Chapter 10 Plate Tectonics Answer Key

SECTION 1 CONTINENTAL DRIFT

Review

1. If the sea floor is moving apart at ridges, the continents could be carried along with the sea floor.
2. They were probably expecting to find very thick sediment on the ocean floor. The sediment on the ocean floor gets thicker as the ocean floor gets older.
3. During a magnetic reversal, the red end of a compass needle would point toward the south pole.
4. Fossils of the same living things are found on continents that are far apart today.
The living things could not have traveled between the continents in their current positions. If the continents were once joined together, the living things could have lived on the supercontinent. The fossils could have been carried along when the continents split apart.
5. They observed that there were "stripes" of normal and reversed magnetic fields on both sides othe ridge. The pattern was the same on both sides.

SECTION 2 THE THEORY OF PLATE TECTONICS

Review

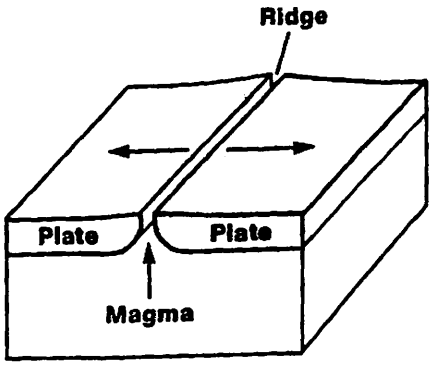
1. transform boundaries only: plates slide past one another transform boundaries and convergent boundaries: earthquakes common convergent boundaries only: plates move together; subduction can occur transform boundaries and divergent boundaries: found at mid-ocean ridges divergent boundaries only: plates move apart; new lithosphere forms divergent boundaries and convergent boundaries: volcanoes common; mountains common divergent boundaries, convergent boundaries, and transform boundaries: involve two plates
2. Subduction is the sinking of one plate beneath another. As the edge of the plate sinks into the asthenosphere, it pulls the rest of the plate with it. This process is slab pull. Sea-floor spreading is the process in which new ocean lithosphere forms at a mid-ocean ridge. As the new lithosphere forms, it pushes the old lithosphere apart. This process is ridge push.

SECTION 3 THE CHANGING CONTINENTS

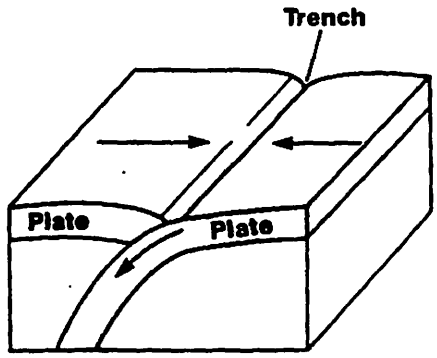
Review

1. Pangaea was a supercontinent that existed from about 300 million years ago to about 200 million years ago. Panthalassa was the ocean that surrounded Pangaea.
2. Accretion causes continents to grow. At convergent margins, plates sink into the asthenosphere. As the plates sink, any terranes on them are scraped off onto the edge of the continent on the other plate. The terranes become part of the continent and make it larger.
3. The positions of the continents affect how ocean water moves. When the continents are in different positions, the water moves differently. Ocean water affects climate, so when ocean water moves differently, climate can change.
4. The very old rocks are probably found at the centers of the continents, in the cratons. Cratons are all very old. The rocks on the edges of continents are terranes, which are generally younger than cratons.
5. In the supercontinent cycle, supercontinents break apart, and the pieces eventually rejoin. As the plates move together (convergent boundary), the continents on them get closer together. Eventually, the continents collide to form a supercontinent. Divergent boundaries form when the supercontinent begins to break apart.

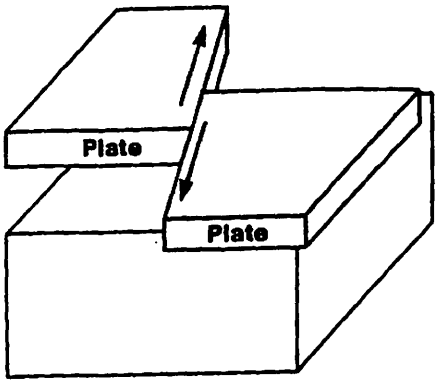
'art B. The diagrams below illustrate some of the concepts in the Plate Tectonic Theory. Label ach diagram. Then answer the the questions.



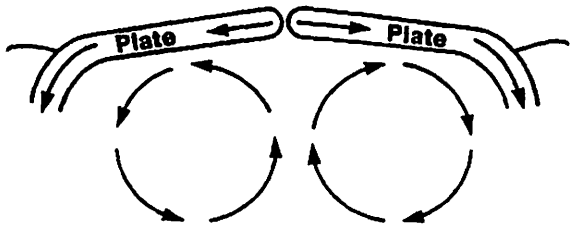
a. Divergent boundary



b. Convergent boundary



c. Transform boundary



d. Convection currents (cells)

1. What is a plate boundary? blocks of Earth's crust that interact with other blocks
2. Where would two plates move apart at mid-ocean ridges? Mid Atlantic Ridge
3. What forms in the rifts of spreading boundaries? New crust
4. What might happen when two plates bump into each other? one plate may subduct They collide & pile up
5. What forms where an oceanic plate begins to move down in a subduction zone? Deep ocean trench
6. Pressures along boundaries of colliding sections of continental crust may fold rock layers, producing what landforms? Mountain ranges
7. What two plates meet at the San Andreas fault? North American & Pacific
8. What type of boundary is the San Andreas fault? Transform
9. Convection currents transfer heat through gases or liquids.

