

## 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 19<sup>th</sup> 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 a rock layer 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?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Many of the fossils that have been discovered in the oldest layers of rock have been \_\_\_\_\_ for millions of years.
11. When the first geologic columns were developed, what factors did scientists use 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 on 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?  
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\_\_\_\_\_
16. How are rocks 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?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Directed Reading continued**

21. What happened to the atmosphere 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. What was the dominant life-form of the Jurassic Period?  
\_\_\_\_\_
27. What marked the end of the Mesozoic Era?  
\_\_\_\_\_
28. In which 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 \_\_\_\_\_.  
\_\_\_\_\_

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**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 scientists not always divide a period into epochs?  
\_\_\_\_\_  
\_\_\_\_\_
50. An epoch may be divided into shorter units called \_\_\_\_\_.  
\_\_\_\_\_
51. How is an age defined?  
\_\_\_\_\_  
\_\_\_\_\_