a sea reptile. She found the very first one and is considered to have expertise even though she was not a trained scientist.*

 *The findings of the children help scientists find out information about life long age. The fossils can tell about what the animals may have eaten and what the weather was like during a specific time period long after the animal has disappeared from the Earth.*

**Option 2:**

How did woolly mammoth fossils provide information about the animal?

**Sample Student Response**

 *Woolly mammoth fossils are useful in providing information about the animal. For example, the tooth that Jared found was helpful in providing information about what the animal ate. The type of tooth found showed that the woolly mammoth was a grass and leaf eater. Fossils also help scientists to make predictions about how the animal may have survived. Scientists have made predictions about how the woolly mammoth may have used its tusks to shovel snow to get to plants that were underground. Without fossils, scientists would not be able to provide information about or make predictions about the woolly mammoth.*

**Option 3:**

What evidence supports the idea that Mary Anning was an expert fossil finder? Provide details to support this idea.

**Sample Student Response**

 *Mary Anning was an expert fossil finder. She learned skills as a fossil hunter from her father. “Professors and other clever men admitted she knew more of the science than anyone else in the kingdom.” Mary discovered the first ichthyosaurus fossil in England in 1810. She demonstrated dedication to her work discovering other fossils such as Pleisosaurus in 1823. Although she was a child was great at finding fossils and was considered to have expertise.*

**Option 4:**

Based on what you have read in the text, why are fossils important? Why is the work of fossil finders valuable?

**Sample Student Response**

*Fossils are important to scientists because they serve as “nature’s memory keepers”. They also help scientists understand what the world was like in the distant past. Through studying fossils of animal teeth, scientists discovered dinosaurs were herbivores or carnivores. In addition, studies of mammoth tusks showed how they would find food.*

**Week 2, Building Knowledge: Extending the Topic**

**Essential Question:** How do scientists use fossils to learn about life long ago?

**Rolling Vocabulary: “Sensational Six”**

* Read each resource then determine the 6 words from each text that most exemplify (show best) the central idea of the text.
* Next use your 6 words to write about the most important idea of the text. You should have as many sentences as you do words.
* Continue this activity with EACH selection in the text set.
* After reading all the selections in the Expert Pack, go back and review your words.
* Now select the “Sensational Six” words from **ALL** the word lists.
* Use the “Sensational Six” words to summarize the most important learning from this text set.

**Sample Student Response**

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| **Title** | **Six Vocabulary Words & Sentences** |
| *Fossils: A Peek into the Past* |  **Self-chosen words:** **engravings, remains, imprint, carnivore, herbivore, jagged****Sentences:** 1. The most common kind of fossil is an **imprint**, or outline, of a plant or animal in a rock.
2. **Carnivores**, or meat-eating animals, have sharp canine teeth to stab and hold on to prey.
3. **Herbivores** are plant-eaters, so they have large molars for chewing plants.
4. Jared noticed a big, **jagged** rock half buried in the ground.
5. He noticed that it had what he called “weird **engravings**” on its underside.
6. Scientists can learn about them only by studying whatever **remains** they can find, such as bones, tusks, and teeth.
 |
| *“Digging Deeper”*  | **Words:** **biomechanics, CAT scan, paleontologist, physics, genetic material, theorized****Sentences:** 1. Scientists **theorized** about the life of dinosaurs by digging up and studying fossils.
2. A **paleontologist** uses fossils to study animals from the past geologic periods.
3. Scientists used **biomechanics**, or the science of body movement, to determine how dinosaurs moved.
4. Scientists also applied the rules of **physics** when learning about the movement of dinosaurs.
5. Scientists used **CAT scans** to peer inside fossils.
6. **Genetic material** determines an animal’s inherited characteristics, such as eye color and hair color.
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| *“Mammoth Fosssil Found”* | **Words: Labrador retriever, tusks, mammoth, mysteriously, pelvic, grazed****Sentences:** 1. Roger fed his **Labrador retriever**, his dog, prior to walking along the Guadalupe River.
2. Ivory **tusks** of a wooly mammoth are like the teeth of an elephant.
3. **Mammoths** are the ancient relatives of the modern day elephant.
4. The Columbian mammoths **mysteriously** disappeared from the face of the earth.
5. Roger found a **pelvic** bone that supported the mammoth’s whole body.
6. The mammoth **grazed** on grasses found during that time period.
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| *“Trapped in Tar!”* | **Words: prehistoric, tar pit, extinct, fate, oozing, blundered****Sentences:*** + - 1. Paleontologists studied **prehistoric** animals.
			2. Many animals can become trapped in **tar pits**.
			3. When animals are **extinct** they no longer exist.
			4. Many animals met their **fate** after being trapped in tar pits.
			5. Tar pits were an **oozing** death trap.
			6. Animals such as mammoths **blundered** as they wandered into the tar pits.
 |
| *Video- Bill Nye: Fossils* | **Words: species, fossil, volcanic eruption, extinct, descendent, vegetarian****Sentences:**1. Elephants are a **species** of ancient wooly mammoths.
2. During a **fossil** dig, you can find evidence of living things that have turned to stone.
3. Animals that are **extinct**, no longer exist.
4. During a **volcanic eruption** ashes spread for miles.
5. Elephants are **descendants** of mammoths.
6. Some of the fossil teeth found indicated that several species were **vegetarians**.
 |
| **Sensational Six**: **prehistoric, paleontologist, theorized, biomechanics, imprint, fossil** |
| **Summary:** **Paleontologists** are scientists that study **prehistoric** animals. In the past, they used the **imprints** of **fossils** to **theorize** what the animals looked like and how they lived. Today they use high tech **biomechanics** to demonstrate how the animals moved. |

**Rolling Knowledge**

1. Read each selection in the set, one at a time.
2. After you read *each* resource, stop and think what the big learning was. What did you learn that was new *and important* about the topic from *this* resource?
3. Write, draw, or list what you learned from the text about (topic). Then write, draw, or list how this new resource added to what you learned from the last resource(s).

