Crustal Movements

There are many evidences that prove Earth's lithosphere has moved in the past. Displaced rock layers provide evidence for crustal movements. For example, marine fossil shells have been found high in the mountains, suggesting that this land was once below sea level and later uplifted. Some rock layers are observed to be **folded** (bent), tilted, or **faulted** (cracked).

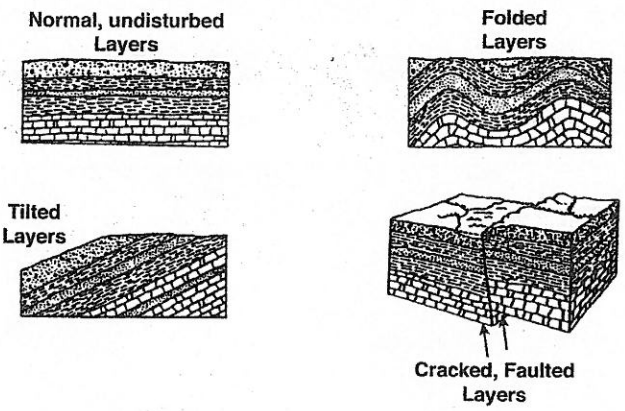

FIGURE 9.
CRUSTAL MOVEMENTS

Major crustal movements have affected large portions of Earth's lithosphere. The ***Theory of Continental Drift*** states that the present positions of the continents are different from those of the past. The continents were and still are moving. Evidence that the continents were once together is that the continents fit together like pieces of a jig-saw puzzle and there are similar fossils among different continents. Today, the continents have different plants and animals.

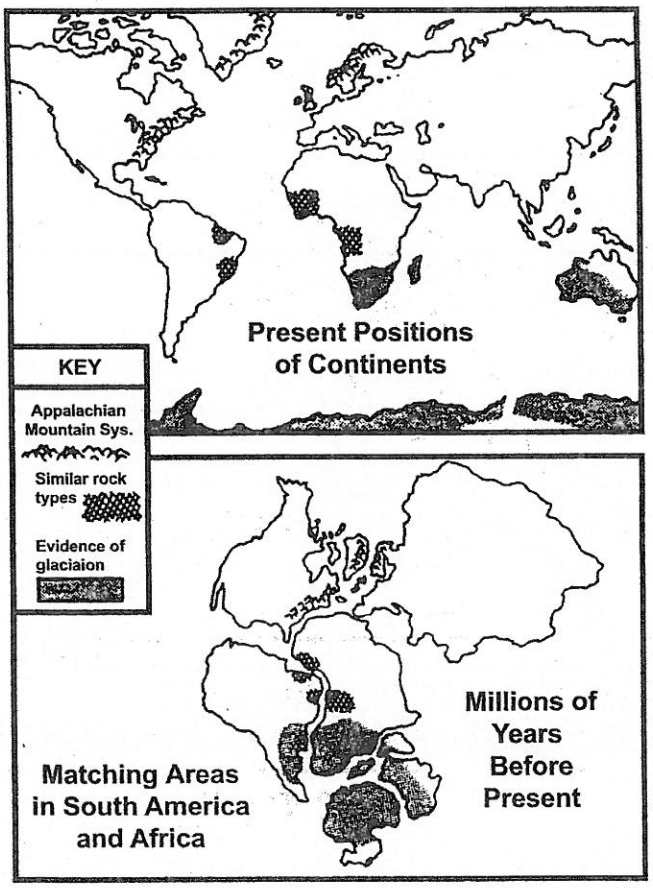

FIGURE 10. EVIDENCE FOR CONTINENTAL DRIFT

The ***Theory of Plate Tectonics*** explains that Earth's lithosphere is divided into a series of plates that "float" on the partially melted section of the upper mantle. The plates are constantly in motion due to **convection currents** in the mantle. Convection currents are caused by density differences. The flow of these convection currents move Earth's crust. Plate tectonics provides the mechanism that moves the continents.

