

Dig This!

Fossil Find

Want to know what the world was like millions of years ago?
Look to the rocks.



Getty

Archaeopteryx

One hundred and fifty million years ago, one of the very first birds appeared on Earth. How do we know? **Fossils**. Fossils are the hardened remains of plants or animals that died long ago. Scientists recently discovered a fossil of a 150-million-year-old bird called *Archaeopteryx* (arkee-OP-ter-iks). It's not the first *Archaeopteryx* fossil to be found. However, the newly discovered fossil shows that *Archaeopteryx* had feet similar to those of the dinosaurs. This fossil gives scientists more evidence that dinosaurs were the ancient ancestors of modern birds.

Dead plants and animals usually break down and rot away, but sometimes their remains become fossils. Think about the *Archaeopteryx* that died millions of years ago. Its body may have settled to the bottom of a river or lake. Then layers of sand covered the body. The layers created a shell around the skeleton that kept it from breaking down or being eaten by other animals.

Over millions of years, **minerals** in the water saturated the bones. Minerals are the solid materials that make up rocks. Eventually, minerals replaced all the chemicals in the bones. The bones had transformed into rocks, but they still looked like the bird's skeleton.

Today, scientists can study fossils to look back at the history of Earth. Scientists who study fossils are called **paleontologists**. They have discovered fossils of ancient flowers, enormous dinosaurs, and other creatures that have been extinct for millions of years. Knowing what plant and animal life was like helps scientists understand what the environment was like in the past.

Many people, not just scientists, discover fossils all the time. Who knows what ancient life-form could be discovered next!

Rock On!

There are three main types of rock on Earth.

Igneous rocks form when the melted rock inside Earth cools and hardens. These rocks have a uniform texture. They are made up of grains that are packed closely together. Igneous rocks can be smooth and shiny or filled with a lot of air bubbles.

Sedimentary rocks develop from **sediment**. Sediment is made up of tiny pieces of sand that are worn away from mountains and other rocks. Those pieces settle at the bottom of rivers, lakes, and oceans. Over time, sediment builds up. Sedimentary rocks sometimes contain fossils.

Metamorphic rocks are rocks that have changed. That means they started out as igneous or sedimentary rocks. Then heat and pressure from deep underground transformed them into a different kind of rock.

The Active Earth

Earth may seem solid and motionless, but it's actually moving and changing all the time—sometimes slowly and sometimes with a bang. Earthquakes shake, volcanoes blast liquid rock, and weather wears away rock and land.

Faults are cracks in Earth's upper layer, or **crust**. They form when two **plates**, or pieces of the crust, slide against each other. Earthquakes usually happen near faults.

Volcanoes erupt when **magma** blasts through "hot spots" in Earth's crust. Magma is super hot liquid rock from deep within Earth. When magma reaches the surface, it is called **lava**. Volcanic hot spots are also found on the seafloor.

In 2005, Hurricane Katrina slammed into the Gulf Coast of the United States. The hurricane caused **erosion**, the stripping away of land and soil. Over time, all rocks and land surfaces are worn down by flowing water or weather.

Name: _____ Date: _____

1. What do paleontologists study?

- A fossils
- B birds
- C humans
- D plants

2. How does the author describe Earth?

- A solid and motionless
- B moving and changing
- C smooth and shiny
- D dangerous and lifeless

3. Which of the following conclusions about rocks is supported by the passage?

- A Fewer sedimentary rocks will form on Earth.
- B Scientists will no longer study rocks.
- C All rocks on Earth will become igneous rocks.
- D Rocks are constantly forming on Earth.

4. Read this sentence from the passage: "These rocks have a uniform texture."

Based on the text, the word **uniform** means

- A clothing
- B different
- C bumpy
- D even

5. Which statement best describes the central idea of this passage?

- A Scientists recently found a fossil of a 150-million-year-old bird.
- B Earth is covered with many types of rocks, plants, and animals.
- C Dinosaurs may be the ancient ancestors of modern birds.
- D People can learn about the history of Earth by studying fossils.

6. What are the three main types of rock on Earth?

7. How do you think the scientists who found the *Archaeopteryx* fossil felt? Give an example from the article that supports your answer.

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Scientists have discovered fossils of ancient flowers, dinosaurs, _____ other creatures.

- A or
- B for
- C and
- D about

9. Answer the following questions based on the sentence below.

Today, scientists study fossils to understand what Earth was like in the past.

Who? scientists

(do) What? _____

When? _____

Why? _____

10. **Vocabulary Word:** erosion: the stripping away of land and soil.

Use the vocabulary word in a sentence: _____

Teacher Guide and Answers

Passage Reading Level: Lexile 820

Featured Text Structure: Descriptive – the writer explains, defines, or illustrates a concept or topic

Passage Summary: “Dig This!” describes how fossils and rocks are formed and what scientists can learn from them about the history of Earth.

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6. What are the three main types of rock on Earth?

Suggested answer: The three main types of rock on Earth are igneous, sedimentary, and metamorphic rocks. [paragraphs under “Rock On!”]

7. How do you think the scientists who found the *Archaeopteryx* fossil felt? Give an example from the article that supports your answer.

Suggested answer: The scientists were probably excited because the fossil shows that the bird had feet similar to those of the dinosaurs. "This fossil gives scientists more evidence that dinosaurs were the ancient ancestors of modern birds." [paragraph 1]

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Scientists have discovered fossils of ancient flowers, dinosaurs, _____ other creatures.

- A or
- B for
- C **and**
- D about

9. Answer the following questions based on the sentence below.

Today, scientists study fossils to understand what Earth was like in the past.

Who? scientists

(do) What? **study fossils**

When? **today**

Why? **to understand what Earth was like in the past**

10. **Vocabulary Word:** erosion: the stripping away of land and soil.

Use the vocabulary word in a sentence: answers may vary.