Development of a Theory

**Directions:** Complete this concept map by choosing terms from the word bank and writing them in the correct spaces.

- continental drift
- mid-ocean ridge
- rocks
- continents move
- new oceanic crust
- sediment
- magnetic signatures
- older oceanic crust
- temperature

**Seafloor Spreading**

1. is the process by which
   - forms along a(n)
   - and
   - moves away from it.

2. supporting the hypothesis.

3. is a way to explain how
   - supporting
   - of minerals in
   - and by measurements of seafloor
   - and

4. is evidenced by the

5. and by measurements of seafloor

6. and by measurements of seafloor

7. of minerals in

8. and by measurements of seafloor

9. and by measurements of seafloor

---

Plate Tectonics
### Key Concept Builder

#### LESSON 2

**Development of a Theory**

**Key Concept:** What is seafloor spreading?

**Directions:** Answer each question on the lines provided.

<table>
<thead>
<tr>
<th>What is known about seafloor spreading</th>
<th>How this supports continental drift</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What forms basalt?</td>
<td>3. What happens to old oceanic crust as new oceanic crust forms?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Which type of rock forms oceanic crust?</td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>4. What happens to the density of rock as it cools?</td>
<td>5. Where does the crust move as it becomes denser?</td>
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<td></td>
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<tr>
<td></td>
<td>6. Which force draws the cooler, denser crust downward and away from the mid-ocean ridge?</td>
</tr>
<tr>
<td>7. What is formed when lava cools and crystallizes on top of the oceanic crust?</td>
<td>9. What shape does the seafloor take where the sediment is the thickest?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Where is seafloor sediment thickest?</td>
<td>10. What is this area of the seafloor called?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>11. What is the ocean crust always doing?</td>
<td>12. What happens as the ocean crust spreads?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>13. What does the crust record as it cools?</td>
<td>15. What forms when Earth's magnetic field changes direction?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>14. What does basalt contain that makes this possible?</td>
<td>16. What do magnetic stripes confirm?</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Lesson Quiz A

Development of a Theory

Matching
Directions: On the line before each definition, write the letter of the term that matches it correctly. Each term is used only once.

1. Magnets point north when Earth's magnetic field has this.  
   A. magnetic reversal  
   B. mid-ocean ridge  
   C. normal polarity  
   D. reversed polarity  
   E. seafloor spreading

2. Process that forms new oceanic crust and moves it  

3. Takes place when Earth's magnetic field changes  

4. Magnets point south when Earth's magnetic field has this.  

5. Place where new oceanic crust forms

True or False
Directions: On the line before each statement, write T if the statement is true or F if the statement is false.

6. Seafloor spreading takes place along a mid-ocean ridge.

7. Oceanic crust is older when it is closer to a mid-ocean ridge than it is when it is farther from the ridge.

8. The high thermal-energy flow at a mid-ocean ridge comes from seawater.

9. Magnetic bands on the ocean floor are evidence that Earth's magnetic field changes.

10. Knowledge of seafloor spreading could have helped Alfred Wegener gain more support for his hypothesis of continental drift.
Lesson Quiz B

Development of a Theory

Completion

Directions: On each line, write the term that correctly completes each sentence.

1. A(n) ____________ is a mountain range on the ocean floor where new crust forms.

2. When Earth's magnetic field has normal polarity, a compass needle points ____________.

3. ____________ contributes to the high thermal-energy-flow readings near the center of a mid-ocean ridge.

4. ____________ are changes in the orientation of Earth's magnetic field.

5. The abyssal plain is flat due to an accumulation of ____________ far from the ridge.

6. When Earth's magnetic field has reversed polarity, a compass needle points ____________.

7. ____________ on the ocean floor are evidence that Earth's magnetic field changes.

Short Answer

Directions: Respond to each statement on the lines provided.

8. List the steps involved in seafloor spreading in sequential order.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

9. Explain how knowledge of seafloor spreading could have been useful to the acceptance of Alfred Wegener's continental drift hypothesis.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________