

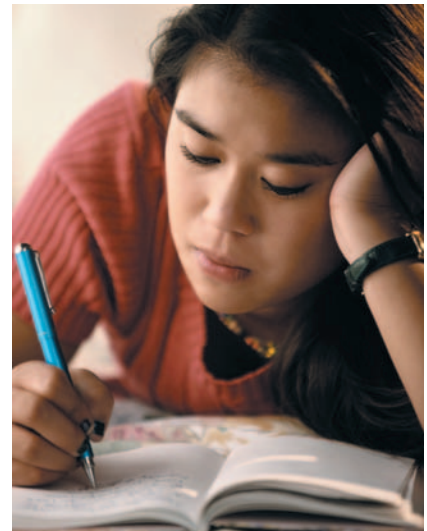
12 What's Happening Inside?



Organs are structures composed of one or more tissues that perform a function or a group of functions in the human body. Several organs working together to perform a function are a **system**. One example of this is the excretory (ECK-skruh-tor-ee) system. The function of the excretory system is to remove liquid waste from the body. Because the kidneys help perform this function, they are organs in the excretory system. You may be familiar with the organs and functions of our other systems, such as the digestive and cardiovascular systems. Use your knowledge of the human body to look more closely inside yourself. In the photos below, which organ systems help each of the students do the activities shown?

CHALLENGE

What do you know about the organs and systems of the human body?



MATERIALS

Part A: Laying It Out



For each group of four students

- 1 sheet of chart paper or butcher paper
- 4 markers of assorted colors

Part B: Classifying the Organs



For each group of four students

- 1 set of Organ and Structure Cards



For each student

- 1 Student Sheet 12.1, "Functions of Human Body Systems"

Part C: Modeling the Human Body



For each group of four students

- 4 different colored sticks of modeling clay
- 1 human torso model
- plastic wrap
- 1 Student Sheet 12.2a and 12.2b, "Human Body Systems"

Part D: Reviewing Structure and Function



For the class

- colored pencils



For each student

- 1 Student Sheets 12.2a and 12.2b, "Human Body Systems"
- 1 Student Sheet 12.4, "Fun Facts"

PROCEDURE

Part A: Laying It Out

1. With your group, draw an outline of a human body on a piece of chart paper or butcher paper.
2. Have each person in your group take a different color marker. Work together to do the following:
 - a. Each person draws three different major organs of the body inside the outline.
 - b. Each person labels the organs he/she drew and describes the organs' functions, writing as close to each organ as possible.
 - c. Around the outline write questions you have about the human body.














Activity 12 • What's Happening Inside

3. Go around the room to view the drawings of other groups.
4. In your science notebook, write down your questions from your drawing of the human body. Add any questions other students asked that you can't answer.

Part B: Classifying the Organs

5. Spread the Organ and Structure Cards out on a table.
6. With your group of four, classify the Organ and Structure Cards into systems. Work together to agree on the organs that make up each system.
 - Listen to and consider explanations and ideas of other members of your team.
 - If you disagree with your team members about how to classify an organ, explain why you disagree.
7. In your science notebook, write down the organs that you grouped together.
8. Talk over with your group what you think the function of each organ is. Write down the name of any organs that you are not sure about.
9. Discuss with the class your group's classification of organs. Observe the similarities and differences between your classification of organs and other groups' classification.
10. Get a set of Body System Cards from your teacher. Rearrange your classification of body organs if necessary and record your changes in your science notebook.
11. Get a set of Organ Function Cards from your teacher. Each card describes an organ and the function it has within a system. Match the Organ Function Card with the organ it describes.
12. Ask your teacher for Student Sheet 12.1, "Functions of Human Body Systems." Use all three sets of cards to complete the Student Sheet.
13. Check your answers with your teacher.
14. Look at the lists of organs that you made in Procedure Step 7. Use Student Sheet 12.1, "Functions of Human Body Systems" to write down the function of each organ in your lists.

Part C: Modeling the Human Body

Table 1: Organs and Structures to Model	
Clay Color	Organs and Structures
	muscles of back and buttocks
	spinal cord
	kidneys (connected to bladder by thin tubes)
	esophagus
	stomach
	small intestine
	large intestine (and rectum)
	liver
	windpipe (trachea)
	lungs
	heart
	bladder
	rib cage (ribs and sternum)

- You are going to make 3-dimensional **models** of some of the organs and structures of the body. Place the human torso model on a flat surface.
- Line the inside of the back half of the human torso model with a piece of plastic wrap.
- With your group, use the modeling clay to create each of the organs listed in Table 1. Student Sheets 12.2a and 12.2b can help guide you in forming the organs correctly.
- Place the organs into the back half of the human torso model. Follow the order listed in Table 1 by placing the first structure (the muscles) down first and then adding the others in the order listed. Remember to use Student Sheets 12.2a and 12.2b for help.

Hint: You'll need to put the end of the digestive system behind the bladder to make it accurate.
- When you are done modeling the organs, place the other half of the plastic model on top of the body. You have now created a model of your internal organs.
- Compare the placement of the internal organs in the model to your own body. Try to figure out where these organs are in your body.
- Take your model apart. Roll the modeling clay back into separate balls of each color.

Part D: Reviewing Structure and Function

- Use colored pencils to color the organs of each system on Student Sheets 12.2a and 12.2b, "Human Body Systems."
- Complete Student Sheet 12.4, "Fun Facts."

ANALYSIS



1. Look at the drawing that you made in Part A. List some structures or organs that were not the right shape or size or were in the wrong place on your original drawing. Explain how you would change them if you could redraw the diagram.



2. Look at the questions that you recorded in your science notebook after Part A. Answer all of the questions that you can answer. Discuss with your group any that you are still not sure about.



3. The liver is the largest internal organ of the human body. Was the liver the largest organ in your clay model? Do you think that the other organs you modeled in the clay were accurate in size? Why or why not?

4. What are some of the limitations of the clay model you made of the human body in Part C?

5. Prepare a table with headings as shown below. Fill in the first column with the organs or structures listed in Table 1.

	Organs and Structures	System	Function

a. In the second column of your table, identify the system that matches each organ or structure. For example, the stomach is a part of the digestive system.

b. In the third column of your table, identify the function of each of the systems you mentioned in 5a.



6. Imagine a younger student did not understand the difference between the body's organs and systems. Explain the relationship in a way that a younger student could understand.

7. **Reflection:** What new things have you learned about the human body in this activity?



EXTENSION:

Find out more about the human body and its systems on the *Issues and Life Science* page of the SEPUP website.