

Chapter 18 Respiration and Excretion

Study Guide

1. The Respiratory System

a. Why the Body Needs Oxygen

i. **Respiration**

b. The Air You Breathe

c. The Path of Air

i. The Nose

1. **Cilia**ii. The **Pharynx**iii. The **Trachea**iv. The **Bronchi** and **Lungs**1. **Alveoli**

d. Gas Exchange

i. How Gas Exchange Occurs

ii. A Large Surface Area

e. How You Breathe

i. Muscles for Breathing

1. **Diaphragm**

ii. The Process of Breathing

f. How you Speak

i. **Larynx**ii. How the **Vocal Cords** Work

iii. High and Low Tones

2. Smoking and Your Health

a. Chemicals in Tobacco Smoke

i. **Tar**ii. **Carbon Monoxide**iii. **Nicotine**1. **Addiction**

b. Respiratory System Problems

i. Chronic **Bronchitis**

- ii. **Emphysema**
- iii. Lung Cancer
- c. Circulatory System Problems
- d. **Passive Smoking**
- e. Choosing Not to Smoke

3. The Excretory System

- a. **Excretion**
- b. The **Kidneys**
 - i. **Urea**
 - ii. **Urine**
 - iii. **Ureters**
 - iv. **Urinary Bladder**
 - v. **Urethra**
- c. The Filtering Process
 - i. **Nephrons**
 - ii. Filtering Out Wastes
 - iii. Formation of Urine
 - iv. Analyzing Urine for Signs of Disease
- d. Water Balance in the Body
- e. Other Organs of Excretion

SECTION 18-1

REVIEW AND REINFORCE

The Respiratory System

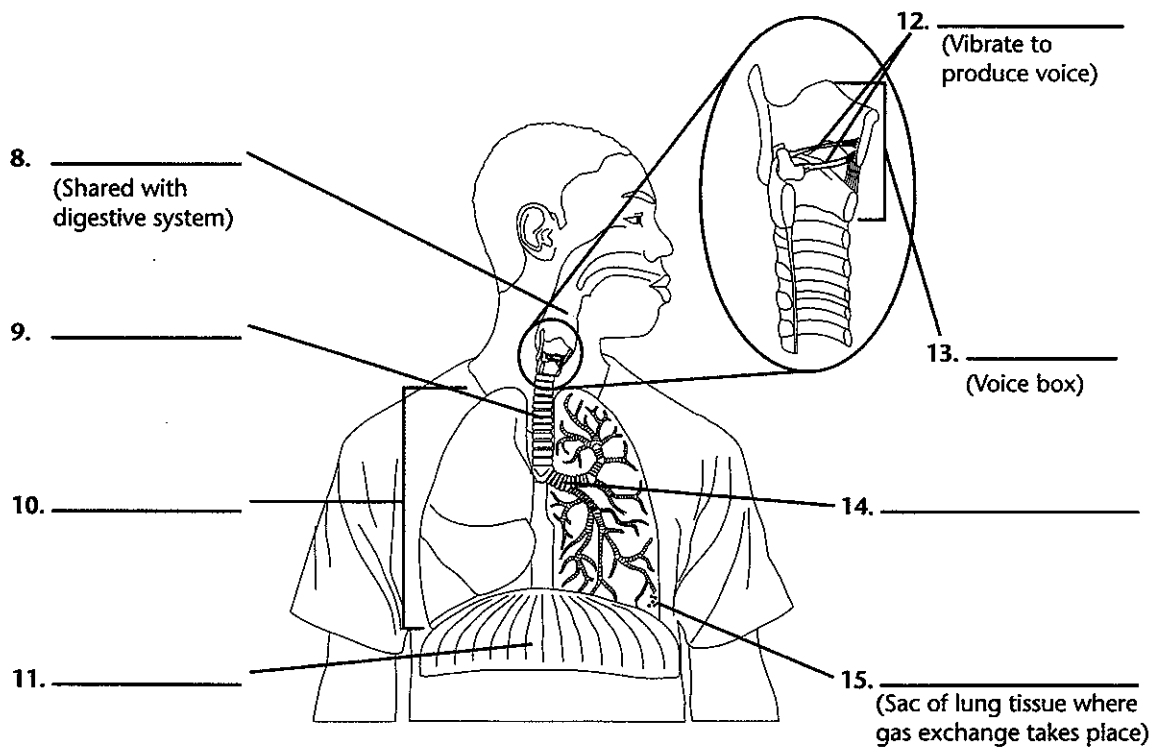
◆ Understanding Main Ideas

Answer the following on a separate sheet of paper.

