

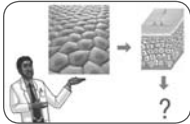


Organs

4_A

Presenting the Read-Aloud

15 minutes



1 [Review the progression with students and ask them to predict what will be the next category in this progression.]

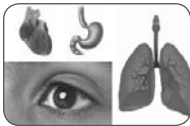
Organs

- ← Show image 4A-1: Nick Nutri showing photos of the progression of cells, tissues, and ?¹

In the last read-aloud you learned about cells and tissues. Similar cells join together in groups to form tissues. In the same way, similar tissues join together to form organs. Organs are parts of the human body that perform special jobs for the body. Organs are made up of groups of tissues. All organs are made up of different kinds of tissues that help them do their jobs well.

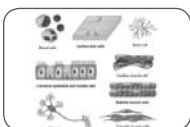
Can anyone name one of your body organs?

- ← Show image 4A-2: Eye, heart, lungs, and stomach



Your eyes and ears are organs. Your heart and lungs are organs. Your stomach is an organ, too. Which of your body organs is the largest? It's your skin! Does that surprise you? You've looked at skin cells through the microscope, and we've talked about the epithelial tissue that these cells form. So, while it may seem odd to think of skin as an organ, it does make sense, doesn't it? Many, many tiny cells make up the epithelial tissue that forms your skin, which is an organ that covers your whole body.

- ← Show image 4A-3: Four types of tissue (epithelial, connective, muscle, and nervous tissue)



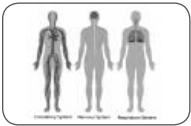
You've learned about four different types of body tissues. What are the names of all four types of body tissues? One is epithelial, the tissue that forms your skin. What are the other three? The other three are connective, muscle, and nervous tissue. Each different type of tissue is made up of similar cells that do the same

- 2 [Illustrate this concept for your students by drawing three concentric circles. On the innermost circle, write the word *cells*. On the middle circle, write the word *tissues*. And on the outer circle write the word *organs*.
- 3 What are *systems*? (sets of connected parts that work together to perform a job)



← **Show image 4A-4: Skeleton system and muscular system**

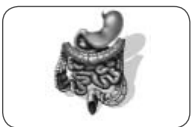
What body systems are in charge of helping you move? Last year, you learned about the skeletal and muscular systems. Your skeletal system is made up of bones and other organs. Its skeletal tissues work together with the smooth muscle tissues in your muscular system to make your body move.



← **Show image 4A-5: Circulatory system, respiratory system, and nervous system**

What does the circulatory system do? It circulates, or moves, your blood around to all parts of your body.

Your heart and blood, made up of cells and tissues, are the organs of your circulatory system. The respiratory system includes your lungs—organs made up of cells and tissues—that control your breathing. What does the nervous system do? It sends messages along the spinal cord to the brain. These two organs, the spinal cord and the brain, are both made up of nervous tissues, full of tiny nerve cells.



← **Show image 4A-6: Digestive system**

Which organ system includes your stomach? Yes, it is the digestive system. Your stomach works closely with other organs, each made up of different types of tissues and different types of cells to perform different types of jobs. Soon, you will be able to name all of the other organs that work together with your stomach to help digest, or break down, your food.

4 [You may want to review all four again— connective, muscle, nervous, epithelial.]



5 [Point to the relevant layers in the image as you read about them, moving from the outside to the inside of the stomach.]

6 What are nutrients? (nourishing substances, necessary for growth and the maintenance of life)

Sometimes your organs are a combination of different types of tissue.⁴ The stomach is one of those organs. It is made up of many layers, including all four main types of tissue. These tissues play a very important role in the digestion of your food. We'll take a quick peek at part of your digestive system now. Let's look at the inside of your stomach to see where these four types of stomach tissue live.

← **Show image 4A-7: Cross-section of the stomach**

The first layer of tissue that you see is epithelial tissue.⁵ Remember what epithelial tissue does? It is tightly packed, arranged in a layered sheet to cover and protect the organ. The epithelial tissue is connective tissue, primarily blood that carries—or connects—nutrients to the cells.⁶ Smooth muscle tissue lies underneath the connective tissue and helps to move food around in the stomach. Stomach muscles squeeze together about three times per minute, continuing to squeeze whether there is food in your stomach or not. It is the squeezing of these muscles that produces the loud rumbling noise you sometimes hear when your stomach is nearly empty. The fourth type of body tissue, nervous tissue, is located in the stomach wall. It constantly sends signals to the brain and makes sure that all other parts are working smoothly.

