

**Word-Building Activity: Sentence Completion**

**Directions:** Study the terms and definitions below. On each line, write the term that correctly completes each sentence.

**atmosphere** *n.* a thin layer of gases that surrounds Earth

**exosphere** *n.* the atmospheric layer that is farthest from Earth

**ionosphere** *n.* the region within the mesosphere where ions are located

**mesosphere** *n.* the layer of the atmosphere that is directly above the stratosphere

**stratosphere** *n.* the layer of the atmosphere that is directly above the troposphere

**thermosphere** *n.* the layer of the atmosphere that is directly above the mesosphere

**troposphere** *n.* the layer of atmosphere that is closest to Earth's surface

1. The second atmospheric layer, the \_\_\_\_\_, includes a region known as the ozone layer.
2. Birds, bats, and insects fly in the \_\_\_\_\_, which is the lowest layer of the atmosphere.
3. The \_\_\_\_\_ is the layer between the stratosphere and the thermosphere.
4. Beyond the thermosphere is the \_\_\_\_\_, which is the atmospheric layer that is farthest from Earth.
5. Earth's \_\_\_\_\_ contains water vapor, nitrogen, carbon dioxide, oxygen, and other gases.
6. The \_\_\_\_\_ extends from the mesosphere to the exosphere.
7. Spectacular auroras might occur when charged particles in the \_\_\_\_\_ emit vivid colors.

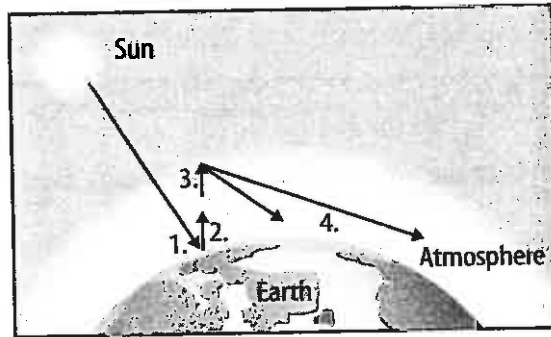
**Key Concept Builder** 

**LESSON 2**

## Energy Transfer in the Atmosphere

**Key Concept** How does energy transfer from the Sun to Earth and the atmosphere?

**Directions:** Study the diagram. Then explain what the diagram shows at each step on the lines below.



- 1. \_\_\_\_\_  
\_\_\_\_\_
- 2. \_\_\_\_\_  
\_\_\_\_\_
- 3. \_\_\_\_\_  
\_\_\_\_\_
- 4. \_\_\_\_\_  
\_\_\_\_\_

**Directions:** Answer each question on the lines provided.

5. What name is given to the process depicted in the diagram?

\_\_\_\_\_

6. Which gases in the atmosphere contribute the most to this process?

\_\_\_\_\_

**Key Concept Builder** 

**LESSON 2**

## Energy Transfer in the Atmosphere

**Key Concept** How are air circulation patterns within the atmosphere created?

**Directions:** *On the line after each item, write conduction, convection, or radiation to indicate the type of thermal energy transfer that it represents.*

1. the warming rays of the Sun \_\_\_\_\_
2. the flow of ocean currents \_\_\_\_\_
3. a branding iron making a mark \_\_\_\_\_
4. hot feet from hot sand \_\_\_\_\_
5. a cool breeze \_\_\_\_\_
6. heat from glowing coals \_\_\_\_\_
7. high-altitude air streams \_\_\_\_\_
8. the warmth of a heating pad \_\_\_\_\_

**Directions:** *On the line before each item, write A if it involves the absorption of thermal energy, or write R if it involves the release of thermal energy.*

- \_\_\_\_\_ 9. water freezing
- \_\_\_\_\_ 10. ice melting
- \_\_\_\_\_ 11. water evaporating
- \_\_\_\_\_ 12. water vapor condensing

**Lesson Quiz A**

**LESSON 2**

**Energy Transfer in the Atmosphere**

**Multiple Choice**

**Directions:** *On the line before each question or statement, write the letter of the correct answer.*

- \_\_\_\_\_ 1. Most of the energy that reaches Earth from the Sun is
  - A. visible light.
  - B. ultraviolet light.
  - C. infrared radiation.
  
- \_\_\_\_\_ 2. When the Sun's energy reaches Earth,
  - A. most of it is absorbed by clouds.
  - B. more than 90 percent of it is reflected.
  - C. about half of it is absorbed by Earth's surface.
  
- \_\_\_\_\_ 3. Why doesn't Earth become hotter with time as the Sun shines on it?
  - A. The Sun gives off less energy every day.
  - B. Earth sends back into space the same amount of energy it receives.
  - C. Earth's greenhouse effect is not strong enough to heat up the planet.
  
- \_\_\_\_\_ 4. Which gases are most responsible for the warming that occurs with the greenhouse effect?
  - A. nitrogen and oxygen
  - B. methane and carbon monoxide
  - C. carbon dioxide and water vapor

**Matching**

**Directions:** *On the line before each definition, write the letter of the term that matches it correctly. Each term is used only once.*

- |  |                                 |
|--|---------------------------------|
| _____ 5. builds storm clouds as rapidly rising air cools | <b>A.</b> conduction            |
| _____ 6. energy transfer by objects that are touching    | <b>B.</b> latent heat           |
| _____ 7. cooler air trapped beneath warmer air           | <b>C.</b> radiation             |
| _____ 8. energy transfer by electromagnetic waves        | <b>D.</b> temperature inversion |
| _____ 9. energy transfer due to warm, rising air         | <b>E.</b> unstable air          |
| _____ 10. changed when water changes state               | <b>F.</b> convection            |