Plate Tectonics

Key Concept: What is the theory of plate tectonics?

Directions: On each line, write the term from the word bank that correctly completes each sentence. Some terms may be used more than once.

- centimeters
- continental
- continents
- crust
- deform
- evidence
- fossils
- mantle
- mountain
- plates
- surface

The theory of plate tectonics states that Earth’s 1. ___________________________ is broken into rigid 2. ___________________________ that slowly move across Earth’s 3. ___________________________. Before the theory of plate tectonics, scientists debated a hypothesis called 4. ___________________________ drift. This hypothesis states that continents move. Some scientists believe that there was once one large continent, called Gondwana. In time, the continents broke apart and drifted to other parts of Earth. Scientists found 5. ___________________________ that seemed to support this hypothesis. Among the evidence were similar 6. ___________________________ found on continents that were very far apart. Scientists believe that the only way these animals could have existed on landmasses separated by great oceans was if the 7. ___________________________ once were connected.

The theory of plate tectonics explains why continents move. This theory states that tectonic 8. ___________________________ move a few 9. ___________________________ over Earth’s surface every year. A plate may move toward, away from, or past another plate. The plates include the 10. ___________________________ beneath the oceans and the continents. Heat from Earth’s 11. ___________________________ can cause rocks to 12. ___________________________ and move like putty. This rising heat pushes and pulls tectonic 13. ___________________________ over Earth’s 14. ___________________________.

Thus, the continents do not just drift from place to place; they are part of huge tectonic plates. These plates carry the 15. ___________________________. Over millions of years, the movement of tectonic 16. ___________________________ forms 17. ___________________________ ranges and other landforms.
Plate Tectonics

Key Concept: What evidence do scientists use to support the theory of plate tectonics?

Directions: Put a check mark in the column that describes each type of evidence.

<table>
<thead>
<tr>
<th></th>
<th>Fossil Evidence</th>
<th>Geological Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The same ancient plant existed on different continents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Similar rocks are found on two distant continents.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Freshwater reptiles are found in South America and Africa.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Similar animals are found on two continents separated by a vast ocean.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Locations of ancient glaciers can be traced from one continent to the next.</td>
<td></td>
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</tr>
</tbody>
</table>

Directions: Answer each question on the lines provided.

6. How is the theory of plate tectonics supported by the fact that mountain ranges that formed at similar times exist on continents that are far apart today?

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

7. How does similar fossil evidence found on two continents separated by a vast ocean support the theory of plate tectonics?

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
**Key Concept Builder**

**LESSON 1**

**Plate Tectonics**

**Key Concept** What are the three main types of plate boundaries?

**Directions:** On the line before each description, write the letter of the term that matches it correctly. Terms will be used more than once.

1. The diagram shows this type of plate boundary.
   - A. convergent boundary
   - B. divergent boundary
   - C. transform boundary

2. In this type of plate boundary, the plates slide past each other.

3. New crust forms as molten rock erupts and cools.

4. Crust rises and mountains form as plates push together.

5. Movement at this type of plate boundary forces the denser oceanic plate down into the mantle.

6. Plate movement at this type of boundary can form a rift on the ocean floor.

7. Movement at this plate boundary deforms railways and roads.

8. When two continents collide at this type of boundary, both continents remain on the surface, forming mountains.

9. Tectonic plates slide horizontally at this plate boundary.

10. This plate boundary often includes a subduction zone.
Plate Tectonics

Key Concept: How do the forces created by plate motion change Earth’s surface?

Directions: On the line before each statement, write T if the statement is true or F if the statement is false. If the statement is false, change the underlined words(s) to make it true. Write your changes on the lines provided.

1. Different types of plate boundaries experience different types of convection.

2. At convergent boundaries, a squeezing force called compression exists.

3. At transform boundaries, a side-by-side lifting force called shear is experienced.

4. In contrast to convergent boundaries, transitional forces occur at divergent boundaries.

5. Compression forces pull the land apart and form rift valleys.

6. Forces that form mountains are shear forces.

7. The forces found at different plate boundaries form distinct landforms.

8. All types of forces at plate boundaries cause rocks to change composition in some way.

9. Tectonic plates at plate boundaries move quickly.

10. The movement of tectonic plates is strong enough to form lakes and cause powerful earthquakes.

11. Mid-ocean ridges are the result of tensional forces found at divergent plate boundaries.

12. The shear force found where tectonic plates slide against each other can break apart buildings.

13. The squeezing force found at transform boundaries is powerful enough to twist and fold Earth’s crust.