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16-1 What is the respiratory system?

Lesson Review

Match each term in **Column B** with its description in **Column A**. Write the letter of the correct term in the space provided.

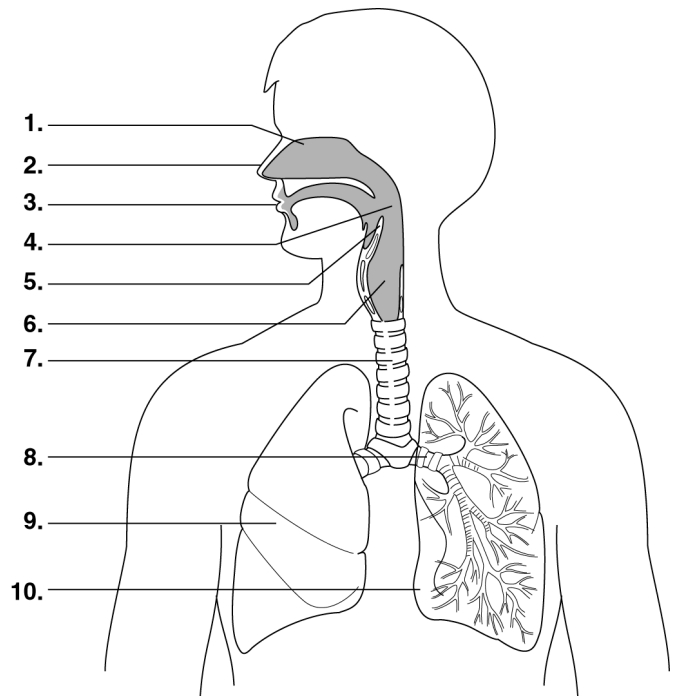
Column A	Column B
_____ 1. main organs of the respiratory system	a. alveoli
_____ 2. waste products of respiration	b. bronchi
_____ 3. microscopic air sacs in the lungs	c. respiratory system
_____ 4. Its job is to take oxygen into the lungs and get rid of carbon dioxide and water.	d. lungs
_____ 5. windpipe	e. carbon dioxide and water
_____ 6. tubes leading to the lungs	f. larynx
_____ 7. organ located on top of the trachea that contains the vocal chords	g. trachea

Skill Challenge

Skills: identifying, labeling

In the spaces provided, label the parts of the respiratory system shown in the diagram. Use the following labels: *mouth, nasal cavity, right lung, epiglottis, throat, nose, larynx, bronchus, trachea, and left lung.*

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____



Comparing the Pathways of Food and Air

Enrichment Activity for Lesson 16–1

Skills: *comparing, describing*

PART A Use reference materials to describe each of the organs listed. Be sure to identify whether each organ is a passageway for food, air, or both food and air. Then, answer the questions.

1. **pharynx:** _____

2. **esophagus:** _____

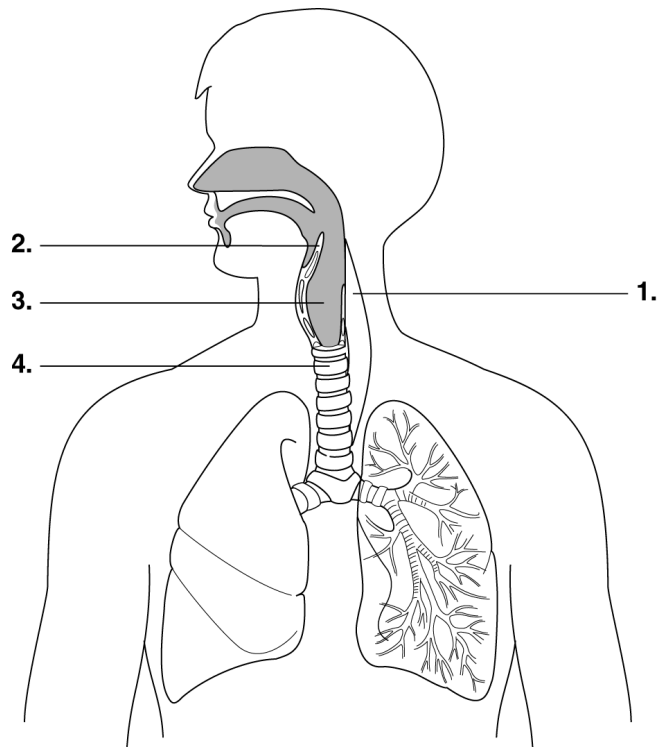
3. **trachea:** _____

4. **epiglottis:** _____

5. What body systems does the pharynx belong to? _____
6. What structure keeps food from entering the trachea? _____
7. Describe the position of the epiglottis as you swallow. _____
8. When you talk, the epiglottis is raised and does not cover the trachea. Explain why it is dangerous to talk and eat at the same time. _____

PART B Identify the following structures on the diagram below: *epiglottis, esophagus, pharynx, and trachea.*

1. _____
2. _____
3. _____
4. _____



16-2 What are breathing and respiration?

