

Chapter 12 Geologic Time

# Section 12.4 The Geologic Time Scale

*This section discusses the geologic time scale and difficulties with constructing it.*

## Reading Strategy

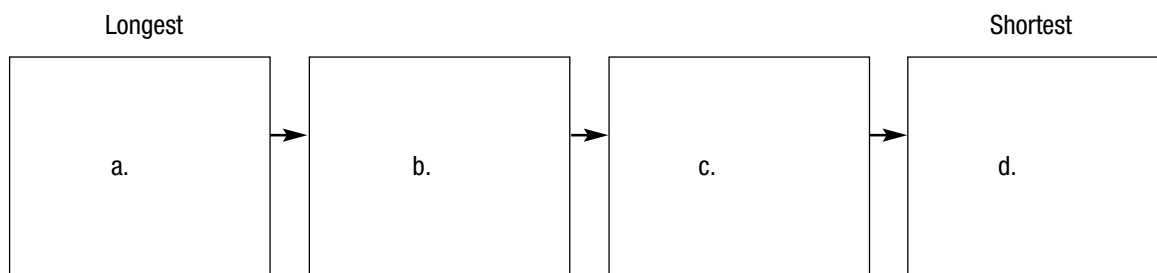
**Outlining** As you read, complete the outline of the important ideas in this section. Use the green headings as the main topics and fill in details from the remainder of the text. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

The Geologic Time Scale	
I. Structure of the Time Scale	
A. _____	
B. _____	
C. _____	
D. _____	
II. _____	
A. _____	
B. _____	
C. _____	
III. _____	
A. _____	
_____	
B. _____	
_____	

1. 🗣️ What is the geologic time scale? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Structure of the Time Scale

2. 🗣️ Complete the following flowchart with the types of subdivisions of the geologic time scale, from longest to shortest expanse of time.



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3. The eon called the \_\_\_\_\_ began about 540 million years ago.
4. ➔ Circle the letter of the eras into which the Phanerozoic is divided.
  - a. epoch, period, eon
  - b. Proterozoic, Archean, Hadean
  - c. Triassic, Jurassic, Cretaceous
  - d. Paleozoic, Mesozoic, Cenozoic
5. ➔ Is the following sentence true or false? Periods such as the Tertiary are characterized by more profound life-form changes than those of eras. \_\_\_\_\_

### Precambrian Time

6. Is the following sentence true or false? The Precambrian represents a much longer part of Earth's history than the Phanerozoic.  
\_\_\_\_\_
7. ➔ Why do geologists know so little about Precambrian history?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

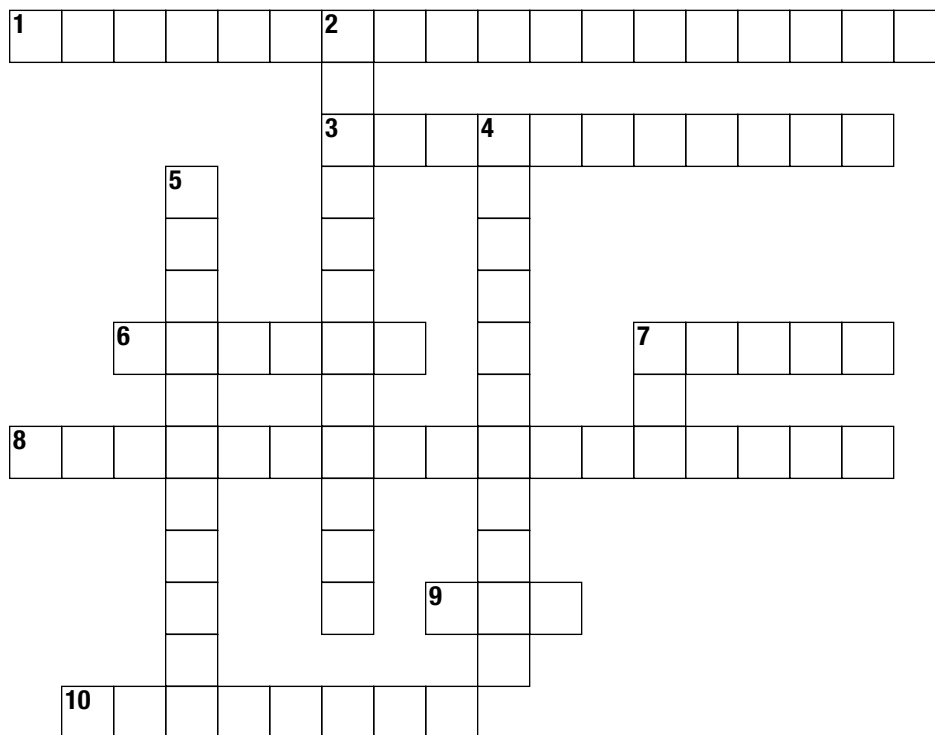
### Difficulties with the Geologic Time Scale

8. ➔ Circle the letter of one reason why radiometric dating of sedimentary rocks is rarely accurate.
  - a. Radioactive particles in sedimentary rocks are older than the rocks containing them.
  - b. Radioactive particles in sedimentary rocks are younger than the rocks containing them.
  - c. The radiometric date may indicate when the rock was metamorphosed, not formed.
  - d. Radiometric dating is not accurate for any rock that has been weathered.
9. ➔ Circle the letter of one reason why radiometric dating of metamorphic rocks is rarely accurate.
  - a. Radiometric dating is not accurate for any rock that has been uplifted.
  - b. Radiometric dating is not accurate for any rock that has been under pressure.
  - c. The radiometric date may indicate when the rock was metamorphosed, not formed.
  - d. The radiometric date may indicate when the rock was formed, not metamorphosed.
10. Geologists usually assign numerical dates to sedimentary rock layers by relating them to \_\_\_\_\_ rock masses that can be dated.

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**WordWise**

Test your knowledge of vocabulary terms from Chapter 12 by completing this crossword puzzle.



**Clues across:**

1. states that in an undeformed sequence of sedimentary rocks, each bed is older than the one above it
3. task of matching up rocks of similar age in different regions
6. subdivision of an era
7. shorter than a period on the geologic time scale
8. principle that states that the same physical, chemical, and biological laws operate today as in the past
9. greatest expanse of time on the geologic time scale
10. time when one half of a parent isotope is decayed

**Clues down:**

7. expanse of time (example: Paleozoic)
2. represents a break in the rock record
4. \_\_\_\_\_ dating: method of using carbon-14 to find the age of dead organisms
5. time indicator that is a particularly useful means of correlating rocks of similar age in different regions