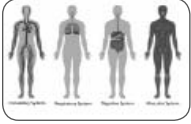
Every organ in your body depends upon other organs to work in the right way. When you study the digestive system more thoroughly in the next lesson, you will see that the stomach could not perform the job of the entire system on its own. It needs help.



7 [Point to the liver.]

← **Show image 4A-8: Nick Nutri pointing out the liver**

Have you ever heard of the **liver**? Your liver is an organ located above your stomach.⁷ Your stomach depends on your liver to do its job. The liver produces digestive juices to help break down your food. Your liver is one of the largest organs of the body, and it is part of several different systems to perform different body functions. You cannot live without your liver. Next time, you will learn more about the very important role that the liver plays in the digestive system.



← **Show image 4A-9: The circulatory, respiratory, digestive, and muscular systems**

Organs depend on one another. So do the body's systems. Each system depends upon the other systems to make sure that your body works properly.

For example, blood is carried to all parts of your body through the circulatory system. The circulatory system depends upon the respiratory system to get oxygen into the bloodstream. Your blood would have no nutrients in it without the help of the digestive system to break down your food. Working together, these different systems provide your cells with the food and oxygen they need so that energy can be supplied to all your other systems. Without energy, your muscles couldn't move your bones; without energy, your brain could not think.

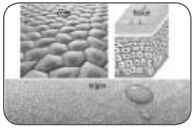
When organs stop working properly, body systems break down. The body stops functioning well and you become ill. If your lungs **collapse**, or are not able to work the way they should, there will not be enough oxygen to feed, or **nourish**, your cells. If your heart stops, it will no longer pump blood with the necessary nutrients to other parts of your body.⁸

8 [Reassure students that lung and heart failure are very uncommon among young people.]

It is important to remember to protect your organs, especially when you're doing things like riding your bike, or playing certain sports. What should you wear on your head when you ride a bike? It's very important to protect your head by wearing a helmet. A head injury might result in damage to your brain, and this might prevent messages from going back and forth between the brain, the nervous system, and other parts of your body.



← **NOTE: Please skip image 4A-10: Kidneys**



9 [Point to image and Poster 3 (Cells, Tissues, Organs, Systems). Show students the progression.]

← **Show image 4A-11: Progression: Cells, tissue, organ**

Cells. Tissues. Organs. Systems.⁹ The human body is organized into four different levels. Cells are the building blocks of the body. Without cells, there would be no body tissue, no body organs, and no body systems. In fact, without cells there would not be a single living person or thing on Earth!



10 [Pause for suggestions.]

← **Show image 4A-12: Nick Nutri pointing out the digestive system**

The next time we gather together, we'll discuss the organs that work together to digest, or break down, your food. Today we looked inside your stomach, but your stomach is only one part of the food's journey as it travels through your body.

Can you name any of the organs that belong to the digestive system?¹⁰ Great suggestions. With your help, we'll put that puzzle together soon. See you next time.

Discussing the Read-Aloud

15 minutes

Comprehension Questions

10 minutes

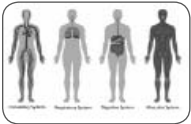
If students have difficulty responding to questions, reread pertinent passages of the read-aloud and/or refer to specific images. If students give one-word answers and/or fail to use read-aloud or domain vocabulary in their responses, acknowledge correct responses by expanding students' responses using richer and more complex language. Ask students to answer in complete sentences by having them restate the question in their responses.

1. *Literal* Name one of the important body organs that you heard about today. (Answers may include: eyes, ears, heart, lungs, stomach, skin, bones, heart, spinal cord, brain, liver, pancreas, gallbladder, kidneys.) [When students name an organ, ask if they know its function.]
2. *Inferential* The heart, skin, and bones are all organs. What does that tell you about the size, shape, and texture of body organs? (They are all different. No two organs are the same.)

3. *Literal* Cells group together to form tissues; tissues group together to form organs. What do groups of organs form? (systems)
4. *Literal* Give some examples of organs, and the body system the organ belongs to. (Answers may vary. Most organs are involved in just one body system, but there are some exceptions.)
5. *Inferential* What happens when one of your organs, such as your heart, stops working properly? (body systems break down; you can become ill)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.



