#8953

WHAT'S INSIDE YOUR BODY?

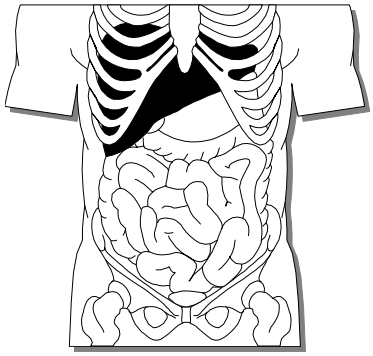
HEART & BLOOD / DIGESTION & RESPIRATION

Grade Levels: 2-7
19 minutes
SVE & CHURCHILL MEDIA 1999
3 Instructional Graphics Enclosed

DESCRIPTION

Can you name the parts of your circulatory system? What are the functions of blood? What is respiration? Do you know where and how air is exchanged? How many organs make up the digestive system? How does your body change food to fuel? Do you know what part of you is 16'-19' long? Lori and her young friends discuss the heart, blood, makeup of the lungs, and the complex digestive system.

ACADEMIC STANDARDS



Subject Area: Life Sciences

- Standard: Understands the structure and function of cells and organisms
  - Benchmark: Knows that multicellular organisms have a variety of specialized cells, tissues, organs, and organ systems that perform specialized functions (e.g., digestion, respiration, reproduction, circulation, excretion, movement, control and coordination, protection from disease)
  - Benchmark: Knows that the behavior of individual organisms is influenced by internal cues (e.g., hunger) and external cues (e.g., changes in the environment), and that humans and other organisms have senses that help them to detect these cues

INSTRUCTIONAL GOALS

1. To describe the importance of the heart, blood, and blood vessels in keeping the body running.
2. To define the three main kinds of cells found in blood and describe their functions.
3. To identify the four chambers of the heart and explain how blood is carried from the heart to the body and back again.

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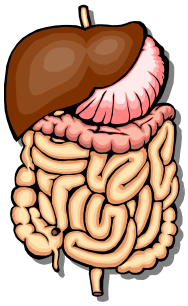
4. To describe the process of respiration and differentiate between the upper and lower sections of the respiratory system.
5. To distinguish between internal and external respiration.
6. To identify the organs of the gastrointestinal tract and other important structures in the digestive system.
7. To follow the process of digestion from the mouth to rectum.
8. To describe the functions of organs in the circulatory, respiratory, and digestive systems and explain how they are related.



VOCABULARY

1. abdomen
2. alveoli
3. aorta
4. arteries
5. atria
6. bile
7. blood
8. blood vessels
9. breathe
10. bronchi
11. bronchioles
12. capillaries
13. carbon dioxide
14. cell
15. chamber
16. circulatory system
17. clot
18. diaphragm
19. digestive system
20. digestive tract
21. duodenum
22. energy
23. enzymes
24. esophagus
25. external respiration
26. gallbladder
27. gastric juice
28. gastrointestinal tract
29. heart
30. hydrochloric acid
31. internal respiration
32. involuntary action
33. large intestine
34. larynx
35. liver
36. lungs
37. micelles
38. microbes
39. microvilli
40. mouth
41. mucosal folds
42. nose
43. oxygen
44. pancreas
45. peristalsis
46. pharynx
47. plasma
48. platelets
49. pulmonary
50. pulmonary arteries
51. red blood cells
52. respiration
53. respiratory system
54. rib cage
55. salivary glands
56. small intestine
57. spleen
58. stomach
59. teeth
60. tissue
61. trachea
62. veins
63. ventricles
64. villi
65. white blood cells
66. windpipe

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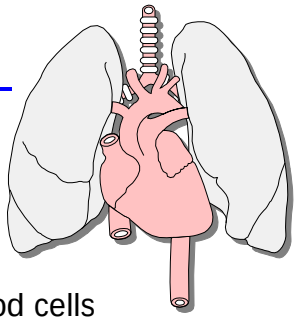
BEFORE SHOWING

1. Inform students that they will be watching a video on three important systems in their bodies: the circulatory, respiratory, and digestive systems. What does each system do? What organs does it include? Encourage a brief discussion on the body's systems.
2. Have the students every heard their heartbeat or stomach growl? Where in their body do they hear these sounds? Why do they happen? Why does their chest move when they breathe? Why do they breathe faster when they exercise?
3. Write the names of the three systems at the top of the blackboard horizontally. As the students watch the video, encourage them to list the organs mentioned underneath each system.

