

Directed Reading

Section: The Fossil Record

- _____ 1. For what geological information are fossils an important source?
 - a. learning whether rock is sedimentary, igneous, or metamorphic
 - b. finding the relative and absolute ages of rocks
 - c. seeing the erosion patterns on ancient rocks
 - d. learning whether rocks have intrusions or faults

- _____ 2. Fossils provide clues to
 - a. past geologic events, climates, and evolution of living things over time.
 - b. past weather, cloud cover, and changes in seasons.
 - c. recent events in human history.
 - d. the earliest development of the solar system.

In the space provided, write the letter of the description that best matches the term or phrase.

- | | |
|---|--|
| _____ 3. fossil | a. the type of rock in which almost all fossils are discovered |
| _____ 4. paleontology | b. the study of fossils |
| _____ 5. sedimentary rock | c. the remains or traces of animals or plants that lived in a previous geologic time |
| _____ 6. igneous or highly metamorphosed rock | d. rock in which fossils are rare |

7. Why are most fossils found in sedimentary rock?

8. Why are fossils so rare in igneous or highly metamorphosed rock?

Directed Reading *continued*

INTERPRETING THE FOSSIL RECORD

9. What type of information does the fossil record provide?

10. How do fossils provide important clues to environmental changes that occurred in Earth's past?

11. What is one way scientists can tell if an area of land was once covered by an ocean?

12. What is one way scientists can use information from fossils?

FOSSILIZATION

13. What usually happens to dead plants or animals?

- a. They become fossils.
- b. They just stay where they are.
- c. They are eaten by other animals or decomposed by bacteria.
- d. Nothing happens to them.

14. Which type of organisms usually become fossils?

- a. organisms that are buried quickly or protected from decay
- b. organisms that are ignored by passing animals
- c. organisms that live in water
- d. organisms that do not have hard outer shells

15. In general, what parts of organisms become fossils?

- a. All parts are equally likely to be fossilized.
- b. hard parts, such as wood, bones, shells, and teeth
- c. soft parts, such as skin and organs
- d. only very hard wood

Directed Reading *continued*

- _____ 16. Why are mummified remains found in very dry places?
- Most bacteria thrive in dry environments.
 - Bacteria do not cause decay in dry environments.
 - Fewer animals live in dry environments.
 - Most bacteria cannot survive in dry environments.
- _____ 17. Which method of fossilization was also used by ancient civilizations?
- petrification
 - excretion
 - mummification
 - deposition
- _____ 18. How are insects preserved in amber?
- They eat tree sap, which preserves their bodies.
 - They become trapped in tree sap, which hardens.
 - They lay eggs in sap, which hatch before the sap hardens.
 - Tree sap is very dry, and few bacteria live in it.
- _____ 19. What material has been recovered from amber in rare cases?
- DNA
 - RNA
 - living insects
 - antennae
- _____ 20. Tar seeps are formed by thick deposits of
- clay.
 - amber.
 - petroleum.
 - silica.
- _____ 21. Why did tar seeps lead animals to become trapped in the sticky tar?
- Tar smells good to animals.
 - Tar seeps are commonly covered by water.
 - Tar seeps are often found in steep holes.
 - Tar seeps are surrounded by food.
- _____ 22. Why does frozen soil preserve organisms?
- Frozen soil has special preserving agents.
 - Frozen soil does not preserve organisms.
 - Fewer organisms live in frozen soil.
 - Bacteria cannot survive in frozen soil.
- _____ 23. Which is a common petrifying mineral?
- talc
 - molybdenum
 - silica
 - gypsum

Directed Reading *continued***TYPES OF FOSSILS**

- _____ 24. A carbon film displays
- an exact, complete form of an organism.
 - internal details of an organism.
 - the hard portions of an organism.
 - the surface features of an organism.
- _____ 25. Which type of fossil is formed when mud fills a mold and turns into rock?
- a carbon film
 - a mold
 - a cast
 - a coprolite
- _____ 26. What does a cast show about an organism?
- It shows how an organism reproduced.
 - It provides an exact replica of the organism.
 - It shows what the organism's natural enemies were.
 - It provides a general idea of the organism's size.
- _____ 27. What type of fossil gives scientists clues about what ancient animals ate?
- | | |
|------------------|----------------|
| a. a carbon film | c. a coprolite |
| b. a cast | d. a mold |
- _____ 28. Gastroliths are commonly found
- in layers of clay.
 - close to dinosaur remains.
 - at the bottoms of tar seeps.
 - in empty pockets within shale.
- _____ 29. A trace fossil is
- fossilized dung or waste materials from ancient animals, such as dinosaurs.
 - fossilized evidence of past animal movement such as tracks, footprints, borings, and burrows.
 - the carbonized residue of a leaf, stem, flower, or fish that was made in soft mud or clay.
 - the complete fossilized body of an ancient animal.
- _____ 30. Scientists study trace fossils to find
- exactly what an animal looked like.
 - precisely what an animal weighed.
 - clues to an animal's appearance and activities.
 - clues to what an animal ate.

Directed Reading *continued*

- _____ 31. Which of the following is an example of a trace fossil?
- a. an intact dinosaur tooth
 - b. a dinosaur's footprint
 - c. a carbon film of a leaf
 - d. a spider in amber
32. From what kinds of animals have scientists found trace fossils of footprints?
- _____
- _____

INDEX FOSSILS

- _____ 33. Fossils that are found only in the rock layers of a particular geologic period are called
- a. trace fossils.
 - b. carbon films.
 - c. index fossils.
 - d. complete fossils.
- _____ 34. Index fossils are found
- a. in a very small geographic area.
 - b. in igneous rocks.
 - c. scattered in rocks over a large region.
 - d. scattered through many layers of rocks.
- _____ 35. What is another feature of an index fossil?
- a. Its features must be recognized as coming from other organisms that became fossils.
 - b. Its features must be equally clear in each of the different fossils found.
 - c. Its features must differ according to the location on Earth in which it is found.
 - d. Its features must clearly distinguish it from other fossils.
- _____ 36. The organisms that form index fossils lived
- a. during a short span of geologic time.
 - b. during a long span of geologic time.
 - c. for about 2 million years.
 - d. over any span of geologic time, long or short.
- _____ 37. How commonly distributed must the fossil of an organism be in order to be considered an index fossil?
- a. The fossil must be rare and unique.
 - b. The fossil must occur in fairly large numbers within the rock layers.
 - c. The fossil may exist in any numbers, but it must be found within many different layers of rock.
 - d. The fossil must occur in small numbers in a very specific location.

Directed Reading *continued*

INDEX FOSSILS AND ABSOLUTE AGE

- _____ 38. Scientists use index fossils to
- a. estimate the relative ages of different rock layers.
 - b. find dividing points in the fossil record.
 - c. determine branches in the development of species.
 - d. estimate absolute ages of specific rock layers.
- _____ 39. Rock layers in which index fossils have been found can be dated accurately because the organisms that formed the index fossils lived
- a. for a long span of geologic time.
 - b. for a short span of geologic time.
 - c. all over Earth.
 - d. in a small part of Earth.
- _____ 40. How old are the rock layers in which ammonite fossils are found?
- a. 100 to 200 million years
 - b. 180 to 206 million years
 - c. 206 to 220 million years
 - d. 220 to 300 million years

41. How can scientists use index fossils to date rock in separate areas?

42. What else do geologists use index fossils to find?
