

# Chapter Review

Key

## USING KEY TERMS

1. In your own words, write a definition for each of the following terms:  
*superposition, geologic column, and geologic time scale.*

Superposition: States older rocks are below younger rocks

Geo. Column: Ideal sequence of rock layers containing all known fossils

Geo. Time Scale: Scale that divides Earth's 4.6 billion year history into smaller distinct intervals of time. *rock formations*

For each pair of terms, explain how the meanings of the terms differ.

2. *uniformitarianism* and *catastrophism*

↳ Gradual change today and in the past  
 vs. Change is sudden & drastic

3. *relative dating* and *absolute dating*

relative → give age in relation to surrounding rock  
 absolute → Exact age based on radioactive decay

4. *trace fossil* and *index fossil*

Trace Fossil → records life activities of organisms

Index → fossil of organism that lived for short time, & it's used to establish age of rock layer

## UNDERSTANDING KEY IDEAS

### Multiple Choice

D 5. Which of the following does not describe catastrophic change?

- a. widespread
- b. sudden
- c. rare
- d. gradual

B 6. Scientists assign relative ages by using

- a. absolute dating.
- b. the principle of superposition.
- c. radioactive half-lives.
- d. carbon-14 dating.

**Chapter Review** *continued*

- D** 7. Which of the following is a trace fossil?  
 a. an insect preserved in amber  
 b. a mammoth frozen in ice  
 c. wood replaced by minerals  
 d. a dinosaur trackway
- C** 8. The largest divisions of geologic time are called  
 a. periods. c. eons.  
 b. eras. d. epochs.
- B** 9. Rock layers cut by a fault formed  
 a. after the fault.  
 b. before the fault.  
 c. at the same time as the fault.  
 d. There is not enough information to determine the answer.
- C** 10. Of the following isotopes, which is stable?  
 a. uranium-238 c. carbon-12  
 b. potassium-40 d. carbon-14
- C** 11. A surface that represents a missing part of the geologic column is called a(n)  
 a. intrusion. c. unconformity.  
 b. fault. d. fold.
- A** 12. Which method of radiometric dating is used mainly to date the remains of organisms that lived within the last 50,000 years?  
 a. carbon-14 dating  
 b. potassium-argon dating  
 c. uranium-lead dating  
 d. rubidium-strontium dating

**Short Answer**

13. Describe three processes by which fossils form.

*Petrification, mineral replacement*  
*Trapped in tree sap*  
*Sediments that slows decay*

14. Identify the role of uniformitarianism in Earth science.

*Guiding principal of Earth Sci Process we see today have been shaping Earth throughout its history.*

15. Explain how radioactive decay occurs:

- Ⓟ Occurs as unstable isotope breaks down to stable isotope.
- Loses electron & neutron becomes a proton.
- makes new element.

16. Describe TWO WAYS in which scientists use fossils to determine environmental change:

- Reconstruct past climate
- where bodies of water were present, depth

17. Explain how paleontologists help us to understand the history of the Earth:

They piece together the history of life on Earth using fossils as

18. If you are trying to age rocks or fossils using relative dating, explain the principles you would use to put the pieces of the puzzle together:

- Faunal Succession
  - Superposition
  - Horizontality
- Crosscutting

19. How have changes in environmental conditions affected the survival of a species? Give two examples!

- Can eliminate species habitat, can't survive
- Global climate change & changes in ocean currents can cause extinction of sp.

20. Describe what Alaska was like at the time of the dinosaurs AND how we know this:

- Climate warmer, Saguaro, cypripis, giant ferns
- Darker, ~~we~~ we know from fossils

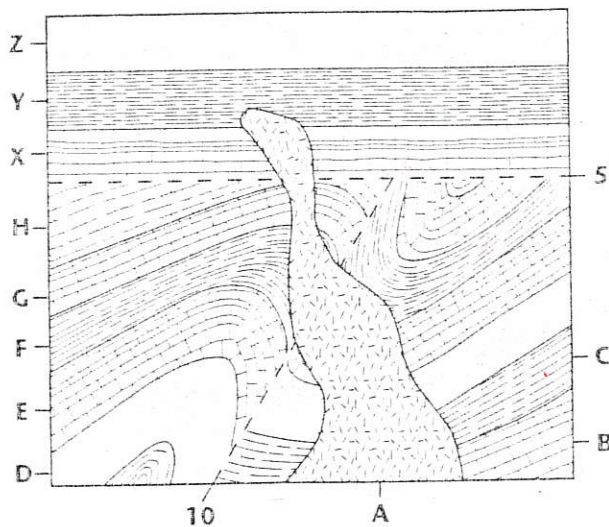
**Chapter Review** *continued*

**21. Analyzing Processes** Why isn't a 100 million-year-old fossilized tree made of wood?

*Tissue has been completely replaced by minerals.*

**INTERPRETING GRAPHICS**

Use the diagram below to answer the questions that follow.



**22.** Is intrusion A younger or older than layer X? Explain.

*Younger*

**23.** What feature is marked by 5?

*Angular Conformity*

**24.** Is intrusion A younger or older than fault 10? Explain.

*A is younger, not disturbed by fault*

**25.** Other than the intrusion and faulting, what event happened in layers B, C, D, E, F, G, and H? Number this event, the intrusion, and the faulting in the order that they happened.

*Folding. 1) Folding occurred, 2) Fault occurred, 3) X + Y deposited, 4) intrusion occurred*