

**Lesson Outline**

**LESSON 1**

**The Respiratory System**

**A. Functions of the Respiratory System**

1. \_\_\_\_\_ is the movement of air into and out of the lungs.
2. Air contains oxygen. Every cell in the body needs oxygen for a chemical reaction called \_\_\_\_\_.
3. During cellular respiration, oxygen is used to release energy from \_\_\_\_\_.
4. The respiratory system removes \_\_\_\_\_ and other waste gases from the body.

**B. Organs of the Respiratory System**

1. The \_\_\_\_\_ is a tubelike passageway at the top of the throat that receives air, food, and liquids from the mouth or nose.
2. The \_\_\_\_\_ at the bottom of the pharynx keeps food and liquid out of the rest of the respiratory system.
3. Air passes from the pharynx into a triangle-shaped area called the \_\_\_\_\_.
4. From the larynx, air moves into the windpipe or \_\_\_\_\_, a tube that is held open by C-shaped rings of cartilage.
5. The trachea branches into two narrower tubes called \_\_\_\_\_ that lead into the lungs.
6. \_\_\_\_\_ are the main organs of the respiratory system.
  - a. From the bronchi, air passes into smaller and narrower tubes in the lungs called \_\_\_\_\_.
  - b. The tubes in the lungs end in microscopic sacs called \_\_\_\_\_.
  - c. \_\_\_\_\_ occurs at the large surface area of the alveoli.

**C. Breathing and Air Pressure**

1. When high levels of carbon dioxide build up in your \_\_\_\_\_, the nervous system signals your body to breathe out, or exhale, and air moves out of your lungs.

Copyright © Glencoe/McGraw-Hill, a division of The McGraw-Hill Companies, Inc.

## Lesson Outline continued

2. Below the lungs is a large muscle called the \_\_\_\_\_ that contracts as you breathe.

a. Movement of the diaphragm muscle creates changes in air \_\_\_\_\_ that move air in and out of the lungs.

b. Inhalation occurs when your diaphragm \_\_\_\_\_.

### D. Respiratory Health

1. Some respiratory illnesses make \_\_\_\_\_ difficult and can even be life threatening.

2. The best way to maintain good respiratory health is to stay away from \_\_\_\_\_ and air pollution.

3. Common \_\_\_\_\_ illnesses include colds, flu, bronchitis, pneumonia, asthma, emphysema, and lung cancer.

### E. The Respiratory System and Homeostasis

1. Signals from the \_\_\_\_\_ system trigger breathing.

2. The nervous, circulatory, and respiratory systems work together to maintain \_\_\_\_\_.

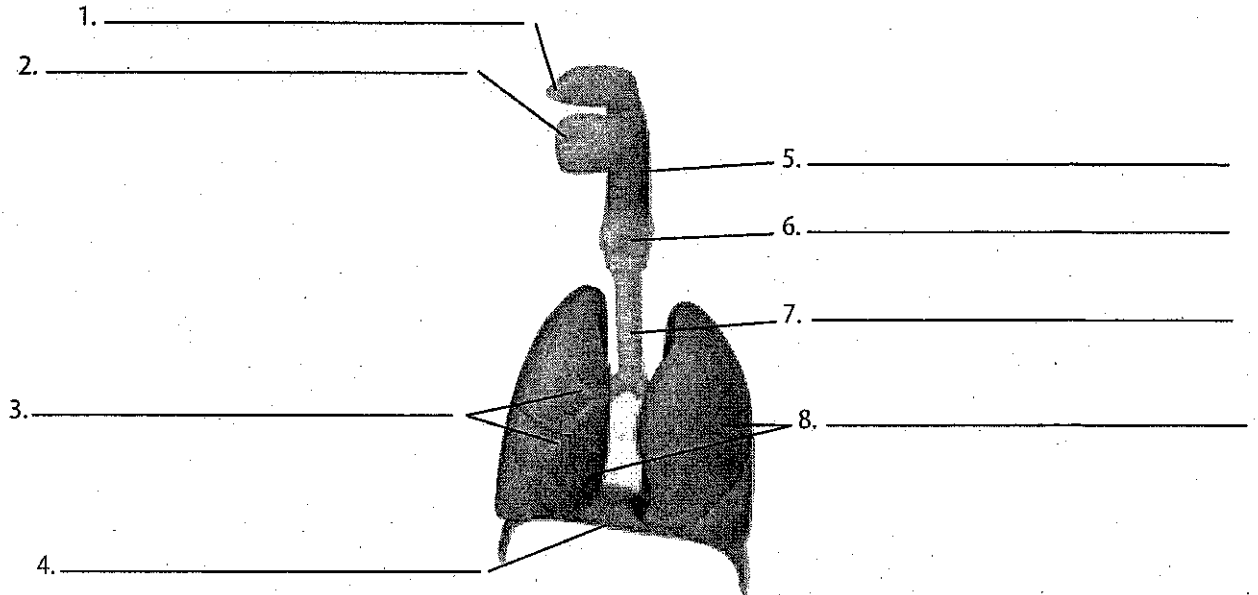
**Content Practice A**

**LESSON 1**

**The Respiratory System**

**Directions:** Label this diagram by writing the correct term from the word bank on each line.

- |         |           |         |         |
|---------|-----------|---------|---------|
| bronchi | diaphragm | larynx  | lungs   |
| mouth   | nose      | pharynx | trachea |