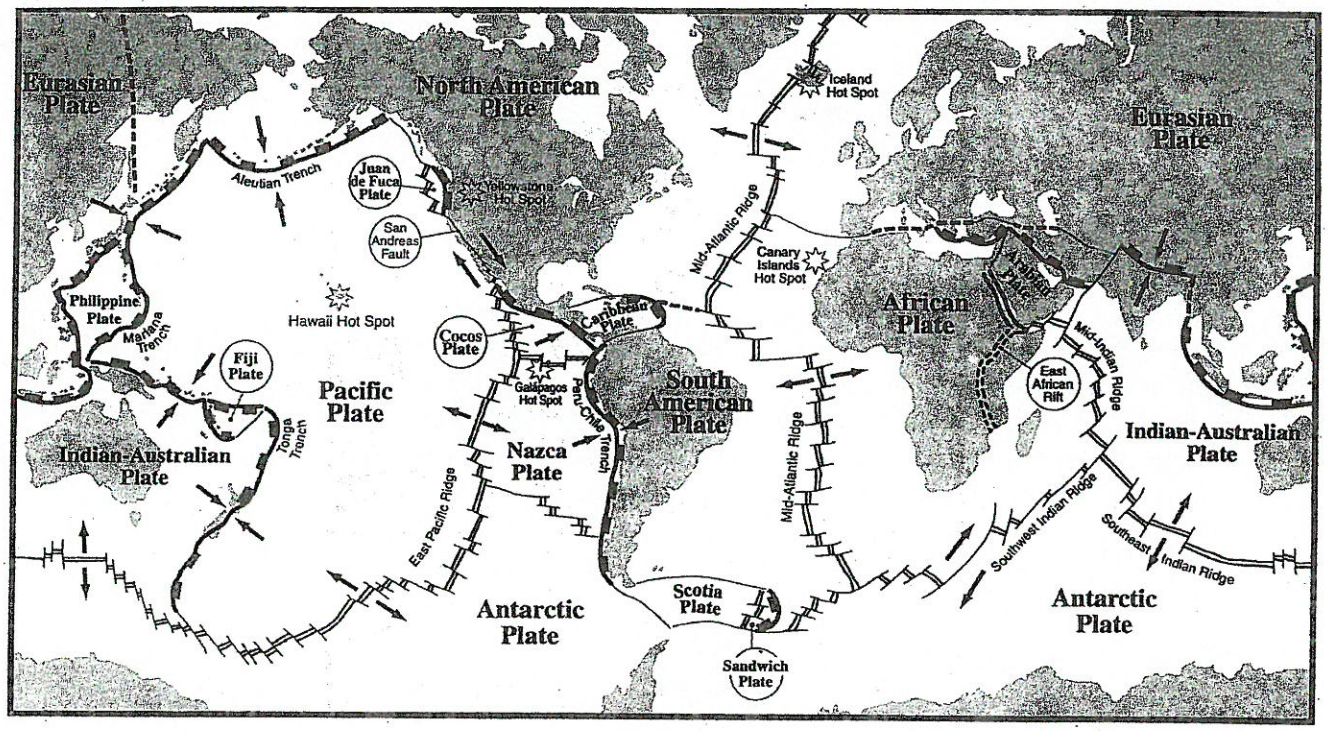

FIGURE 11. LITHOSPHERE PLATES

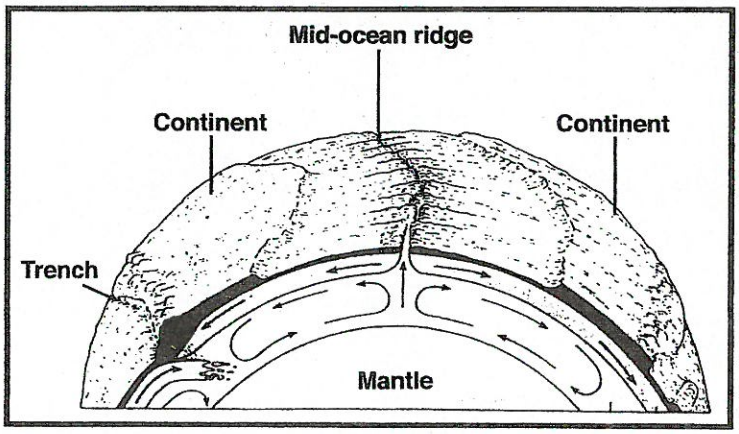

FIGURE 12. MANTLE CONVECTION CURRENTS

Crustal plates may collide or subduct and form mountains, slide past each other in fault zones, or move away from each other forming new ocean basins. The edges of plates are geologically active zones of crustal movement where earthquakes, volcanoes, and new mountains occur.

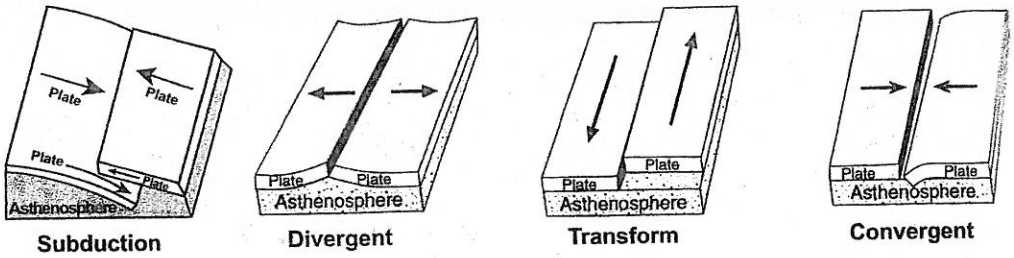

FIGURE 13. INTERACTIONS BETWEEN CRUSTAL PLATES

Review Questions

19. Folded, faulted, and tilted rock layers suggest that Earth's crust _____.

20. Evidence that the continents were once together is that their outlines appear to _____ together.

21. Another evidence that the continents were once together is that they have many of the same _____.

22. The *Theory of Plate Tectonics* describes Earth's lithosphere as being divided into separate sections called _____.

23. When two plates collide a _____ may form.

24. Volcanoes and earthquakes are common along the _____ of plates.