

**Science 10**  
**12.1 Sheet**

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

***Instructions: Read pages 506-513 and answer the following questions in point form***

1. What does the continental drift theory state?
  
2. What gave Wegener his first piece of evidence for continental drift?
  
3. What is Pangaea?
  
4. What is a better way to align the continents other than matching up their continental edges?
  
5. What are three other clues that Wegener used as evidence for continental drift?
  
  
  
  
  
  
  
  
  
  
6. What did Wegener note about certain mountain ranges and rock ages on opposing continents?
  
  
  
  
  
  
  
  
  
  
7. Explain how the appearance of the Mesosaurus fossil in South America and Western Africa supports the concept of continental drift.
  
  
  
  
  
  
  
  
  
  
8. a) Which continents is the Glossopteris fossil found on?  
  
  
  
  
  
  
  
  
  
  
b) Explain how this provides evidence for the existence of Pangaea .

9. What are a two features left behind by retreating glaciers?
  
- 10 What is Paleoglaciatiion?
  
11. a) Why were scientists puzzled by evidence of glaciers in India and Africa?  
  
b) How is this evidence explained?
  
12. a) Explain why coal deposits in Antarctica are hard to account for with today's climate there.  
  
b) What's the best explanation for the Antarctic coal deposits?
  
13. Why was Wegener's theory not accepted immediately?
  
14. What did scientists NOT KNOW about the earth's surface in Wegener's time?
  
- 15 What are tectonic plates?
  
16. Describe volcanoes.
  
17. Describe earthquakes.

18. Where do earthquakes and volcanoes mostly occur in relation to tectonic plates?
19. What were Oceanographers amazed to find on the bottom of the Atlantic Ocean?
20. What did scientists notice about the age of rocks near the Mid Atlantic Ridge?
21. What was noticed about the amount of sediment on the ocean floor as you moved away from the Mid Atlantic Ridge?
22. How is the earth like a bar magnet?
23. Why do compasses point north?
24. Describe magnetic reversal and explain what scientists think causes it to occur.
25. \*\*If magnetic reversal occurred right now, what direction would a compass point?
26. What is Paleomagnetism?

27. What did scientists notice about the direction of magnetic fields in iron containing rocks on the bottom of the Atlantic Ocean?

28. Make a sketch of figure 12 11 on page 512 and describe the process of sea floor spreading using your diagram.

On your diagram, label the following things: Newer Rock, Older Rock, Magma.

Also, put arrows on your diagram that show the direction the sea floor is moving.

29. What is a hot spot?

Use with textbook pages 506-513

## Evidence for continental drift

### Vocabulary

ancient glaciers  
fossils  
geological structures  
hot spot  
magma  
magnetic reversal  
Mid-Atlantic Ridge

mountain ranges  
Pangaea  
plate tectonic theory  
spreading ridge  
supercontinent  
tectonic plates

Use the terms in the vocabulary box to fill in the blanks. Each term may be used only once.

1. Alfred Wegener proposed that, millions of years ago, all the continents were joined as a \_\_\_\_\_.
2. The name given to this giant land mass is \_\_\_\_\_.
3. Wegener compared \_\_\_\_\_, \_\_\_\_\_ and evidence of \_\_\_\_\_ on different continents.
4. Since rocks found in Newfoundland are the same type and age as rocks found in Greenland, Ireland, Scotland, and Norway, it would appear that the world's major \_\_\_\_\_ were continuous when the continents were joined.
5. The surface of the Earth is broken into large, rigid, movable \_\_\_\_\_ that move over a layer of partly molten rock.
6. In the \_\_\_\_\_, scientists found that as distance increases from the centre of the ridge, the rocks are older and the ocean sediment is thicker.
7. Using a magnetometer, scientists found a pattern of \_\_\_\_\_ in the iron-containing minerals on both sides of the Mid-Atlantic Ridge.
8. Harry Hess suggested that \_\_\_\_\_ rises because it is less dense than the material that surrounds it.
9. At a \_\_\_\_\_ the magma breaks through the Earth's surface, where it cools and hardens, forming a new sea floor.
10. J. Tuzo Wilson suggested that chains of volcanic islands were formed when a tectonic plate passed over a stationary \_\_\_\_\_.
11. The \_\_\_\_\_ is the unifying theory of geology.

Use with textbook pages 506–513.

## Theories related to continental drift

Various pieces of evidence have been gathered by scientists to explain the underlying theories of geology. Alfred Wegener, Harry Hess, and J. Tuzo Wilson are some of the scientists who proposed explanations of phenomena they had observed.

Fill in the following table comparing the main points of evidence presented by each theory.

<p><b>Continental drift</b></p> <p>Proposed by _____</p> <p>Main points</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p><b>Paleomagnetism</b></p> <p>Main points</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p><b>Sea floor spreading</b></p> <p>Proposed by _____</p> <p>Main points</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p><b>Plate tectonic theory</b></p> <p>Proposed by _____</p> <p>Main points.</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

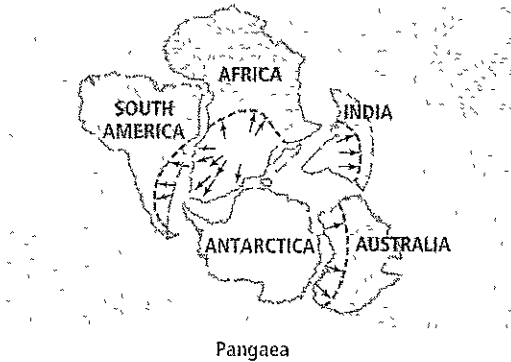
Use with textbook pages 509--515.

## Visual observations supporting continental drift

Illustrations can demonstrate some of the major points related to the concepts presented in this chapter.

Refer to the diagrams on the left, when answering the questions below.

1.



What evidence did Wegener use for his explanations of the existence of Pangaea?

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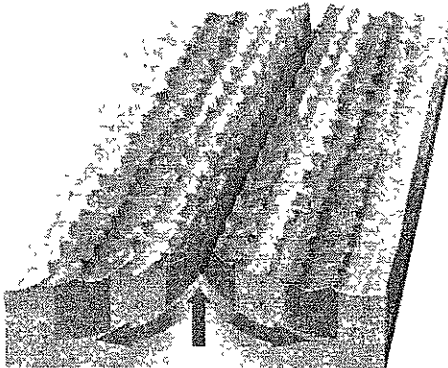


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2. Normal magnetic polarity  
 Reverse magnetic polarity



Orientation of Earth's Magnetic Field

(a) How were these magnetic patterns measured?

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(b) What do these patterns show?

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3.



Hawaiian Islands

How were the Hawaiian Islands formed?

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