**Sample Student Response**

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| **Write, Draw, or List** |
| **Title** | **New and important learning about the topic** | **How does this add to what I learned already?** |
| 1. *Fossils: A Peek into the Past*
 | Scientists studied the teeth of prehistoric animals. They discovered there were carnivores and herbivores. Fossils are found in many different places, ranging from the surface to being buried in frozen ground. | By studying fossils, scientists can determine an animal’s diet. The condition of the fossils can describe the climate of an area. |
| 1. *Digging Deeper*
 | Paleontologists used high -tech tools in hopes of better understanding how dinosaurs moved and lived. | Paleontologists theorized about the life of dinosaurs by digging up and studying fossils. |
| 1. *Mammoth Fossil Found*
 | About 10,000 to 40,000 years ago, mammoths roamed the Guadalupe River in California. | Scientist learned that animals existed long ago by digging for bones. |
| 1. *Bill Nye: Fossils*
 | Fossils are preserved through volcanic eruptions. The ashes preserve animal bones. | This explained how bones could last for thousands of years. |
| 1. *Trapped in Tar*
 | Many fossils are found from animals that became trapped in tar pits. Some tar pits still exist -- in the middle of L.A. The Rancho La Brea Tar Pits contain fossils of mammoths, saber-toothed cats, and other now extinct animals. More than 3 million fossils have been found in the tar pits! | Fossils can be found in many places. |

# Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_

**Title:** *Fossils: A Peek into the Past*

**Essential Question:** How do scientists use fossils to learn about life long ago?

What does the author call Mary Anning and why?

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What are at least two main ideas of the text on pages 40-41?

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What are some supporting details?

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Why does the writer think that fossils are nature’s memory keepers?

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Write two opinions that are given on page 36.

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Write two facts that are given on page 36.

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Write two opinions that are given on page 38.

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Write two facts given on page 38.

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Reread pages 39-40. Then write the signs. Tell when each dinosaur fossil was discovered. Then write facts about each fossil.

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The museum also wants to include a display about Miss Anning’s work. Reread page 41. Then write facts about her work.

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**Written Response**

**Prompt #1**

Describe the fossils found by Mary and Jared. What did these fossils tell scientists about life long ago?

**Prompt #2**

How did woolly mammoth fossils provide information about the animal?

**Prompt #3**

What evidence supports the idea that Mary Anning was an expert fossil finder? Provide details to support this idea.

**Prompt #4**

Based on what you have read in the text, why are fossils important? Why is the work of fossil finders valuable?

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**Building Knowledge: Extending the Topic**

**Essential Question:** How do scientists use fossils to learn about life long ago?

**Rolling Vocabulary: “Sensational Six”**

* Read each resource then determine the 6 words from each text that most exemplify (show best) the central idea of the text.
* Next use your 6 words to write about the most important idea of the text. You should have as many sentences as you do words.
* Continue this activity with EACH selection in the text set.
* After reading all the selections in the Expert Pack, go back and review your words.
* Now select the “Sensational Six” words from **ALL** the word lists.
* Use the “Sensational Six” words to summarize the most important learning from this text set.

|  |  |
| --- | --- |
| **Title** | **Six Vocabulary Words & Sentences** |
| *Fossils: A Peek into the Past* | Words: Sentences: 1.2.3.4.5.6.  |
| *Digging Deeper*  | Words: Sentences:1.2.3.4.5.6.  |
| *Mammoth Fossil Found* | Words: Sentences:1.2.3.4.5.6.  |
| *Bill Nye: Fossils*  | Words: Sentences:1.2.3.4.5.6.  |
| *Trapped in Tar* | Words: Sentences:1.2.3.4.5.6.  |
| **Sensational Six:** |
| **Summary:** |

**Rolling Knowledge Journal**

1. Read each selection in the set, one at a time.
2. After you read *each* resource, stop and think what the big learning was. What did you learn that was new *and important* about the topic from *this* resource? Write, draw, or list what you learned from the text about (topic).
3. Then write, draw, or list how this new resource added to what you learned from the last resource(s).

|  |
| --- |
| **Write, Draw, or List** |
| **Title** | **New and important learning** **about the topic** | **How does this resource add to what I learned already?** |
| 1. *Fossils: A Peek into the Past*
 |  |  |
| 1. *Digging Deeper*
 |  |  |
| 1. *Mammoth Fossil Found*
 |  |  |
| 1. *Bill Nye: Fossils*
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| 1. *Trapped in Tar*
 |  |  |