Lesson Review

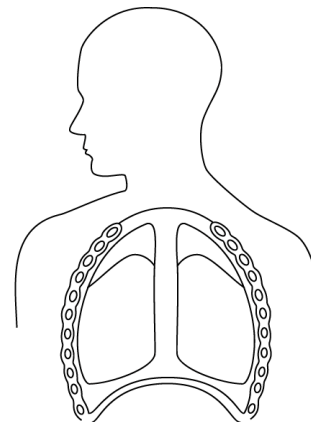
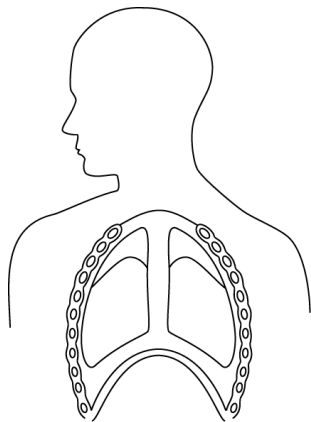
Circle the term that best completes each statement.

1. When you breath in, you are (inhaling / exhaling).
2. When you breathe out, you are (inhaling / exhaling).
3. Carrying oxygen to your cells, getting rid of wastes, and releasing energy is called (breathing / respiration).
4. Cellular respiration is a (chemical / mechanical) process.
5. Breathing is a (chemical / mechanical) process.
6. The sheet of muscle below the lungs is the (rib muscle / diaphragm).
7. The process by which energy is released by your body's cells is (internal / cellular) respiration.
8. When you inhale, the chest cavity becomes (smaller / larger).
9. When you exhale, the chest cavity becomes (smaller / larger).
10. Oxygen and carbon dioxide are exchanged between the lungs and the blood during (external / internal) respiration.

Skill Challenge

Skills: analyzing, applying concepts, comparing

Study the diagrams. In the space labeled **a**, write whether the diagram is showing inhaling or exhaling. In the space labeled **b**, explain why you wrote the answer you did on line **a**.



1. **a.** _____
b. _____

2. **a.** _____
b. _____

16-3 What happens to air before it reaches the lungs?

Lesson Review

Complete the following.

1. What are cilia? _____
2. What are the jobs of cilia in the respiratory system? _____
3. Where are cilia in the respiratory system located? _____

4. What is mucus? _____
5. What are the jobs of mucus? _____

6. Where in the respiratory system is mucus formed? _____
7. How does air change before it reaches the lungs? _____

8. Why is it important for air to be moistened before it reaches the lungs? _____

Skill Challenge

Skills: *organizing, identifying*

Each structure listed in the first column of the table performs a special function in the respiratory system. Complete the table by identifying the function of each structure.

RESPIRATORY SYSTEM PARTS AND THEIR FUNCTIONS	
Structure	Function
Hairs in the nose	
Cilia in the trachea	
Cells lining the nose	

16-4 How does oxygen get into the blood?

Lesson Review

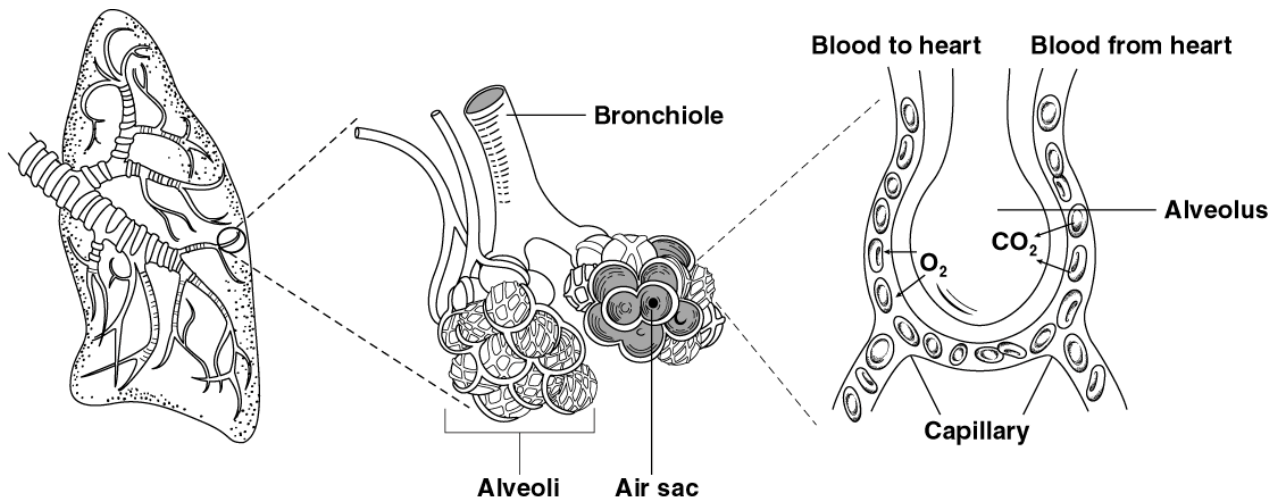
Write the term that best completes each statement in the spaces provided.