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

- |   |                       |
|---|-----------------------|
| _____ 9. tubelike passageway at the top of the throat       | <b>A. lungs</b>       |
| _____ 10. flap of tissue at the lower end of the pharynx    | <b>B. pharynx</b>     |
| _____ 11. a triangle-shaped area that holds the vocal cords | <b>C. alveoli</b>     |
| _____ 12. a tube that serves as the body's windpipe         | <b>D. bronchi</b>     |
| _____ 13. narrow tubes that lead into the lungs             | <b>E. trachea</b>     |
| _____ 14. the main organs of the respiratory system         | <b>F. epiglottis</b>  |
| _____ 15. small tubes of the respiratory system             | <b>G. bronchioles</b> |
| _____ 16. microscopic sacs where gas exchange occurs        | <b>H. larynx</b>      |

**Key Concept Builder** 

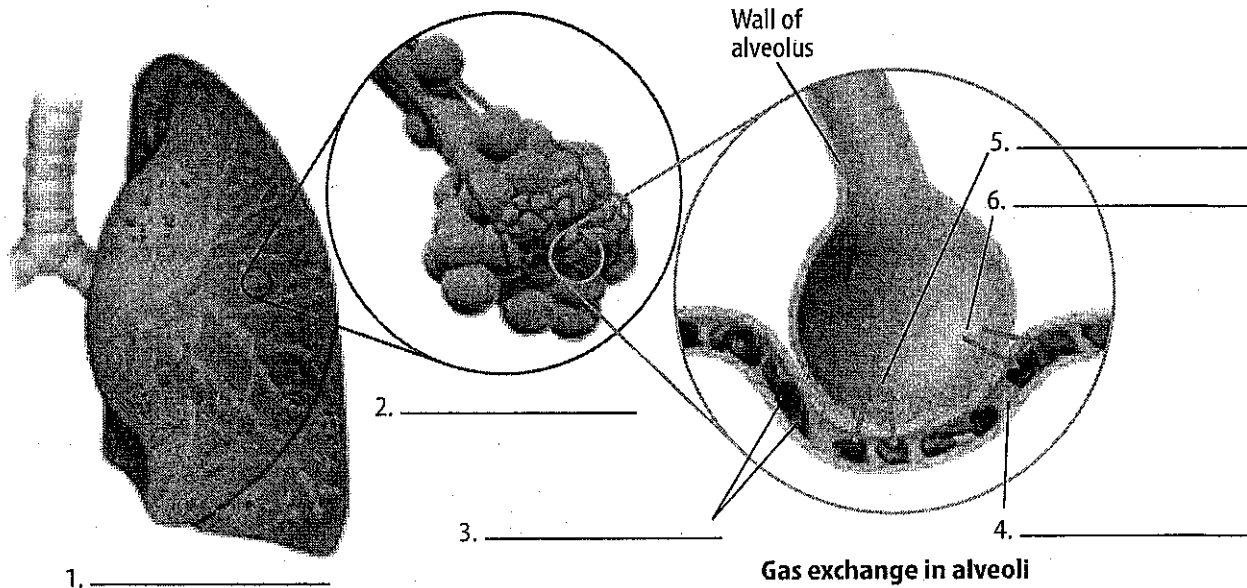
**LESSON 1**

**The Respiratory System**

**Key Concept** How do the parts of the respiratory system work together?

**Directions:** Label this diagram by writing the correct letter for each term in the word bank on each line.

- A. alveoli
- C. carbon dioxide
- E. oxygen
- B. blood vessel
- D. lung
- F. red blood cells



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

7. What happens to air taken in through the nose?

\_\_\_\_\_

\_\_\_\_\_

8. Where does the air go as it passes into the throat?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. Where are the bronchi located, and what is their purpose?