AFTER SHOWING



Discussion Items and Questions

1. To what does Lori compare the circulatory system in the beginning of the video? How is the circulatory system similar to a transportation system? What is *blood*? What are the different types of cells found in the blood? What job do red blood cells perform? White blood cells? Platelets? What happens when blood clots? Why is clotting important? What are some of the functions of blood?
2. What is the most important organ of the circulatory system? How many times a minute does the heart beat? How many gallons of blood does it pump during a day? Obtain a picture of a heart or use a still image from the video to help students identify each of its parts. How is the heart divided? What are the upper chambers called? What are the lower chambers called?
3. What does the right side (or pulmonary side) of the heart do? What happens on the left side of the heart? What happens to the oxygen-poor blood in the tissues? How does blood travel throughout the body? What are the three types of blood vessels? What does Jesse suggest is an easy way to remember which way blood flows in veins and arteries? What are *capillaries*?
4. What is the purpose of respiration? Why do we need oxygen? What is the *upper respiratory system*? What is the *lower part*? What is *external respiration*? What is *internal respiration*?
5. Why is it better to breathe in through the nose than the mouth? Where does the air go after it enters the body from the nose or mouth? What happens to the oxygen in the lungs? What happens to the oxygen in the cells? What are *bronchioles*? What is the *diaphragm*? Why is the rib cage important? What is an *involuntary action*?
6. How do our bodies get energy to move around and think? What is the *digestive* or *gastrointestinal tract*?

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7. What is the first part of digestion? How does saliva aid in digestion? What happens when the food is swallowed? What is *peristalsis*? Where does the food go from the esophagus? How else is food broken down in the stomach?
8. Where does the food go after it leaves the stomach? What is the purpose of the small intestine? How long is the small intestine? How does the small intestine absorb vitamins and minerals from food? How much can the small intestine absorb per day? How do the folds and villi enable the small intestine to absorb so much?
9. What organ supplies enzymes to the small intestine? What role does the liver play in digestion? What is the role of the gallbladder?
10. Where does the last stage of digestion occur? How long is the large intestine? How does the large intestine dry out the last bits of indigestible food residue? Why is it important to eat healthy, nutritious foods?

Applications and Activities

1. Divide the class into three groups (one for each system outlined in the video) and assign each person in the group an organ that is a part of that system. Have them research their organ. Then have each group give an oral presentation that describes the function of each organ in that particular system. Be sure they answer the following questions: What is this organ's main function? How does it work with other organs in this system? How does it contribute to the system's function as a whole? Does this organ serve any function to other systems in the body? How?
2. Name the parts of the digestive system. (See INSTRUCTIONAL GRAPHICS.)
3. Complete the respiratory system worksheet. (See INSTRUCTIONAL GRAPHICS.)

SUMMARY

Join host Lori Laboratory and her two young lab assistants in their exploration of the body's main systems: the digestive, respiratory, circulatory, nervous, skeletal, and muscle systems.

Lori and her assistants show how blood travels to and from the heart and explain the functions of its three types of cells. Students will also learn about the important job of the respiratory system and the makeup of the lungs and other respiratory organs. Discover the ins and outs of the digestive system, thoroughly examining the function of each organ and discussing the complex passage of food through the body.

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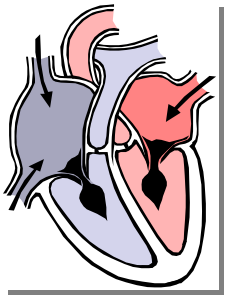
RELATED RESOURCES



Captioned Media Program

- The Digestive System #3454
- Food and Growth #2174
- The Respiratory System #3508

World Wide Web

The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and "kid-safe" sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **YOUR GROSS AND COOL BODY**

http://yucky.kids.discovery.com/noflash/body/pg000126.html

Includes an explanation of the digestive system and the circulatory, respiratory and other systems.

- **TOUR OF THE HUMAN BODY**

http://tqjunior.thinkquest.org/5777/tour.htm

From the ThinkQuest Junior site, explore the control system of the human body which includes the digestive, respiratory, and circulatory systems.

INSTRUCTIONAL GRAPHICS

- The Digestive System
- The Respiratory System
- Answer Sheet

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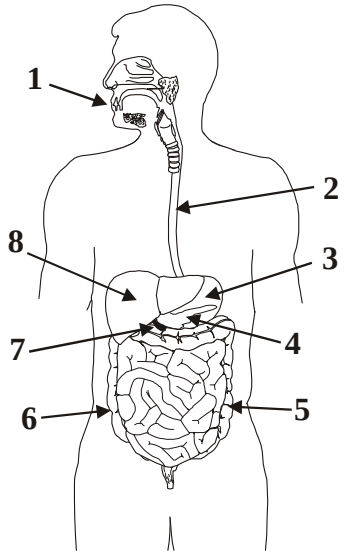
Name: _____ Date: _____