1. Air is a mixture of _____ .
2. Air is made up mostly of _____ and oxygen.
3. Body cells need oxygen to carry out _____ .
4. Alveoli look like a bunch of _____ .
5. Gas exchange takes place in the _____ of the lungs.
6. In the lungs, oxygen molecules pass through the walls of the alveoli into the _____ .
7. Oxygen moves to the cells of the body from _____ .
8. In the body, oxygen and _____ are exchanged between the body cells and the red blood cells.
9. Inhaled air contains more _____ than does exhaled air.
10. Exhaled air contains more _____ than does inhaled air.

Skill Challenge

Skills: analyzing, describing

Study the diagram. Describe what is shown in the diagram.



Description: _____

16-5 How does tobacco affect the body?

Lesson Review

Circle the term that best completes each statement.

1. Tobacco contains more than (100 / 500) chemical substances.
2. Nicotine is a (depressant / stimulant).
3. A poisonous gas found in cigarette smoke is carbon (dioxide / monoxide).
4. Tiny hairs called (flagella / cilia) line the air tubes of the lungs.
5. Smoking places a great strain on the (heart / muscles).
6. Nicotine causes the blood vessels to become (narrower / wider).
7. Two diseases that commonly develop in smokers are lung cancer and (cirrhosis / emphysema).

Skill Challenge

Skills: researching, relating concepts

In 1965, Congress passed a law for cigarette makers to follow. They must print warnings about the dangers of smoking. The warnings must be on the sides of cigarette packages and in cigarette advertisements.

Research to find three of the warnings that cigarette makers must print on their packaging and advertising. Write the warnings in the spaces provided. Then, identify three diseases that have been linked to cigarette smoking.

SURGEON GENERAL'S WARNINGS

DISEASES

Health Trends

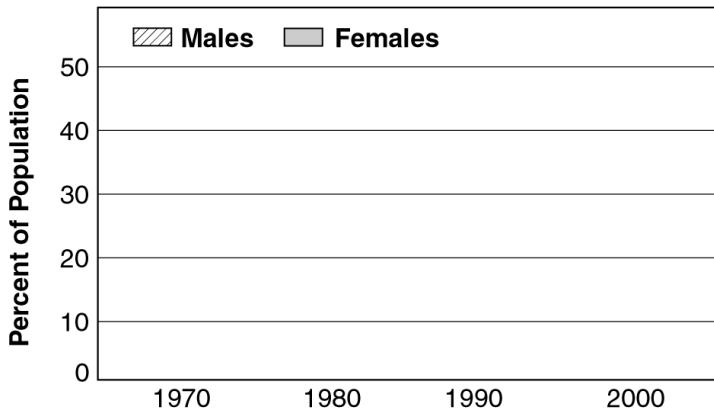
Enrichment Activity for Lesson 16-5

Skills: graphing, comparing

In 1965, the United States Surgeon General issued the first official warning about the health hazards of smoking. Since that time, additional reports have been published linking smoking to such diseases as lung cancer and heart disease.

The table below lists the percentages of Americans who smoked cigarettes in the years shown. Use the table to make a double bar graph that compares the number of American male and female smokers in 1970, 1980, 1990, and 2000. Then, use the graph to help you answer the questions that follow.

PERCENT OF AMERICANS WHO SMOKE CIGARETTES				
	1970	1980	1990	2000
Males	44%	38%	28%	26%
Females	32%	29%	23%	21%



1. What change does the graph indicate about the percentage of American males that smoke cigarettes? _____
2. What change does the graph indicate about the percentage of American females that smoke cigarettes? _____
3. What might account for these changes in percentages? _____

4. Predict how these percentages might change by 2010. Explain your answer. _____

16-6 What is the excretory system?

