

Name _____

Date _____

Use with textbook pages 506–513

Evidence for continental drift

Vocabulary

ancient glaciers	mountain ranges
fossils	Pangaea
geological structures	plate tectonic theory
hot spot	spreading ridge
magma	supercontinent
magnetic reversal	tectonic plates
Mid-Atlantic Ridge	

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

- Alfred Wegener proposed that, millions of years ago, all the continents were joined as a _____.
- The name given to this giant land mass is _____.
- Wegener compared _____, _____ and evidence of _____ on different continents.
- 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.
- The surface of the Earth is broken into large, rigid, movable _____ that move over a layer of partly molten rock.
- In the _____, scientists found that as distance increases from the centre of the ridge, the rocks are older and the ocean sediment is thicker.
- Using a magnetometer, scientists found a pattern of _____ in the iron-containing minerals on both sides of the Mid-Atlantic Ridge.
- Harry Hess suggested that _____ rises because it is less dense than the material that surrounds it.
- At a _____ the magma breaks through the Earth's surface, where it cools and hardens, forming a new sea floor.
- J. Tuzo Wilson suggested that chains of volcanic islands were formed when a tectonic plate passed over a stationary _____.
- 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>Continental drift Proposed by: _____ Main points:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Paleomagnetism Main points:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>Sea floor spreading Proposed by: _____ Main points:</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>Plate tectonic theory Proposed by: _____ 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.

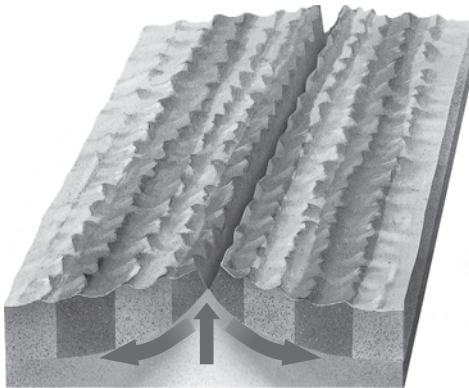


Pangaea

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

2.

- Normal magnetic polarity
- Reverse magnetic polarity

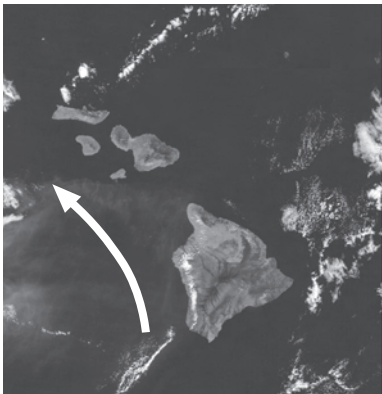


Orientation of Earth's Magnetic Field

(a) How were these magnetic patterns measured?

(b) What do these patterns show?

3.



Hawaiian Islands

How were the Hawaiian Islands formed?

Evidence for Continental Drift

Review

Goal • Use this page to review evidence for continental drift.

- What is the best explanation for the fact that coal deposits have been found in Antarctica?
 - The climate of Earth has cooled.
 - A lowering of sea level changed Antarctica to a swamp.
 - Antarctica was once nearer the equator.
 - Early explorers stored coal.
- Fossils of *Mesosaurus*, a small freshwater mammal, are found in South America and Africa. Why is *Mesosaurus* useful evidence for continental drift?
 - Mesosaurus* lived all over the world.
 - Mesosaurus* only lived in warm climates.
 - Mesosaurus* lived in rivers and streams of South America and Africa.
 - It is unlikely that *Mesosaurus* could swim thousands of kilometres between continents.
- Where is the true edge of a continent?
 - along the oceanic ridge
 - at the edge of the continental shelf
 - along the current coastline
 - in the deepest part of the ocean
- Why do volcanoes and earthquakes occur at the edges of tectonic plates?

- Explain how a lava flow can become magnetized.

- Explain why the crust on either side of the Mid-Atlantic Oceanic Ridge gets gradually older as you move farther away, towards the continents.

CYU Questions (page 517) # 1 to 8:

Use with textbook pages 506–513.

Evidence for continental drift

Match each Term with the best Descriptor below. Each Descriptor may be used only once.

Term
1. _____ Continental drift theory
2. _____ Earthquakes
3. _____ hot spot
4. _____ magnetic reversal
5. _____ paleoglaciation
6. _____ plate tectonic theory
7. _____ spreading ridge
8. _____ tectonic plates
9. _____ volcanoes
Definition
A. the large slabs of rock that form Earth's surface and, move over a layer of partly molten rock
B. the theory that the lithosphere is broken up into large plates that move and then rejoin
C. an opening in Earth's surface that, when active, spews out gases, chunks of rock, and melted rock
D. an area where molten rock rises to Earth's surface
E. a pattern of alternating stripes of different directions of magnetic polarity in rock on the sea floor
F. a sudden, ground-shaking release of built-up energy at or under Earth's surface
G. the theory that the continents have not always been in their present locations but have moved over millions of years
H. the region where magma breaks through Earth's surface, continually forcing apart old rock and forming sea floor
I. the extent of ancient glaciers; also the rock markings they left behind

Multiple Choice

Circle the letter of the best answer.

10. When the term Pangaea is translated from Greek, it means
- zig-zag, continents
 - stationary, plates
 - all, Earth
 - moving, plates
11. Which of the following would be considered part of Wegener's continental drift theory?

I.	Discovery of continents previously being part of a supercontinent.
II.	Matching fossils found on many continents.
III.	Discovery of reversal theories related to Earth's magnetic field.

- I only
 - I and II only
 - I and III only
 - I, II, and III
12. A chain of volcanic islands, such as the Hawaiian Islands, were formed by which of the following processes?
- erosion
 - subduction
 - hot spots
 - ocean ridges
13. J. Tuzo Wilson used which of the following to explain the theory of continental drift?

I.	sea floor spreading
II.	paleomagnetism
III.	formation of Pangaea

- I and, II only
- I and, III only
- II and, III only
- I, II, and III