

**Active Reading**

Ch. 3

**Section: The Geosphere**

Read the passage below and answer the questions that follow.

If we consider the physical properties of each layer, instead of chemistry, the Earth can be divided into five layers. Earth's outer layer is the **lithosphere**. It is a cool, rigid layer, 15 km to 300 km thick, and includes the crust and uppermost part of the mantle. It is divided into huge pieces called *tectonic plates*. The **asthenosphere** is the layer beneath the lithosphere. The asthenosphere is a plastic, solid layer of the mantle made of rock that flows very slowly and allows tectonic plates to move on top of it. Beneath the asthenosphere is the mesosphere, the lower part of the mantle.

The Earth's outer core is a dense liquid layer. At the center of the Earth is the dense, solid inner core, which is made up mostly of the metals iron and nickel. The temperature of the inner core is estimated to be between 4,000°C to 5,000°C. It is solid because it is under enormous pressure. Earth's outer and inner core together make up about one-third of Earth's mass.

**IDENTIFYING MAIN IDEAS**

One reading skill is the ability to identify the main idea of a passage. The main idea is the main focus or key idea. Frequently, a main idea is accompanied by supporting information that offers detailed facts about main ideas.

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- \_\_\_\_\_ 1. Earth can be divided into how many physical layers?  
a. five    c. eight  
b. three     d. six
- \_\_\_\_\_ 2. The approximate temperature of the inner core is  
a. between 3,000°C and 4,000°C.     c. between 4,000°C and 5,000°C.  
b. between 4,000°F and 5,000°F.     d. unknown.
- \_\_\_\_\_ 3. The inner core is solid because  
a. it absorbs heat from the sun.             c. it is influenced by global warming.  
b. it is under tremendous pressure.     d. the movement of tectonic plates causes friction.
- \_\_\_\_\_ 4. One-third of Earth's mass is made up of what?  
a. Earth's outer core                              c. tectonic plates  
b. Earth's inner core                                d. both (a) and (b)

**Active Reading** *continued*

**VOCABULARY DEVELOPMENT**

In the space provided, write the letter of the description that best matches the term or phrase.

- |                          |   |
|--------------------------|---|
| _____ 5. lithosphere     | a. dense layer made of iron and nickel              |
| _____ 6. mesosphere      | b. rigid layer that includes crust and upper mantle |
| _____ 7. tectonic plates | c. plastic, solid layer of slow-flowing rock        |
| _____ 8. inner core      | d. lower part of mantle                             |
| _____ 9. asthenosphere   | e. huge pieces of the lithosphere                   |
| _____ 10. outer core     | f. dense liquid layer                               |

**SEQUENCING INFORMATION**

One reading skill is the ability to sequence information, or to logically place items or events in the order in which they occur.

Write the names of the Earth's physical layers in sequence, from the outermost layer to the innermost layer.

- |           |           |
|-----------|-----------|
| 11. _____ | 14. _____ |
| 12. _____ | 15. _____ |
| 13. _____ |           |

**RECOGNIZING SIMILARITIES AND DIFFERENCES**

One reading skill is the ability to recognize similarities and differences between two phrases, ideas, or things. This is sometimes known as comparing and contrasting.

Read the following question and write the answer in the space provided.

16. How are the outer core and the inner core alike? How are they different?

\_\_\_\_\_

\_\_\_\_\_

**RECOGNIZING CAUSE AND EFFECT**

One reading skill is the ability to recognize cause and effect.

Read the following question and write the answer in the space provided.

17. Why do the tectonic plates move?

\_\_\_\_\_

\_\_\_\_\_

Skills Worksheet

# Active Reading

## Section: The Atmosphere

Read the passage below and answer the questions that follow.

Solar energy reaches the Earth as electromagnetic radiation, which includes visible light, infrared radiation, and ultraviolet light. The sun releases a vast amount of radiation, but our planet only receives about two-billionths of this energy. This seemingly small amount of radiation contains a tremendous amount of energy, however. About half of the solar energy that enters the atmosphere passes through the atmosphere and reaches the Earth's surface. The rest of the energy is absorbed or reflected in the atmosphere by clouds, gases, and dust, or it is reflected by the Earth's surface. On a sunny day, rocks may become too hot to touch. If the Earth's surface continually absorbed energy, the Earth would get hotter and hotter. The Earth does not continue to get warmer, because the oceans and the land radiate the energy they have absorbed back into the atmosphere.

### IDENTIFYING MAIN IDEAS

One reading skill is the ability to identify the main idea of a passage. The main idea is the main focus or key idea. Frequently, a main idea is accompanied by supporting information that offers detailed facts about main ideas.