Lesson Review

Write *true* if the statement is true. If the statement is false, change the underlined term to make the statement true.

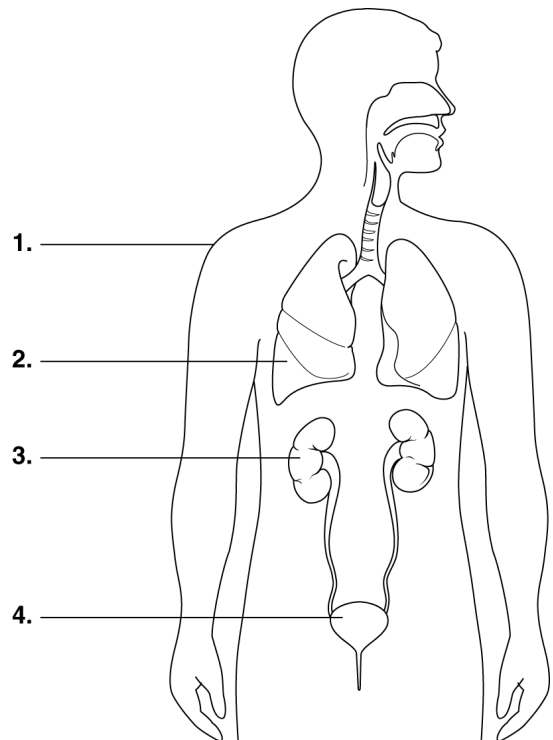
- _____ 1. Carbon dioxide and water are byproducts of cellular respiration.
- _____ 2. Excretion is the process by which the body takes in waste products.
- _____ 3. One of the waste products of the human body is heat.
- _____ 4. Waste products that build up in the body can be harmful to the body.
- _____ 5. Removing waste products from the body is the job of the circulatory system.
- _____ 6. The three main organs of excretion are the lungs, skin, and nose.
- _____ 7. Undigested waste products are removed from the body through the anus.
- _____ 8. The job of the small intestine is to remove water from undigested wastes.
- _____ 9. The largest organ of the excretory system is the skin.
- _____ 10. The job of the kidneys is to get rid of solid wastes.
- _____ 11. The tube that carries liquid wastes from the kidneys to the bladder is the ureter.
- _____ 12. Liquid waste is excreted through the large intestine.

Skill Challenge

Skills: *identifying, labeling a diagram*

Study the diagram of the excretory system. In the spaces provided, write the name of the excretory organ that is identified by each number.

- 1. _____
- 2. _____
- 3. _____
- 4. _____



16-7 How do the kidneys work?

Lesson Review

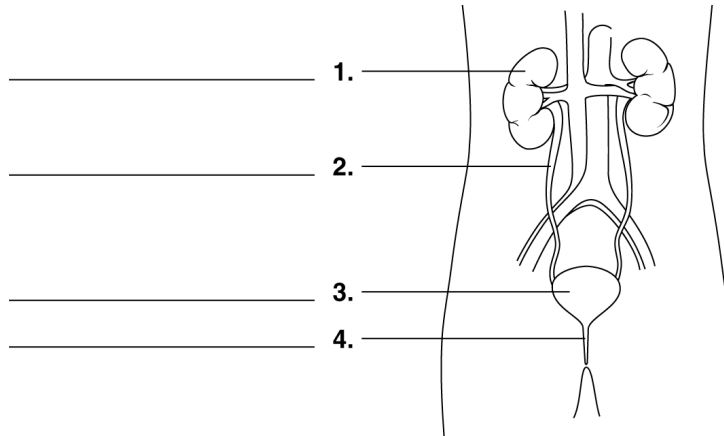
Complete the following.

1. What is the main job of the kidneys? _____
2. What is the name of the waste excreted by the kidneys? _____
3. What is the name of the nitrogen compound that is excreted by the kidneys? _____
4. What three substances make up most of urine? _____
5. What organ carries urine to the outside of the body? _____
6. What is urea formed from? _____
7. Where does urine form? _____
8. What is filtered by the kidneys and then returned to the blood? _____
9. What are nephrons? _____
10. How do nephrons filter waste products from the blood? _____

Skill Challenge

Skills: identifying, describing, inferring

Label the numbered parts of the diagram. Then, answer the questions.



5. What is the main function of the structure numbered 1 in the diagram? _____
6. What is the function of the structure numbered 2? _____
7. What is the function of the structure numbered 3? _____
8. What is the function of the structure numbered 4? _____

16-8 How does the skin remove wastes?

