

Exploring the Ocean (pp. 130-139)

Key Terms

This section describes how the ocean has been explored over the past several thousand years. The section also describes features of the ocean floor and explains how the ocean floor moves.

Use Target Reading Skills

On the lines provided, write a definition of each term in your own words.

sonar A system that uses sound waves to calculate the distance to an object, and that gets its name from (S)ound (N)avigation and (R)anging (SONAR)

continental shelf A gently sloping, shallow area of the ocean floor that extends outward from the edge of a continent

continental slope A steep incline of the ocean floor leading down from the edge of the continental shelf.

abyssal plain A smooth, nearly flat region of the deep ocean floor

mid-ocean ridge A continuous range of mountains on the ocean floor that winds around Earth

trench A deep, steep-sided canyon in the ocean floor

plate One of the major pieces of rock that makes up Earth's upper layer

seafloor spreading A process by which new rock is added to the ocean floor along the boundary between diverging plates

Ocean Zones

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Exploring the Ocean *(continued)*

Learning About the Ocean (pp. 131–133)

1. Circle the letter of the sentence that is true about the Phoenicians.

- a. They were one of the earliest cultures to explore the oceans.
- b. They sailed to Hawaii.
- c. They established sea routes for trade by 2000 B.C.
- d. They lived on islands in the Indian Ocean.

2. Is the following sentence true or false? Captain Cook's voyages of exploration marked the beginning of the modern science of oceanography. False

3. Why has the deep ocean floor been explored only recently?

It has been explored only recently because the darkness, cold, and extreme pressure on the ocean floor required scientists to develop technology before they could study there.

4. Is the following sentence true or false? To study the deep ocean floor, scientists have relied on direct methods of gathering information.

False

5. Circle the letter of each sentence that is true about sonar.

- a. It measures distance.
- b. It uses sound waves.
- c. It is an indirect way of gathering data.
- d. It uses X-rays.

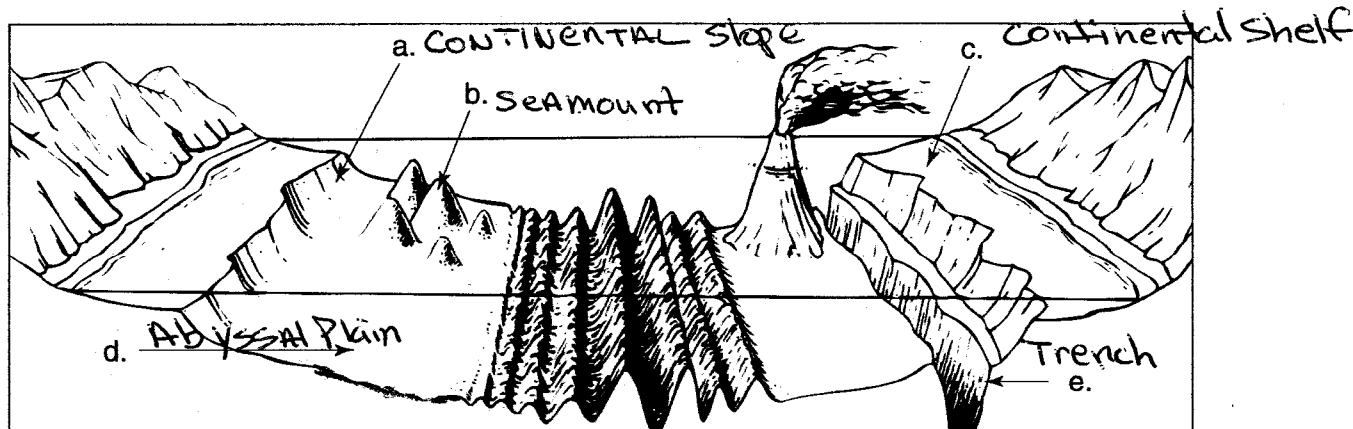
Features of the Ocean Floor (pp. 134–136)

6. Circle the letter of each sentence that is true about the ocean floor.

- a. It is flat and sandy.
- b. It is rocky and uneven.
- c. It has the biggest mountains on Earth.
- d. It has deep canyons.

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7. Find and label each of the following ocean floor features in the drawing: continental shelf, continental slope, seamount, abyssal plain, and trench.



Match each feature of the ocean floor with its description.