The Digestive System



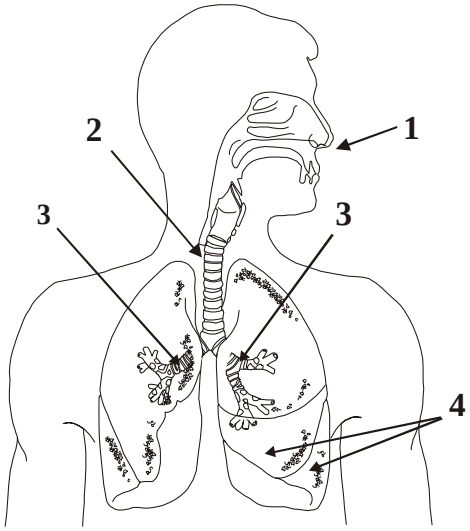
Directions: Use the clues to identify some of the parts of the digestive system. Choose from the words below.

esophagus	mouth
gallbladder	pancreas
large intestine	small intestine
liver	stomach

1. This is where food enters the body and saliva add enzymes to help break it down.
   _____
2. This organ is responsible for pushing food down to the stomach through wave-like contractions called peristalsis.
   _____
3. Muscles in this organ pound on food to compact it and gastric juices break down protein and kill germs.
   _____
4. This organ releases two important substances into the small intestine that aid in the digestion and absorption of food.
   _____
5. About five feet long, this organ removes all undigested food residues, bacteria, and mucus by releasing them as waste.
   _____
6. It is in this organ that nearly all food absorption occurs. It has mucosal folds and little hairs called villi that aid in absorption of liquid.
   _____
7. This organ produces the yellow-green substances called bile that breaks down large molecules of fat so they can be better absorbed by the body.
   _____
8. This is a small, green sac embedded under the surface of the liver in which bile becomes concentrated by the removal of water.
   _____

Name: _____ Date: _____

The Respiratory System



Directions: Use the clues to identify some of the parts of the respiratory system, choosing from the word box. Then answer the true/false questions below by circling **T** or **F**.

bronchi	nose
bronchioles	trachea

1. This is where air comes into the body and dirt and fibers are trapped by tiny hairs.

   _____

2. This is the tube descending from the larynx to the bronchi that carries air to the lungs; it is also called the windpipe.

   _____

3. These two tubes each lead to a separate lung.

   _____

4. These further divisions of the breathing tube end in small, air-filled sacs called alveoli.

   _____

Respiration Facts

T	**F**	1. The main purpose for respiration is to supply the body's cells with carbon dioxide and to remove oxygen from the body.
T	**F**	2. The diaphragm is the muscle that the lungs rest on.
T	**F**	3. Breathing is a voluntary action, like the beating of the heart.
T	**F**	4. External respiration is the exchange of oxygen and carbon dioxide inside the body.
T	**F**	5. The rib cage helps protect the lungs because they are very delicate.

ANSWERS

The Digestive System

1. This is where food enters the body and saliva adds enzymes to help break it down. **MOUTH**
2. This organ is responsible for pushing food down to the stomach through wave-like contractions called peristalsis. **ESOPHAGUS**
3. Muscles in this organ pound on food to compact it and gastric juices break down protein and kill germs. **STOMACH**
4. This organ releases two important substances into the small intestine that aid in the digestion and absorption of food. **PANCREAS**
5. About five feet long, this organ removes all undigested food residues, bacteria, and mucus by releasing them as waste. **LARGE INTESTINE**
6. It is in this organ that nearly all food absorption occurs. It has mucosal folds and little hairs called villi that aid in absorption of liquid. **SMALL INTESTINE**
7. This organ produces the yellow-green substances called bile that breaks down large molecules of fat so they can be better absorbed by the body. **LIVER**
8. This is a small, green sac embedded under the surface of the liver in which bile becomes concentrated by the removal of water. **GALLBLADDER**

The Respiratory System

1. This is where air comes into the body and dirt and fibers are trapped by tiny hairs. **NOSE**
2. This is the tube descending from the larynx to the bronchi that carries air to the lungs; it is also called the windpipe. **TRACHEA**
3. These two tubes each lead to a separate lung. **BRONCHI**
4. These further divisions of the breathing tube end in small, air-filled sacs called alveoli. **BRONCHIOLES**

Respiration Facts

1. The main purpose for respiration is to supply the body's cells with carbon dioxide and to remove oxygen from the body. **FALSE**
2. The diaphragm is the muscle that the lungs rest on. **TRUE**
3. Breathing is a voluntary action, like the beating of the heart. **FALSE**
4. External respiration is the exchange of oxygen and carbon dioxide inside the body. **FALSE**
5. The rib cage helps protect the lungs because they are very delicate. **TRUE**