Lesson Review

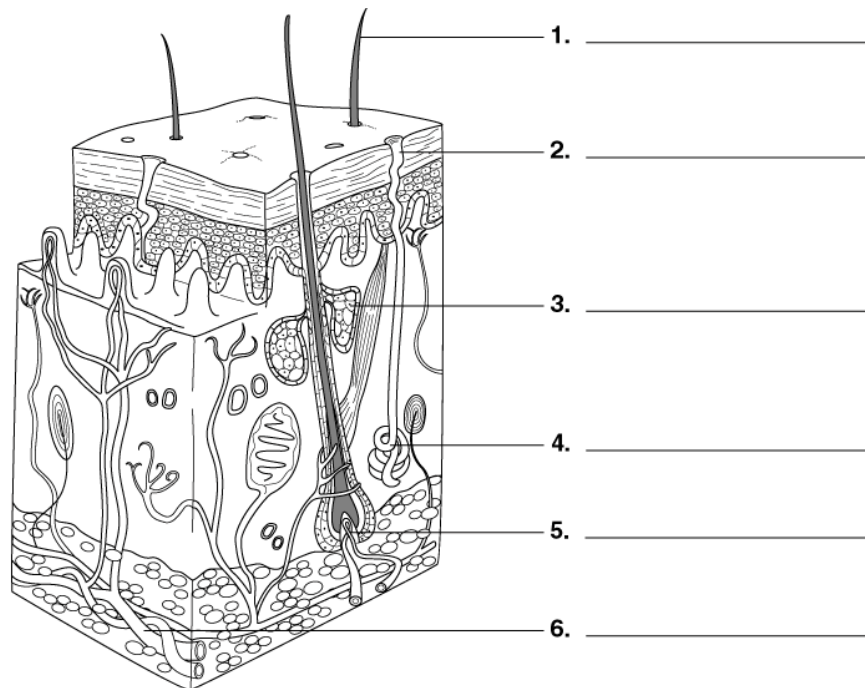
Write the term that best completes each statement in the space provided.

1. The inner layer of the skin is called the _____ .
2. The outer layer of the skin is called the _____ .
3. Tiny openings at the skin's surface are called _____ .
4. The cells that make up the epidermis are both living and _____ .
5. Hair grows from _____ located in the skin.
6. The skin is moistened and softened by oil made in _____ .
7. Nerve endings in the skin are located in the _____ .
8. Water molecules in the blood pass through the walls of the _____ into the sweat glands.
9. The structures in the skin that help to remove liquid wastes are the _____ .
10. Liquid wastes are removed from the skin as sweat or _____ .

Skill Challenge

Skills: identifying, classifying

Label each of the numbered parts of the skin, using the following terms: *hair follicle*, *pore*, *blood vessels*, *oil gland*, *sweat gland*, and *hair*. Use reference materials or your text for help.



Comparing the Dermis and the Epidermis

Enrichment Activity for Lesson 16-8

Skills: comparing, describing

Complete the table by placing a check mark in the correct column to indicate the part of the skin that is described in the first column.

SKIN LAYERS AND THEIR FUNCTIONS		
DESCRIPTION	DERMIS	EPIDERMIS
1. Made up of living cells		
2. Thickest layer of the skin		
3. Thinnest layer of the skin		
4. Contains sweat glands		
5. Made up of living and dead cells		
6. Outer layer of the skin		
7. Layer where perspiration cools the body		
8. Covers and protects the body		
9. Contains oil glands		
10. Contains hair follicles		
11. Layer where hairs emerge		
12. Contains pores		
13. Layer where dead skin cells are constantly replaced		
14. Contains nerves		
15. Contains tiny blood vessels		
16. Produces substance to soften and moisten skin		
17. Has many different structures in it		
18. Contains coiled tubes surrounded by capillaries		
19. Layer where wastes are passed from the skin		
20. Layer where heat is removed from the body		

THE **Big** IDEA

Integrating Health

Chapter 16 What happens when the body overheats?

Lesson Review

Refer to the article, call outs, and pictures on pages 394 and 395 of your text to answer the following questions.

1. What is heat illness? _____

2. Why might you breathe more rapidly when you are overheated? _____

3. When a person suffers a heat stroke, what happens to his or her body? _____

Skill Challenge

Skills: *inferring, synthesizing*

Complete the following.

1. What are athletes urged to do before, during, and after exercise? _____

2. Why do you think dogs pant when they are hot? _____

3. What should you do if you felt faint while hiking on a hot day? _____

Science Log Writing Activity

Complete the Science Log on a separate sheet of paper. To complete the Big Idea Online, go to www.conceptsandchallenges.com. Follow the online instructions.