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

- \_\_\_\_\_ 1. When solar energy reaches Earth, it is in the form of  
a. visible light. c. ultraviolet light.  
b. infrared radiation. d. All of the above
- \_\_\_\_\_ 2. How much of the sun's radiation does Earth receive?  
a. one-millionth c. half  
b. two-hundredths d. two-billionths
- \_\_\_\_\_ 3. Approximately what percentage of solar energy that passes through the atmosphere reaches Earth?  
a. 5 percent  
b. 20 percent  
c. 25 percent  
d. 50 percent

In the space provided, write the letter of the phrase that best completes the statement.

- \_\_\_\_\_ 4. Visible light, infrared radiation, and ultraviolet light are all forms of  
a. ions. c. atmospheric gases.  
b. electromagnetic radiation. d. aerosols.

**Active Reading** *continued*

**RECOGNIZING SIMILARITIES AND DIFFERENCES**

One reading skill is the ability to recognize similarities and differences between two phrases, ideas, or things. This is sometimes known as comparing and contrasting.

**Read each question and write the answer in the space provided.**

5. A park bench may become very hot on a sunny day. Why is the bench like the rock mentioned in the passage above?

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6. What happens to the solar energy that is not absorbed by Earth's surface?

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**RECOGNIZING CAUSE AND EFFECT**

One reading skill is the ability to recognize cause and effect.

**In the space provided, write the letter of the term or phrase that best completes each statement or best answers the question.**

- \_\_\_\_\_ 7. All of the solar energy that enters Earth's atmosphere does not reach Earth's surface because it is either absorbed or
- |               |                     |
|---------------|---------------------|
| a. scattered. | c. reflected.       |
| b. refracted. | d. Both (a) and (c) |

**Read the following question and write the answer in the space provided.**

8. Explain why Earth's surface does *not* get hotter and hotter.

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## Skills Worksheet

**Active Reading****Section: The Hydrosphere and Biosphere**

Read the passage below and answer the questions that follow.

Life exists on Earth because of several important factors. Life requires liquid water, temperatures between 10°C and 40°C, and a source of energy. The materials that organisms require must continually be cycled. Gravity allows a planet to maintain an atmosphere and to cycle materials. Suitable combinations of the things that organisms need to survive are found only in the biosphere.

The biosphere is located near the Earth's surface because most of the sunlight is available near the surface. Plants on land and in the oceans need sunlight to produce their food, and almost every other organism gets its food from plants and algae. Most of these algae float at the surface of the ocean. These tiny, free-floating, marine algae are known as phytoplankton. Except for bacteria that live at hydrothermal vents, most of the organisms that live deep in the ocean feed on dead plants and animals that drift down from the surface.

**IDENTIFYING MAIN IDEAS**

One reading skill is the ability to identify the main idea of a passage. The main idea is the main focus or key idea. Frequently, a main idea is accompanied by supporting information that offers detailed facts about main ideas.

In the space provided, write the letter of the term or phrase that best completes each statement or best answers the question.

- \_\_\_\_\_ 1. Life requires
- a. temperatures between 10°C and 40°C, electromagnetic radiation, and hydrothermal vents.
  - b. precipitation, sodium chloride, and phytoplankton.
  - c. liquid water, temperatures between 10°C and 40°C, and a source of energy.
  - d. gravity, algae, and bacteria.
- \_\_\_\_\_ 2. Where on Earth are conditions suitable to most life located?
- a. in the mesosphere
  - b. in the biosphere
  - c. hydrothermal vents
  - d. both (a) and (c)
- \_\_\_\_\_ 3. Phytoplankton are
- a. bacteria.
  - b. tiny marine algae.
  - c. plants on land.
  - d. dead plants and animals.

**Active Reading** *continued*

**In the space provided, write the letter of the description that best matches the term or phrase.**

- |  |                                |
|--|--------------------------------|
| _____ 4. Materials that organisms require need           | a. sunlight.                   |
| _____ 5. Plants need                                     | b. plants and algae.           |
| _____ 6. The biosphere needs                             | c. to be near Earth's surface. |
| _____ 7. Organisms (other than plants) need              | d. to be continually cycled.   |
| _____ 8. Most organisms that live deep in the ocean need | e. dead plants and animals.    |

**VOCABULARY DEVELOPMENT**

**Read each question and write the answer in the space provided.**

9. Define *biosphere*.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SEQUENCING INFORMATION**

One reading skill is the ability to sequence information, or to logically place items or events in the order in which they occur.

**What is needed before the next thing can happen? Read each question and write the answer in the space provided.**

10. Before life can exist, it requires a source of energy, temperatures between 10°C and 40°C, and \_\_\_\_\_.
11. Before a planet can maintain an atmosphere and cycle materials, it must have \_\_\_\_\_.
12. Before a plant can produce food, it requires \_\_\_\_\_.
13. Before most organisms (other than plants) can survive, they need to have plants and \_\_\_\_\_ to eat.