

Directed Reading

Section: Geologic Time

1. Where can we find evidence of changes in conditions on Earth's surface?

2. What do scientists use to describe the sequence and length of changes in Earth's crust?

3. What is the purpose of the geologic time scale?

THE GEOLOGIC COLUMN

4. What two things did 19th-century scientists do to determine the relative ages of sedimentary rock all over the world?

5. Why did scientists combine their observations of rocks all over the world?

6. The ordered arrangement of rock layers is called a(n)

7. In a geologic column, the oldest rocks are located at the _____ of the column.

8. What two things distinguish rock layers in a geologic column?

9. How do the fossils in the upper layers of a geologic column differ from those in the lower, older layers?

Directed Reading *continued*

10. Many of the fossils that have been discovered in the oldest layers of rock are from species that have been _____ for millions of years.

11. When the first geologic columns were developed, what was a factor scientists used to estimate the ages of rock layers?

12. What method has enabled scientists to determine the ages of rock layers more accurately?

13. Suppose a scientist wants to determine the age of a rock layer with a geologic column. With what does the scientist compare the rock layer?

14. Suppose a layer of rock matches a layer in the geologic column. What does this tell a scientist?

DIVISIONS OF GEOLOGIC TIME

15. What three indicators do geologists use to divide the geologic time scale into smaller units?

16. How are rocks that are grouped within each unit of geologic time similar?

17. A unit of geologic time is usually characterized by _____ of a dominant life-form.

18. What does the abbreviation *Ma* stand for?

19. When did Precambrian time begin?

20. What species were common during the Cambrian Period?

Directed Reading *continued*

21. What type of organism appeared during the Ordovician Period?

22. When did the Silurian Period begin?

23. During which period did the age of fishes begin?

24. In what era was the Carboniferous Period?

25. In North America, into what two periods is the Carboniferous Period divided?

26. Which life-form dominated the Jurassic Period?

27. What marked the end of the Mesozoic Era?

28. In what epoch did the age of mammals begin?

29. When did the Eocene Epoch begin?

30. In what epoch did large carnivores appear?

31. In what period was the Pleistocene Epoch?

32. In what epoch did complex human societies develop?

33. The largest unit of geologic time is called a(n) _____.
34. Name the four eons into which geologic time is divided.

35. The Hadean Eon, the Archean Eon, and the Proterozoic Eon make up an interval called _____.

Directed Reading *continued*

36. Why is it difficult to divide Precambrian time into smaller time units?

37. An eon is divided into smaller units of geologic time called _____

38. The first era of the Phanerozoic Eon was the _____.

39. The Paleozoic Era lasted about _____.

40. What kinds of fossils are found in rocks from the Paleozoic Era?

41. The era after the Paleozoic Era was the _____.

42. What kinds of fossils are found in rocks from the Mesozoic Era?

43. The present geologic era is called the _____.

44. When did the present geologic era begin?

45. What kinds of fossils are common in Cenozoic rocks?

46. An era is divided into shorter time units called _____.

47. How do geologic periods get their names?

48. A period may be divided into smaller units called _____.

49. Why can't scientists always divide a period into epochs?

50. An epoch may be divided into shorter units called _____.

51. How is an age defined?