1. How does respiration differ from breathing?
2. What are the two functions of the respiratory system?
3. Through what structures does air pass to get to the lungs?
4. What three ways does the respiratory system modify air before it reaches the lungs?
5. What gases are exchanged in the respiratory system?
6. How do you inhale and exhale?
7. How is the sound of your voice produced?

◆ Building Vocabulary

Label the diagram with the parts of the respiratory system.



SECTION 18-2 REVIEW AND REINFORCE

Smoking and Your Health

◆ Understanding Main Ideas

Answer the following questions on a separate sheet of paper.

1. What are three of the most harmful chemicals in tobacco smoke?
2. How does tar affect the cilia in your respiratory system and why is this harmful?
3. How does inhaling carbon monoxide decrease the oxygen level in your blood?
4. Describe how bronchitis, emphysema, and lung cancer affect the respiratory system.
5. How is smoking related to atherosclerosis?
6. How does smoking affect the likelihood a person will have a heart attack?

◆ Building Vocabulary

Match each term with its definition by writing the letter of the correct definition on the line beside the term.

- | | |
|---------------------------|--|
| _____ 7. addiction | a. a dark sticky substance produced when tobacco burns |
| _____ 8. bronchitis | b. a dangerous, colorless, and odorless gas |
| _____ 9. carbon monoxide | c. irritation of the breathing passages |
| _____ 10. emphysema | d. a drug that speeds the activities of the nervous system and heart |
| _____ 11. nicotine | e. inhaling smoke from other people's cigarettes, cigars, and pipes |
| _____ 12. passive smoking | f. a disease that destroys lung tissue |
| _____ 13. tar | g. a physical dependence on a substance |

SECTION 18-3 REVIEW AND REINFORCE

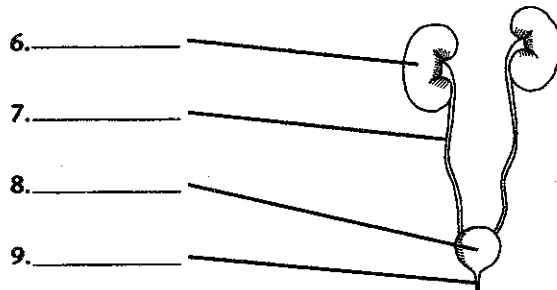
The Excretory System

◆ Understanding Main Ideas

Answer the following on a separate sheet of paper.

1. What are three substances that the excretory system removes from the body?
2. Describe the path of urine through the body from its formation to its elimination from the body.
3. What is the main organ of excretion? What are three other organs of excretion?
4. How do the kidneys maintain water balance in the body?
5. Where in the body are nephrons? Briefly describe the two-stage process in which they help to produce urine.

Label the diagram with the names of the parts of the excretory system.



◆ Building Vocabulary

Answer the following in the spaces provided.

10. What is excretion?

11. Compare and contrast the ureters and the urethra.

12. What is urea?

13. What is urine?

Name: _____

Class: _____

Choose the letter of the correct answer.

1. Which organ of the excretory system stores urine until the body is ready to eliminate it?
[A] ureters [B] urea [C] urethra [D] urinary bladder
2. What is the main function of the excretory system?
[A] to protect the nervous system [B] to bring oxygen to body cells
[C] to strengthen skeletal muscles [D] to collect and remove wastes from the body
3. During gas exchange, which substance moves from the alveoli into the blood?
[A] nitrogen [B] water [C] oxygen [D] carbon dioxide
4. Which excretory organ eliminates water and some chemical wastes in perspiration?
[A] kidneys [B] liver [C] skin [D] lungs
5. In which part of the respiratory system is the air first cleaned, moistened, and warmed?
[A] lungs [B] pharynx [C] nose [D] bronchi
6. What happens to cause air to be exhaled from the lungs?
[A] The rib muscles contract. [B] The chest cavity expands.
[C] The diaphragm moves upward. [D] The lungs expand.
7. Over time, smoking can irritate the breathing passages, which become clogged with mucus. This condition can lead to
[A] emphysema. [B] bronchitis. [C] heart attacks. [D] lung cancer.
8. Most adult smokers began smoking when they were
[A] teenagers. [B] in college. [C] young children. [D] as adults.
9. A tumor that develops in the lungs may be a sign of
[A] heart disease. [B] bronchitis. [C] lung cancer. [D] emphysema.
10. Tiny filtering structures where urine is produced in the kidneys are called
[A] ureters. [B] nephrons. [C] bronchi. [D] alveoli.