Feature	Description
<u>f</u> 8. continental shelf	a. Smooth and nearly flat region of the ocean floor
<u>d</u> 9. continental slope	b. Mountain on the ocean floor that is completely under water
<u>b</u> 10. seamount	c. Continuous range of mountains on the ocean floor
<u>a</u> 11. abyssal plain	d. Incline at the edge of the continental shelf
<u>c</u> 12. mid-ocean ridge	e. Steep-sided canyon in the ocean floor
<u>e</u> 13. trench	f. Shallow area of the ocean floor extending outward from land

14. Circle the letter of each sentence that is true about the mid-ocean ridge.

- a. It passes through all of Earth's oceans.
- b. It is about 800 kilometers long.
- c. It is the longest mountain range on Earth.
- d. It is divided by a central valley.

Movements of the Ocean Floor (pp. 136–139)

15. The hot liquid material inside Earth is called Magma. If this material reaches the surface, it is called LAVA.

16. Pieces of Earth's crust, along with parts of the upper mantle, are called Plates.

17. Circle the letter of each sentence that is true about Earth's plates.

- a. They move on the liquid of the mantle.
- b. They lie beneath the continents but not the oceans.
- c. They move several kilometers per year.
- d. Their movements create Earth's landforms.

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Exploring the Ocean (continued)

18. Describe seafloor spreading.

Along the mid-ocean ridge, magma squeezes up through the cracks between the diverging plates. As the magma hardens, it adds a new strip of rock to the ocean floor.

19. Why doesn't Earth increase in size as the seafloor spreads along the mid-ocean ridge?

Old rock farther away from the ridge sinks into trenches and back into Earth's interior, allowing the ocean floor to spread while Earth itself remains the same size.

Chapter Project Worksheets 1 and 2

Answers will vary based on the organism chosen.

**Exploring the Ocean
Guided Reading and Study**

Use Target Reading Skills

Building Vocabulary Check students' definitions for accuracy and understanding.

1. a
2. False
3. It has been explored only recently because the darkness, cold, and extreme pressure on the ocean floor required scientists to develop technology before they could study there.
4. False
5. a, b, c
6. b, c, d
7. a. Continental slope
b. Seamount
c. Continental shelf
d. Abyssal plain
e. Trench
8. f
9. d
10. b
11. a
12. c
13. e
14. a, c, d
15. magma; lava
16. plates
17. a, d
18. Along the mid-ocean ridge, magma squeezes up through cracks between the diverging plates. As the magma hardens, it adds a new strip of rock to the ocean floor. Over millions of years, seafloor spreading has produced the ocean floor.
19. Old rock farther away from the ridge sinks into trenches and back into Earth's interior, allowing the ocean floor to spread while Earth itself remains the same size.

**Exploring the Ocean
Review and Reinforce**

1. Darkness, cold, extreme pressure
2. Magma squeezes up through cracks between the diverging plates at the mid-ocean ridge. As the magma hardens, it creates new rock.

3. When two plates converge, one plate sinks under the other plate. Old rock sinks into trenches and back into Earth's interior.

4. D, a continuous range of mountains that winds around Earth

5. G, a steep-sided canyon in the deep ocean floor

6. A, a steep incline at the edge of the continental shelf

7. C, the smooth, nearly flat region of the ocean floor

8. B, a mountain that is completely under water

9. F, a gently sloping, shallow area of the ocean floor that extends outward from the edge of a continent

10. E, the peak of a volcano that breaks the ocean surface

**Exploring the Ocean
Enrich**

1. The boundary between two diverging plates at the mid-ocean ridge
2. Magma rising up
3. Strips of rock that formed when the magma hardened
4. *Oldest:* red *Newest:* green

**The Shape of the Ocean Floor
Skills Lab**

For answers, see Teacher's Edition.

**Ocean Habitats
Guided Reading and Study**

Use Target Reading Skills

Using Prior Knowledge This is one possible way to complete the graphic organizer. Accept all logical answers.

What You Know

1. Many organisms need sunlight.
2. Marine organisms obtain oxygen from the water.

What You Learned

1. The ocean is divided into three zones.
2. Marine organisms are classified by where they live and how they move.

1. False
2. Possible answer: clams, crabs, dolphins
3. intertidal zone
4. neritic zone
5. open-ocean zone