

Changes Over Time ■ *Guided Reading and Study*

The Fossil Record

This section explains what fossils are and how fossils give clues about evolution. It also describes the Geologic Time Scale, a calendar of Earth's history.

How Do Fossils Form?

- Circle the letter of each item that can form a fossil.
 - bone
 - shell
 - stone
- Is the following sentence true or false? Most fossils form when organisms that die become buried in sediments.

- Particles of soil and rock are called _____.
- Remains of organisms that are actually changed to rock are called _____ fossils.
- Circle the letter of each sentence that is true about molds and casts.
 - A mold forms when hard parts of an organism buried by sediments are gradually dissolved.
 - A cast is a hollow space in sediment in the shape of an organism.
 - A mold that becomes filled in with hardened materials forms a cast.
 - A cast is a copy of the shape of an organism.
- Is the following sentence true or false? The formation of any fossil is a common event. _____

Determining a Fossil's Age

- Is the following sentence true or false? By determining the age of fossils, scientists can reconstruct the history of life on Earth.

- In what two ways can scientists determine the ages of fossils?
 - _____
 - _____
- In layers of sedimentary rock, the _____ layer is usually at the bottom. Each higher layer is _____ than the layers below it.
- Is the following sentence true or false? Relative dating can only help scientists determine whether one fossil is older than another. _____
- Scientists use unstable elements that decay, called _____ elements, to determine the actual age of a fossil.
- What is the half-life of a radioactive element?

- Potassium-40 breaks down into _____ over time.
- How do scientists use radioactive dating to determine the age of a fossil?

What Do Fossils Reveal?

15. The millions of fossils that scientists have collected are called the _____.
16. Is the following sentence true or false? The remains of all organisms have become fossils. _____
17. How have scientists learned about extinct species?

18. Circle the letter of the largest span of time in the Geologic Time Scale.
a. Precambrian Time
b. eras
c. periods
d. years
19. Look at the illustration of the Geologic Time Scale in your text. What are the names of the three eras?

Unanswered Questions

20. What are mass extinctions?

21. Complete the table below about the two theories of evolution.

How Fast Does Evolution Occur?		
Theory of Evolution	What the Theory Says	Intermediate Forms of Species?
Gradualism		
Punctuated Equilibria		