

Directed Reading B *continued*

MODERN GEOLOGY—A HAPPY MEDIUM

9. During the late 20th century, scientists challenged uniformitarianism again. What do these scientists believe about catastrophes?

Scientists realized that some catastrophes such as meteor impacts can cause big craters in the Earth and greatly change a local geographical area. For example the Barringer crater on page 233 in the book was once thought to have been a slow volcanic landform and was proven to have been a quick meteor impact.

10. What present-day evidence suggests that the extinction of dinosaurs was the result of a catastrophic event?

The Chiksaloo crater near the Gulf of Mexico and the Yucatan peninsula is believed to be the site of a huge meteor impact 65 million years ago. This impact splashed enough dust and debris in the air to cause a global ice age causing the dinosaurs to go extinct.

PALEONTOLOGY—THE STUDY OF PAST LIFE

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

- | | | |
|-----------------|--|--------------------|
| paleontology | 11. the study of past life using fossils | a. paleontology |
| paleontologists | 12. scientists who study past life using fossils | b. fossils |
| fossils | 13. remains of organisms preserved by geologic processes | c. paleontologists |

Skills Worksheet

Directed Reading B

Section: Relative Dating (pp. 238–245)

relative dating

1. Determining the age of objects or events in relation to other objects or events is called
 - a. relative sequencing.
 - b. relative dating.
 - c. relative history.
 - d. relative geology.

THE ROCK CYCLE

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

sedimentary rock

2. forms from rock fragments

a. igneous rock

igneous rock

3. forms when magma cools

b. metamorphic rock

metamorphic rock

4. forms when solid rock changes to another type of rock due to temperature or pressure changes

c. sedimentary rock

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

lithification also means stone making

lithification

5. Sediment is hardened into sedimentary rock.

a. weathering

erosion

6. This moves sediment from one place to another.

b. erosion

weathering

7. Rock is broken down into smaller pieces.

c. deposition

deposition

8. Material is laid down or dropped.

d. lithification

THE PRINCIPLE OF SUPERPOSITION

younger rocks lie above older rocks

This is called the law of superposition

9. As long as a sequence of rock layers is undisturbed, scientists know that
 - a. older rocks lie above younger rocks.
 - b. younger rocks lie below older rocks.
 - c. younger rocks lie above older rocks.
 - d. older rocks have eroded away.

Directed Reading B *continued*

superposition

10. The principle that states that younger rocks lie above older rocks in undisturbed sequences is called
- a. relative dating.
 - b. superposition.
 - c. uniformitarianism.
 - d. catastrophism.

DISTURBED ROCK LAYERS

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

fault

11. a break in Earth's crust along which blocks of crust slide relative to one another

- a. superposition
- b. folding

superposition

12. younger sediment deposited on top of older layers

- c. fault
- d. tilting

intrusion

13. molten rock that has squeezed into existing rock and hardened

- e. intrusion

folding

14. rock layers bent and buckled by Earth's internal forces

tilting

15. rock layers slanted by Earth's internal forces but without folding

16. When a layer or several layers of rock are missing from a rock-layer

sequence, this is called a(n) unconformity.

17. Name two possible explanations for a missing layer in a rock-layer sequence.

Nondeposition - the sediment supply is cut off and deposition stops for a period of time.
Erosion - the area is uplifted and exposed to wind and water and the layer becomes thinner.

18. An unconformity is created when an area is uplifted and exposed to

erosion

_____ by wind and water.

ROCK-LAYER PUZZLES

19. Why is a crosscutting feature always younger than the rock layers it cuts across?

The layers of rock have to be in place before anything can disturb them. Therefore, the crosscutting intrusion is younger than the pre-existing rock layers.

Directed Reading B *continued*

20. How do geologists figure out rock-layer puzzles?

They use three dimensional models and computer graphics, to put rocks back into place as they would have existed in earlier time according to the laws of superposition and crosscutting.

ORDER OF EVENTS

21. Geologists use superposition and crosscutting relationships to find what?

The order of events

22. Can relative dating tell geologists exactly when events took place? Explain your answer.

Not exactly, but relative to other events they can create a relative timeline.