CHAPTER 10

NAME_____ CLASS_____ DATE_____

WORKSHEET

Vocabulary

The number beneath each blank represents a letter, as shown in this code:

1 = A	5 = E	9 = I	13 = M	17 = Q	21 = U	25 = Y
2 = B	6 = F	10 = J	14 = N	18 = R	22 = V	26 = Z
3 = C	7 = G	11 = K	15 = O	19 = S	23 = W	
4 = D	8 = H	12 = L	16 = P	20 = T	24 = X	

To find the coded terms, write the appropriate letter on each blank. Then, in the space before each numbered item, write the letter of the definition below or on the next page that matches the decoded term.

G 1. DIVERGING
4 9 22 5 18 7 9 14 7

F 2. ASTHENOSPHERE
1 19 20 8 5 14 15 19 16 8 5 18 5

C 3. FAULT
6 1 21 12 20

A 4. LITHOSPHERE
12 9 20 8 15 19 16 8 5 18 5

E 5. CRATON
3 18 1 20 15 14

J 6. COLLISION
3 15 12 12 9 19 9 15 14

H 7. PLATE TECTONICS
16 12 1 20 5 20 5 3 20 15 14 9 3 19

I 8. TERRANE
20 5 18 18 1 14 5

B 9. SPREADING CENTERS
19 16 18 5 1 4 9 14 7 3 5 14 20 5 18 19

D 10. CONVERGING
3 15 14 22 5 18 7 9 14 7

K 11. THIN-SKINNED THRUSTING
20 8 9 14 19 11 9 14 14 5 4 20 8 18 21 19 20 9 14 7

L 12. SUBDUCTION
19 21 2 4 21 3 20 9 15 14

a. the crust and upper mantle
b. areas where plates separate and lava wells up from deep within Earth
c. break or crack in Earth's crust along which movement has occurred
d. boundary where two lithospheric plates come together
e. ancient core of a continent
f. upper, partially melted portion of the mantle
g. boundary where two lithospheric plates move apart
h. study of the formation and movement of lithospheric plates

i. large block of lithospheric plate that has been moved and attached to the edge of a continent
j. boundary formed by two converging plates, each carrying a continent
k. pushing of sheets of rock from continental margins along nearly level fault surfaces
l. boundary that occurs where one plate plunges under a second overriding plate

Interpreting and Applying

Each diagram in Figure 13.1 illustrates the activity that occurs at a particular type of plate boundary. Draw an arrow above each plate to indicate its direction of relative motion. Then match the descriptions in Questions 13–16 with the plate boundaries in Figure 13.1. Write the number of the matching diagram in the space provided.

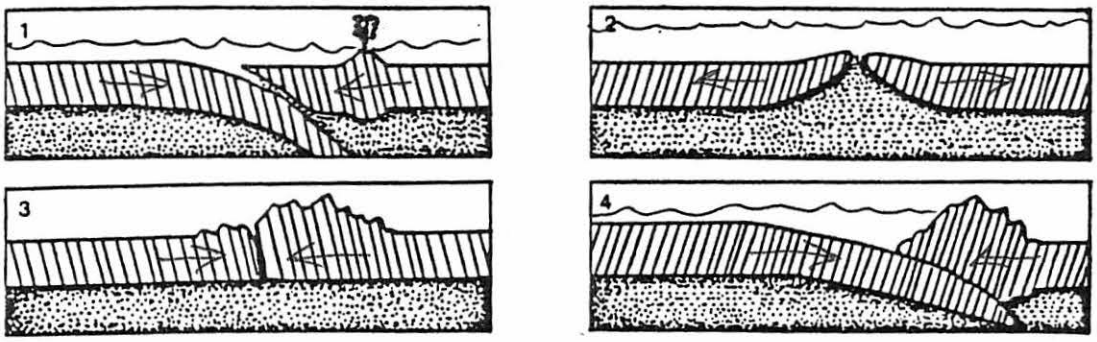


Figure 13.1

13. 3 two continental plates converging
14. 4 a continental plate converging with an ocean plate
15. 2 two plates moving apart
16. 1 two ocean plates coming together

Figure 13.2 shows a section of the ocean floor and its striped pattern of magnetic polarity. The dark bands represent normal polarity. The center point of the section is at a spreading plate boundary. Use the figure and the information in Chapter 13 to answer Questions 17–21.

17. How many episodes of normal polarity are represented? 2
18. How many episodes of reverse polarity are represented? 1
19. In which direction is band D moving? Right
20. Which of the bands are of the same age? A & E, B & D
21. Which band or bands are oldest? A & E

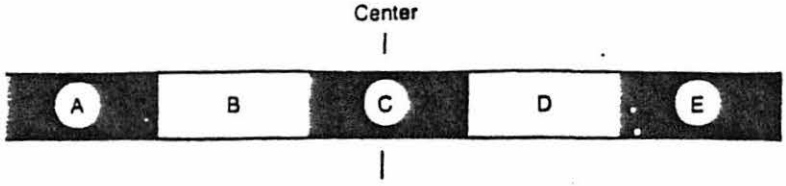


Figure 13.2