

Skills Worksheet

Directed Reading B

Section: Earth's Changing Continents (pp. 270–275)

PLATE TECTONICS

plate tectonics

1. The theory that explains how Earth's tectonic plates move and change shape is called
- a. continental drift.
 - b. tectonic drift.
 - c. plate theory.
 - d. plate tectonics.

2. The thin, cool "skin" of Earth is called the lithosphere.

3. Tectonic plates rest on a thick layer of slowly moving, solid rock called the mantle.

4. How fast do tectonic plates move?

one to two inches per year

5. Why can tectonic plates move thousands of miles?

They move for millions of years

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

plate boundary

6. where two or more tectonic plates collide, separate, or grind past each other

a. divergent boundary

convergent boundary

7. where tectonic plates move toward each other

b. transform boundary

mountain belt

8. formed where plates of continental lithosphere are forced together, then crumple

c. mountain belt

line of volcanoes

9. formed where dense oceanic lithosphere sinks under continental lithosphere

d. earthquake

e. convergent boundary

divergent boundary

10. where tectonic plates move apart

f. rift

rift

11. formed when plates move apart; can widen for millions of years to form a new ocean

g. plate boundary

h. line of volcanoes

transform boundary

12. where tectonic plates slide past each other horizontally

earthquake

13. caused by the horizontal movement of plates in areas like the San Andreas fault

Directed Reading B *continued*

CONTINENTAL DRIFT

continental drift

- 14.** The continents once formed a single landmass, broke up, and drifted to their present locations because of
- a. tectonic drift.
 - b. plate tectonics.
 - c. continental drift.
 - d. continental tectonics.

it carries rocks and fossils with it

- 15.** As a continent moves across Earth's surface,
- a. it carries oceans with it.
 - b. it carries rocks and fossils with it.
 - c. rocks and fossils fall off it.
 - d. it carries lithosphere with it.

- 16.** What evidence from rocks shows that India, South America, and Africa were part of a single landmass located near the South Pole about 280 million years ago?

The same layers of rocks are found in the same sequence (order) on all three of those continents. Also glacier tracks match up in these continents.

- 17.** How does finding *Mesosaurus* fossils in South America and southwestern Africa show that the continents of South America and Africa were joined?

There was one large population of Mesosaurus walking and dying on Pangaea then when South America and Africa broke away and moved from Pangaea, these two continents carried the fossils of Mesosaurus to their current locations.

HISTORY OF CONTINENTAL DRIFT

Pangaea

- 18.** About 245 million years ago, all of Earth's continents made up a supercontinent called
- a. Pandora.
 - b. Godwanaland.
 - c. Eurasia.
 - d. Pangaea.

split into several new plates

- 19.** Beginning about 200 million years ago, the supercontinent Pangea
- a. split into several new plates.
 - b. joined with another supercontinent.
 - c. was destroyed and reformed.
 - d. began to be surrounded by a superocean.

Directed Reading B *continued*

a new ocean formed between them, the Atlantic Ocean

- 20.** When Pangaea's new plates drifted apart and those new continents separated,
- a.** a superocean formed between them.
 - b.** tectonic plates stopped moving between them.
 - c.** new continents formed between them.
 - d.** a new ocean formed between them.

- 21.** What happened to rocks and fossils as the tectonic plates separated and drifted apart?

The rocks and fossils were carried along with the plates to new locations.

- 22.** If continents moved toward the equator because of continental drift, what happened to their climates?

Their climates would get warmer and wetter

- 23.** How did continental drift affect temperature and precipitation patterns around the planet?

Some continents moved to colder latitudes and others moved to warmer tropical latitudes and got more rain.

- 24.** How did Antarctica become the icy land we see today?

The continent of Antarctica drifted to the south pole.

- 25.** How does the theory of continental drift explain why different organisms live on different continents?

When populations of Pangaea living organisms became separated by continental drift. The geographic isolation prevented them from breeding between two new populations. This caused the forces of evolution to work independently to create two new species.

- 26.** How does the theory of continental drift explain changes to sea life when new oceans formed?

New seas were formed between continents and some continents served as land blockades preventing access from outside species. This created an aquatic isolation that allowed sea life to evolve into new species.

Directed Reading B *continued*

27. How does the theory of continental drift explain why fossils of the same organisms are found on different continents?

The theory of continental drifts begins with the supercontinent Pangaea. Inhabitants of Pangaea died and left their fossils in the ground which then separated into new continents. The new continents took their fossil record with them.

CASE STUDY: THE PANAMA LAND BRIDGE

The Panama land bridge

28. About 3 million years ago, what narrow strip of land joined North and South America for the first time?

- a. the Panama Canal
- b. the Island of Panama
- c. the Pangaea Land Bridge
- d. the Panama Land Bridge

29. What are two types of animals that crossed the Panama Land Bridge from South America to North America?

Opossums, armadillos.

30. What are two types of animals that crossed the Panama Land Bridge from North America to South America?

camels, cats

31. What happened to some populations of clams, snails, corals, and sea urchins that became separated by the Panama Land Bridge?

They evolved into separate species

32. How was the Gulf Stream formed?

Ocean currents became deflected upwards by the Panama land bridge to form the gulf stream.

33. How was the climate of Western Europe affected by the Gulf Stream?

Warm water was transported along the Gulf stream across the Atlantic ocean and helped to make Western Europe warmer.