\_\_\_\_\_

\_\_\_\_\_

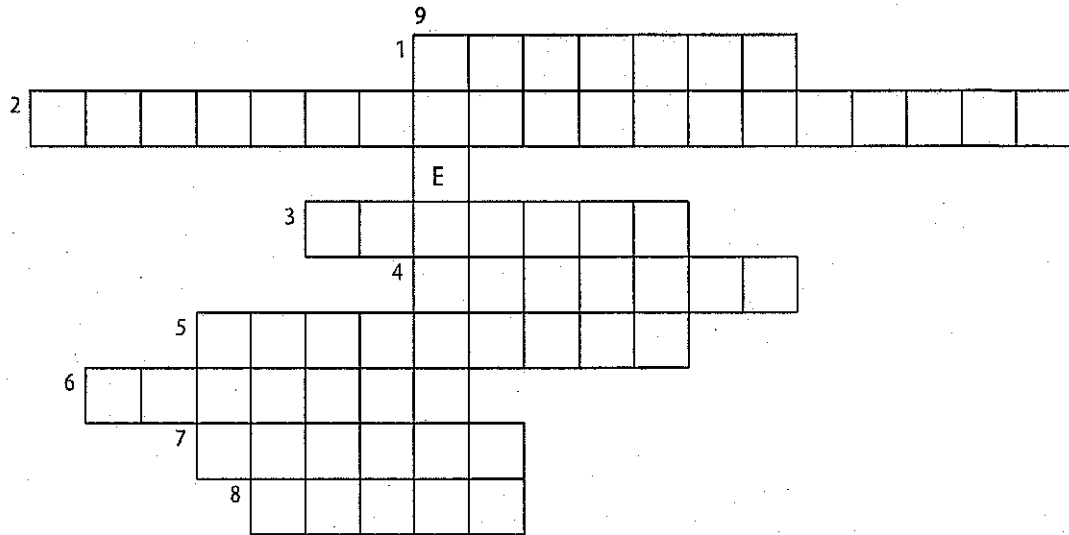
**Content Vocabulary**

**LESSON 1**

**The Respiratory System**

**Directions:** Use the clues and the terms listed below to complete the puzzle. NOTE: There is no empty square in the puzzle between the words of two-word terms.

- alveoli
- breathing
- bronchi
- cellular respiration
- diaphragm
- larynx
- lungs
- pharynx
- trachea



1. tubes that branch off of the trachea
2. process that turns food molecules into energy
3. links the nose and mouth to the throat
4. a tube connected to the larynx and held open by C-shaped rings of cartilage
5. a big muscle that helps you breathe
6. sacs where gas exchange occurs
7. also known as the voice box
8. main respiratory organs
9. The letters in the vertical box spell \_\_\_\_\_, which is something that you are doing right now.

**School to Home**

**LESSON 1**

***The Respiratory System***

**Directions:** Use your textbook to complete the table.

List three facts about each part of the respiratory system.

<p><b>1. Pharynx</b></p>	<p>a.</p> <p>b.</p> <p>c.</p>
<p><b>2. Larynx</b></p>	<p>a.</p> <p>b.</p> <p>c.</p>
<p><b>3. Trachea</b></p>	<p>a.</p> <p>b.</p> <p>c.</p>
<p><b>4. Bronchi</b></p>	<p>a.</p> <p>b.</p> <p>c.</p>
<p><b>5. Lungs</b></p>	<p>a.</p> <p>b.</p> <p>c.</p>
<p><b>6. Alveoli</b></p>	<p>a.</p> <p>b.</p> <p>c.</p>

**Enrichment****LESSON 1**

## Hiccups

Your diaphragm suddenly contracts and pulls air into your lungs. Your larynx contracts, too, and your vocal cords slam shut. You don't speak a word. Instead, you . . . hiccup!

### What causes hiccups?

Hiccups are caused by several factors. Irritations to the stomach, the organs in the chest, or the diaphragm play a role. For example, suppose you ate a large meal. Your stomach expands. Gas in the stomach pushes up on the diaphragm. The diaphragm contracts, and the lungs suck in air. The hiccup occurs when the closing vocal cords abruptly stop the movement of air. Hiccups are also associated with swallowing too much air, eating too quickly, drinking too much alcohol, and emotional stress.

Hiccups can be caused by more complicated medical problems that affect the central nervous system or the kidneys, among other organs. Hiccups caused by these problems might last for weeks or even months. They can lead to weight loss, insomnia, and exhaustion.

Usually, however, hiccups are a minor problem. One erupts every few seconds;

then they disappear on their own, within a matter of minutes. They are commonly produced by babies and other young animals that eat too quickly or swallow too much air. Even fetuses in the womb hiccup, as shown in ultrasound images.

### Can hiccups be stopped?

You might have been told to hold your breath when you have hiccups. Maybe someone suggested breathing into a paper bag for a minute or two. Other remedies for hiccups include drinking a glass of cold water very quickly, swallowing a teaspoon of honey, or being startled.

Scientists theorize that these remedies often work because they distract the brain—basically, the brain turns its attention to other, more pressing matters, and the hiccups are forgotten. Holding your breath, for example, increases levels of carbon dioxide in the blood. The brain quickly shifts its focus and works to reduce the amount of carbon dioxide to normal levels.

If you would like to avoid hiccups in the first place, health experts recommend that you do not overeat. Eat and drink slowly, and chew your food carefully.

### Applying Critical-Thinking Skills

**Directions:** Respond to each statement.

1. **Compose** lyrics to a song that describes the causes and effects of hiccups.
2. **Critique** this statement: Increased levels of carbon dioxide in the blood stop hiccups.

