

1. In what ways might the concept of continental drift be compared to a jigsaw puzzle?
2. If Alfred Wegener had found identical fossil remains of plants and animals that had lived no more than 10 million years ago in both eastern Brazil and western Africa, what might he have concluded about the breakup of Pangaea?
3. Assume that the total surface area of the earth is not changing. If new material is being added to the earth's crust at one boundary, what would you expect to find happening at another boundary?
4. Explain the following statement: Due to the action of convection currents, the ocean floor is constantly renewing itself.

Critical Thinking

- On your own paper, write answers to the following questions.
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 3. Assume that the total surface area of the earth is not changing. If new material is being added to the earth's crust at one boundary, what would you expect to find happening at another boundary?
 4. Explain the following statement: Due to the action of convection currents, the ocean floor is constantly renewing itself.
6. The layer of mantle with plastic rock that underlies and moves the plates is called the
 - a. lithosphere.
 - b. asthenosphere.
 - c. oceanic crust.
 - d. terrane.
 7. To date, scientists have identified approximately
 - a. 5 plates.
 - b. 30 plates.
 - c. 15 plates.
 - d. 50 plates.
 8. Two plates moving away from each other form a
 - a. transform fault boundary.
 - b. convergent boundary.
 - c. fracture.
 - d. divergent boundary.
 9. The collision of one lithospheric plate with another forms a
 - a. convergent boundary.
 - b. transform fault boundary.
 - c. rift valley.
 - d. divergent boundary.
 10. The region along lithospheric plate boundaries where one plate is moved beneath another is called a
 - a. rift valley.
 - b. transform fault boundary.
 - c. subduction zone.
 - d. convergent boundary.
 11. Two plates grind past each other at a
 - a. transform fault boundary.
 - b. convergent boundary.
 - c. subduction zone.
 - d. divergent boundary.
 12. Convection occurs because heated material becomes
 - a. less dense and rises.
 - b. more dense and rises.
 - c. more dense and sinks.
 - d. less dense and sinks.
 13. Scientists think that the convection currents that are responsible for the movement of lithospheric plates are found in the
 - a. lithosphere.
 - b. asthenosphere.
 - c. terranes.
 - d. rift valleys.
 14. Geologists think that portions of the continents are made up of formerly separate pieces of lithosphere called
 - a. terranes.
 - b. plates.
 - c. continental crust.
 - d. oceanic crust.

3. Plate tectonics is a relatively new theory. Conduct library research to find out how early scientists accounted for changes in the continents long before the theory of plate tectonics. Report your findings to the class.

1. Copy a world map showing the outlines of the continents. Cut out the continents and assemble a model of Pangaea. Compare your model to Wegener's model of Pangaea that is shown on page 67.

2. In the late 1800's, Eduard Suess, an Austrian scientist, developed the concept of a supercontinent called Gondwanaland. Look up information about Suess's ideas and compare them with the hypothesis of continental drift proposed by Wegener.

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Extension

1. Explain the role of technology in the progression from the hypothesis of continental drift to the theory of plate tectonics. If you wanted to prove that a suspect terrane had been scraped onto the North American plate, what kind of evidence would you search for?
2. If you wanted to prove that a suspect terrane had been scraped onto the North American plate, what kind of evidence would you search for?
3. Construct a concept map using 10 of the new terms listed on the previous page by making connections that illustrate the relationship among the terms.

Application