**The Theory of Plate Tectonics**

*This section explains how the lithosphere is broken into separate sections that move.*

**Use Target Reading Skills**

Before reading the section, write simple definitions for the words *diverge, converge, and transform*. You may use a dictionary. After reading the passages that contain the key terms *divergent boundary, convergent boundary, and transform boundary*, explain how your definitions relate to these terms.

__________________________

__________________________

__________________________

__________________________

__________________________

__________________________

Write a definition of each Key Term in your own words below:

plate: ____________________________

__________________________

scientific theory: ____________________________

__________________________

plate tectonics: ____________________________

__________________________

fault: ____________________________

__________________________

divergent boundary: ____________________________

__________________________

rift valley: ____________________________

__________________________

convergent boundary: ____________________________

__________________________

transform boundary: ____________________________

__________________________
Plate Tectonics • Guided Reading and Study

The Theory of Plate Tectonics (continued)

Introduction
1. The lithosphere is broken into separate sections called ______________.

2. Is the following sentence true or false? Plates can carry continents or parts of the ocean floor but not both. ______________

How Plates Move
3. What is a scientific theory? ________________________________

4. State the theory of plate tectonics. ________________________________

5. Is the following sentence true or false? The theory of plate tectonics explains the formation, movement, and subduction of Earth’s plates. ______________

Plate Boundaries
Match the term with its definition.

Layer

6. plate boundary
7. fault
8. rift valley

Description
a. Deep valley that forms where two plates pull apart
b. Line where the edges of Earth’s plates meet
c. Break in Earth’s crust where rocks have slipped past each other

9. Complete the compare/contrast table to show how plates move at the different types of plate boundaries.

<table>
<thead>
<tr>
<th>Plate Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Plate Boundary</strong></td>
</tr>
<tr>
<td>Divergent boundary</td>
</tr>
<tr>
<td>Convergent boundary</td>
</tr>
<tr>
<td>Transform boundary</td>
</tr>
</tbody>
</table>
Plate Tectonics  •  Guided Reading and Study

d. How are the movement of plates at divergent boundaries and at transform boundaries similar?

10. Is the following sentence true or false? Crust is neither created nor destroyed along a transform boundary. ________________

11. Most divergent boundaries occur along ____________________.

12. When two plates converge, the result is called a(n) ________________.

13. When two plates collide, what determines which plate comes out on top? ____________________

14. Circle the letter of each sentence that is true about convergent boundaries.

a. Where two plates carrying oceanic crust meet, subduction does not take place.

b. An oceanic plate sinks beneath a continental plate when the two plates collide.

c. Where two plates meet, the one that is more dense sinks under the other.

d. Mountain ranges form where two plates carrying continental crust collide.

15. Was Pangaea the only supercontinent to have existed? Explain your answer.

16. Is the following sentence true or false? The pieces of the supercontinent Pangaea began to drift apart about 225 million years ago.

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.
The Theory of Plate Tectonics

Understanding Main Ideas

Label each figure by writing the type of plate boundary it shows.

1. 
2. 
3. 

Answer the following questions on a separate sheet of paper.

4. Describe what happens when a. two plates carrying oceanic crust collide, b. two plates carrying continental crust collide, and c. a plate carrying oceanic crust collides with a plate carrying continental crust.

5. Explain what force caused the movement of the continents from one supercontinent to their present positions.

Building Vocabulary

Fill in the blank to complete each statement.

6. A scientific _____________ is a well-tested concept that explains a wide range of observations.

7. Breaks in Earth’s crust where rocks have slipped past each other are called _____________.

8. The lithosphere is broken into separate sections called _____________.

9. A(n) _____________ is a deep valley on land that forms along a divergent boundary.

10. The geological theory that states that pieces of Earth’s crust are in constant, slow motion is called _____________.

© Pearson Education, Inc., publishing as Pearson Prentice Hall. All rights reserved.
Plate Tectonics

Multiple Choice

Write the letter of the correct answer on the line at the left.

1. A break in Earth’s crust where rocks have slipped past each other is called a
   a. plate.  
   b. layer. 
   c. boundary.  
   d. fault.

2. Continental crust consists mainly of the rock
   a. nickel.  
   b. basalt. 
   c. mantle.  
   d. granite.

3. Scientists rejected Wegener’s theory because he could not
   a. explain why continental crust was denser than oceanic crust. 
   b. describe the climate of Pangaea. 
   c. explain what force pushes or pulls continents. 
   d. describe how seeds moved from Africa to South America.

4. Subduction is
   a. the process by which oceanic crust sinks beneath trenches. 
   b. the direct transfer of heat through solid materials. 
   c. the process that continually adds ocean floor. 
   d. a device that bounces sound waves off underwater objects.

5. Earth’s lithosphere is broken into separate sections called
   a. plates.  
   b. faults. 
   c. trenches.  
   d. rifts.

6. Scientists who study the forces that make and shape the planet Earth are called
   a. biologists.  
   b. geologists. 
   c. chemists.  
   d. physicists.

7. In the convection current of a pan of soup, the cooler, denser fluid
   a. rises to the top.  
   b. sinks to the bottom. 
   c. stays where it is.  
   d. stays on top.

8. The transfer of energy through space is called
   a. subduction.  
   b. convection. 
   c. radiation.  
   d. conduction.

9. Who first proposed the theory of continental drift?
   a. Harry Hess  
   b. Alfred Wegener 
   c. Pangaea  
   d. J. Tuzo Wilson
10. What erupts through the valley of the mid-ocean ridge?
   a. molten material  
   b. the lithosphere  
   c. deep-ocean trenches  
   d. continental drift

Completion

Fill in the line to complete each statement.

11. Heat transfer by the movement of a heated fluid is called

12. A ________ boundary is a place where two plates slip past each other.

13. The ________ is the part of the mantle that can bend like plastic.

14. The process that continually adds new material to the ocean floor is

15. Fossils of tropical plants found on an island in the Arctic Ocean are evidence for the theory of ________.

True or False

If the statement is true, write true. If it is false, change the underlined word or words to make the statement true.

16. A rift valley forms along a convergent boundary on land.

17. The supercontinent that began to break apart about 225 million years ago is called Antarctica.

18. As oceanic crust moves away from the mid-ocean ridge, it cools and becomes more dense.

19. Density is a measure of how much mass there is in a volume of a substance.

20. The lithosphere includes all of the core and part of the mantle.

Essay

Answer each of the following on the lines provided.

21. Explain what sets convection currents into motion.