

Skills Worksheet

Directed Reading B

Section: Time Marches On (pp. 276–283)

THE GEOLOGIC TIME SCALE

4.6 billion years

1. About how many years of Earth's history do geologists study?
- a. 4.6 million years
 - b. 46 million years
 - c. 460 million years
 - d. 4.6 billion years

2. What is the geologic time scale?

The geologic time scale is the standard method used to divide Earth's long natural history into manageable parts.

Match the correct description with the correct term. Write the letter in the space provided.

eon

3. the largest division of the geologic time scale

a. epoch

era

4. the second-largest division of geologic time

b. period

period

5. the third-largest division of geologic time

c. era

epoch

6. the smallest division of geologic time

d. eon

7. What are three ways the boundaries between geologic time intervals are

Most boundaries are defined by the appearance or disappearance of a significant number of species.

Some boundaries are defined by the appearance or disappearance of index fossils.

Other boundaries are defined by major changes in Earth's surface or climate, such as the advance or retreat of glaciers.

8. What are two types of changes that can cause a dramatic increase or decrease in the number of different kinds of organisms?

- 1. increase in competition between species.
- 2. environmental changes, like more or less oxygen in the atmosphere.

9. What is *extinction*?

Extinction is the death of every member of a certain kind of organism.

Directed Reading B *continued*

10. What are two types of gradual changes that can cause mass extinctions?

- 1. climate change
- 2. changes in ocean currents.

11. What is one type of catastrophic change that can cause a mass extinction?

Impact of an asteroid

PRECAMBRIAN TIME—LIFE DEVELOPS

a. 12. About how long did the Precambrian time last?

- a. 4.6 billion years ago to 542 million years ago
- b. 542 million years ago to 251 million years ago
- c. 251 million years ago to 65 million years ago
- d. 65 million years ago to the present

3.6 billion years ago

13. Organisms first appeared in Earth's oceans about

- a. 4.6 billion years ago
- b. 3.6 billion years ago
- c. 542 million years ago
- d. 4.6 million years ago

14. Oxygen gas was released into Earth's early oceans and air by

cyanobacteria, it was photosynthetic

15. How did the formation of ozone in the upper atmosphere help life survive on land?

The formation of ozone absorbed harmful radiation from the sun. This caused a decrease in the amount of radiation hitting the land. Previously life had to live underwater or underground using water or ground as a radiation shield.

16. Organisms composed of many cells may have evolved from

eukaryotes - cells with a nucleus

THE PALEOZOIC ERA

542 mya

17. When did the Paleozoic Era begin?

- a. about 2.6 billion years ago
- b. about 430 million years ago
- c. about 542 million years ago
- d. about 4.5 million years ago

18. Why do scientists know less about organisms before the Paleozoic Era than about organisms during the Paleozoic Era?

Before the Paleozoic Era most organisms lived in the oceans and left few fossils to study today.

Directed Reading B *continued*

19. What was the Cambrian explosion?

The Cambrian explosion was not an actual explosion. It was the appearance of many new and more-complex life-forms. For the first time, some had preservable hard parts such as shells and exoskeletons.

20. What are three types of marine animals that left fossils from the Paleozoic Era?

Sponges, corals, snails, squids, trilobites, and fishes.

21. What type of forests covered much of Earth at the end of the Paleozoic Era?

Forests with ferns and conifers (pine coned trees).

22. What indicates that arthropods such as scorpions were the first land animals?

Fossils

23. What was the largest known mass extinction?

the Permian extinction

24. What was the largest group of animals that became extinct during the Permian extinction?

marine species due to smaller water bodies disappearing

25. According to the fossil record, what are two groups of animals that survived the Permian extinction?

reptiles and amphibians

THE MESOZOIC ERA

251 mya 26. When did the Mesozoic Era begin?

- a. about 2.6 billion years ago
- b. about 251 million years ago
- c. about 542 million years ago
- d. about 430 million years ago

27. The Mesozoic Era is also known as the Age of Reptiles.

28. The best-known reptiles that lived during the Mesozoic Era

are dinosaurs.

Directed Reading B *continued*

29. The most important plants during the early Mesozoic Era were

conifers (pine cone) trees

30. What happened during the Cretaceous-Tertiary extinction?

A large asteroid hit the Earth and caused worldwide fires and dust in the atmosphere from the impact blocked the sunlight. This caused plants and animals to die.

31. What fossil evidence do scientists have for the Cretaceous-Tertiary extinction?

Many fossils from dinosaurs all over the world in the same rock layer are evidence of the K-T extinction.

32. How could an object from our solar system have caused the Cretaceous-Tertiary extinction?

When the asteroid hit the Earth it caused dust and debris to move high into the atmosphere, blocking sunlight. This caused an ice-age where many plants and animals died.

THE CENOZOIC ERA

d. it has not ended

33. When did the Cenozoic Era end?

- a. 40 million years ago
- b. 3.6 million years ago
- c. 542 million years ago
- d. The Cenozoic Era has not ended.

Age of Mammals

34. The Cenozoic Era is sometimes called the

- a. Age of Humans.
- b. Age of Fossils.
- c. Age of Mammals.
- d. Age of Insects.

during the Cenozoic Era

35. Mastodons, camels, horses, and humans first appeared

- a. during the Cenozoic Era.
- b. during the Mesozoic Era.
- c. during the Paleozoic Era.
- d. during the Archean Era.