### Drifting Continents

**Understanding Main Ideas**

*Fill in the blanks in the table below.*

<table>
<thead>
<tr>
<th>Types of Evidence</th>
<th>Example of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence from 1.</td>
<td>Features</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td>Evidence from 5.</td>
<td></td>
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<tr>
<td>Evidence from 7.</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Answer the following questions.**

10. State the hypothesis of continental drift.
   All the ... had once been ... together in one landmass but have since ... apart.

11. Why did most scientists reject Wegener's theory for nearly a half century?
   He had no ... of the ... which caused the ... of the ...  

### Building Vocabulary

*Fill in the blank to complete each statement.*

12. All the continents were once joined together in a supercontinent called ... , meaning "all lands."

13. A(n) ... is any trace of an ancient organism preserved in rock.

14. Wegener's theory that the continents slowly moved over Earth's surface became known as ... ...
Sea-Floor Spreading
Understanding Main Ideas

Use the figure below to answer the questions that follow.

The Rift Valley occurs between (A)

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Answer the questions below.

1. Name and describe the feature of the ocean floor shown at A.
   A is the ____________________ - it is a ______________ range that extends along the ______________ floor.

2. Name the process shown occurring at B, and explain what results from this. The process occurring at B is called _________________. It continually ________ new sea ________

3. What happens to old oceanic crust as new molten material rises from the mantle?
   The new material ________ the old material ________ it aside towards the ________

4. The arrows on the figure show the ocean floor spreading from the ridge. What are three kinds of evidence scientists have found to support this idea?
   a. ____________________  b. ____________________  c. ____________________

5. What process is shown occurring at C, and why does it occur? The process at C is called _____________________. Oceanic crust becomes ________ the further it gets from the ________ because it gets _________. G ________ pulls it down at a deep ocean ________

Building Vocabulary

Fill in the blank to complete each statement.

6. A device that scientists use to map the ocean floor is ________________.

7. The feature on the ocean floor at C is called a(n) ____________________.

8. The process that continually adds new material to the ocean floor is called ____________________.

9. The process by which the ocean floor sinks into the mantle is called ____________________.

10. A chain of underwater mountains along which sea-floor spreading occurs is a ____________________

13 HW
Magnetic Reversals Through the Ages

How often does Earth’s magnetic field reverse itself? The graph below shows the record geologists have put together for the last 65 million years. As you might know, the last of the dinosaurs died about 65 million years ago. So you can think of this graph as the record of Earth’s reversals since the dinosaurs became extinct. In this graph, each dark band represents a “normal” magnetic field, as it is today. Each light band represents a reversed magnetic field.

Use the graph to answer the questions that follow.

![Graph of Reversals in Earth's Magnetic Field]

**Time (millions of years)**

1. Was Earth’s magnetic field “normal” or reversed 65 million years ago? ________________

2. About how long ago was the last time Earth’s magnetic field reversed? About ____ mya

3. Can you see any pattern in how often Earth’s magnetic field reverses? Give reasons for your answer. Yes or No (circle one) because ________________

4. How would this history of reversals show itself on the ocean floor? ________________

5. From this graph, when would you predict the next reversal would occur? Give reasons for your answer. The next reversal should be ________________ because ________________

14 xc
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:

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

4a. The d________ larger ocean ______ goes under(s) ______ less ______ plate.

b. The d______ is the same so they ______ + move up.

c. The ______ plate is denser so it moves under the ______ plate.
The Birth of the Himalayas

The greatest challenge for mountain climbers is Mt. Everest, whose peak rises 8,872 meters above sea level. This is the highest mountain in the world, though many mountains around it are almost as high. Mt. Everest is in the Himalayas, a series of massive ranges that extends 2,500 kilometers across South Asia north of India. The Himalayas cover all or part of the countries of Tibet, Nepal, and Bhutan.

A climber on the high slopes of Mt. Everest would probably be surprised to learn that the region was relatively flat about 40 million years ago. It was then that two continental plates collided. The plate carrying India had been moving northward for millions of years. The oceanic crust in front of it was slowly subducted under the Eurasian plate. But when the two continents collided, subduction stopped because India could not sink into the mantle. Instead, it pushed crust upward and downward. The Himalayas were one result. Thus, the Himalayas are actually pieces of plates broken and lifted up because of the collision. Another result of this collision was the movement of China eastward, as the movement of India northward pushed the Eurasian plate in front of it. The collision is still occurring today. In fact, the Himalayas are growing in elevation at a rate of about 1 centimeter per year.

Answer the following questions

1. Where are the Himalayas?
2. What was the area of the Himalayas like 40 million years ago?
3. How did the movement of plates create the Himalayas?
4. What else resulted from the collision of those plates?
5. What type of plate boundary exists today along the Himalayas?
6. If the Himalayas continue to grow in elevation at their present rate, how tall will Mt. Everest be in one million years? (Show work)
Plate Tectonics * Key Terms

**Key Terms**

*Use key terms from the chapter to complete the crossword puzzle.*

**Clues across**

1. Section of lithosphere that carries crust
2. Layer that is part crust and part mantle
3. Part of mantle below lithosphere
4. Rock that makes up oceanic crust
5. Kind of wave released during an earthquake
6. Study of planet Earth
7. Kind of valley where plates move apart
8. Earth’s middle layer
9. Earth’s outer layer
10. The innermost layer of Earth
11. Used to map mid-ocean ridge
Name ___________________________

Theory of Plate Tectonics Review Questions

1. What is the theory of plate tectonics? Pieces of Earth's ___________ are in slow constant ________ driven by _______. In the _______. It explains the E ________ movement, and S ________ of Earth's plates.

2. What are the three different types of boundaries found along the edges of Earth's plates?

   - Boundary Name
   - Crust is ________ arrows
   - Results in ________

   1.
   2.
   3.

3. What major event in Earth's history began about 225 million years ago (mya)? 180-200 mya?
   
   What began to ________ apart:

   A. ________ continued to ________ apart, open narrow ________
   B. ________ continued to ________ apart, open narrow ________
   C. ________ continued to ________ apart, open narrow ________
   D. ________ continued to ________ apart, open narrow ________
   E. ________ continued to ________ apart, open narrow ________

   What are the three situations in which plates collide? What happens in each situation?

   Why?

   - Name of Boundary
   - Letters + arrows
   - Features that form

   1. ________
   2. ________
   3. ________

C = continental plate

T = oceanic plate

Arrows show direction of motion.