Choose the letter of the correct answer.

11. Which chemical in tobacco smoke may damage cilia in the respiratory system?
[A] tar [B] nitrogen [C] carbon monoxide [D] nicotine

Fill in the word or phrase that best completes the statement(s).

12. The respiratory system moves air into and out of the lungs through the process of _____.
13. Tobacco smoke contains a substance called _____, which makes cilia clump together.
14. In the first stage of _____ formation, needed materials as well as wastes are removed from the blood.
15. Tobacco smoke contains the gas _____, which replaces some of the oxygen that red blood cells normally carry.
16. Carbon dioxide and _____ pass from the blood into the alveoli.
17. Urea, excess water, and other waste materials are eliminated in a watery fluid called _____.
18. The ureters carry the urine to the _____, a muscular organ that stores urine.
19. The _____, or windpipe, leads from the pharynx toward the lungs.
20. The process in which energy is released from glucose is called cellular _____.

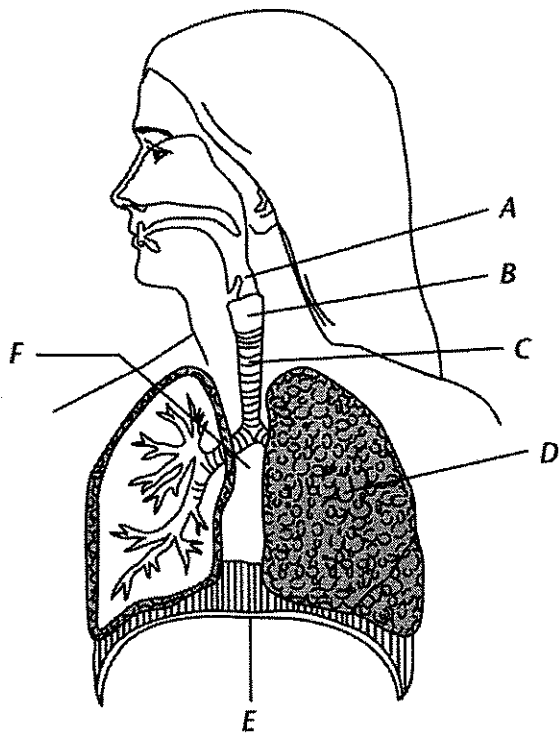
If the statement is true, write true. If it is false, change the underlined word or words to make the statement true.

21. During the reabsorbing process in the nephron, glucose is normally left in the tube.
22. Men have deeper voices than women do because their vocal cords are longer than women's.
23. Cigarette advertisements try to convince people that smokers are attractive.
24. One reason that nicotine is harmful is that it speeds up heart activity.

Write an answer to the following question(s).

30. Explain how the vocal cords produce sound.

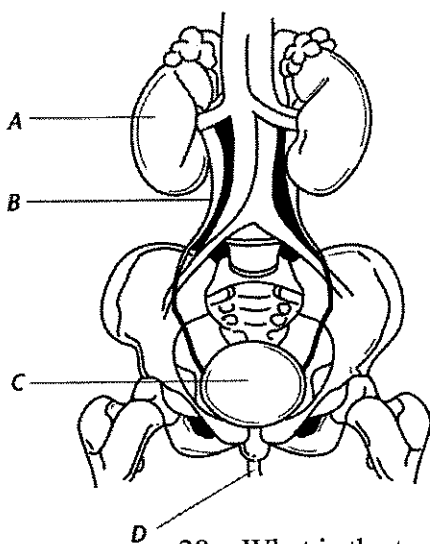
Use the diagram to answer the question(s).



25. Identify structure A and explain its function.
26. Identify structure C and explain its function.
27. What is structure D? What are the tiny sacs of tissue that make up most of structure D? Describe what happens in these structures.

Use the diagram to answer the question(s).

The Excretory System



28. What is the term for the tiny filtering structures that make up structure A? Describe what happens in each of those structures.
29. Identify a waste substance that is NOT eliminated from the body by the organs shown in the diagram. How is that substance removed from the body?