← **Show image 4A-9: The circulatory, respiratory, digestive, and muscular systems**

6. *Evaluative Think Pair Share:* You learned that your body's systems work together. Each system depends upon the other systems to make sure that your body works properly. Can you think of an example of how two or more of your body systems work together?
7. After hearing today's read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Nourish

5 minutes

1. In the read-aloud you heard, “If your lungs collapse, there is not enough oxygen to feed, or *nourish*, your cells with the things they need to live and grow.”
2. Say the word *nourish* with me.
3. *Nourish* means to provide with food or other substances necessary for growth.
4. The school cafeteria serves a variety of foods that help nourish our growing bodies.
5. Think of one of your favorite foods that you eat to nourish your body. Use the word *nourish* when you tell us about it. [Ask two or three students. If necessary, guide and/or rephrase students’ responses: “I nourish my body by eating . . . ”]
6. What’s the word we’ve been talking about? What part of speech is the word *nourish*?

Use a *Making Choices* activity for follow-up. Directions: I am going to name some foods and drinks. If it is a food or drink with nutrients that will nourish your body, say, “That will nourish me.” If it is not a food or drink that will nourish your body, say, “That will not nourish me.” Remember to answer in complete sentences.

1. soda (That will not nourish me.)
2. eggs (That will nourish me.)
3. jelly beans (That will not nourish me.)
4. bananas (That will nourish me.)
5. green beans (That will nourish me.)



Complete Remainder of the Lesson Later in the Day



Organs

4B

Note: Extensions may have activity options that exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Extensions

20 minutes

↔ Syntactic Awareness Activity

5 minutes

Adjectives and Adverbs

Note: The purpose of these syntactic activities is to help students understand the direct connection between grammatical structures and the meaning of text. These syntactic activities should be used in conjunction with the complex text presented in the read-alouds. There may be variations in the sentences created by your class. Allow for these variations, and restate students' sentences so that they are grammatical.

1. We know that some words describe other words.
Words that describe nouns—people, places, or things—are called adjectives.
Words that describe verbs—action words that tell how something is done—are called adverbs. Today we will practice using adjectives and adverbs.
2. The word *tight* is an adjective that describes a thing, such as a shoe or piece of clothing that is too small.
For example: The *jacket* that I wore last year is too *tight* for me now because I have grown.
Tight is an adjective that describes the noun—*jacket*.
3. In the read-aloud about Anton, you heard, “Anton used a magnifying glass to make sure the threads of the cloth were straight and *tightly* woven.” The word *tightly* is an adverb that describes how something is woven.
Tightly is an adverb that describes a verb—woven.

4. I will ask some questions. If my question asks you to describe a noun, use the adjective *tight* in your answer. If my question asks you to describe an action, or how something is done, use the adverb *tightly* in your answer.
 - What is a *belt* that is too small like? (The belt is tight.)
 - How does someone *hold* your hand if they squeeze it? (They hold my hand tightly.)
 - How does a hat that is too small for your head *fit*? (The hat fits tightly.)
 - What is the *skin* on a drum like? (The skin on a drum is tight.)
 - How can you *tie* your shoelaces if you don't want them to come undone? (You can tie your shoelaces tightly.)
 - What is the *lid* of a jar if it is too hard to open? (The lid is tight.)
5. What are words that describe nouns called? (Adjectives describe nouns.)
What are the words that describe verbs—action words—called? (Adverbs describe verbs.)

↔ Vocabulary Instructional Activity

5 minutes

Word Work: Systems

1. [Show Poster 2 (Human Body Systems).] In the read-aloud you heard, “There are ten major organ *systems* in the human body.”
2. Say the word *systems* with me three times.
3. Systems are sets of connected parts that work together to perform a job.
4. Some cities' transportation systems include buses, subways, and trains that take people where they need to go.
5. What are some things that function, or work as a system? (Possible responses include a school system, an alarm system, a buddy system, a library system, a medical system, a school bus system, the mechanical system of a car or other machine)

Use a *Sentence Completion* activity for follow-up. Directions: [Have students say the name of each body system with you as you point to it on Poster 2.] I will name a part or parts of one of the body systems. Complete the sentence, “_____ is/are part/s of the system.” Fill in the first blank with the parts that I name, and the second blank with the name of the body system.

- muscles (Muscles are part of the muscular system.)
- bones (Bones are part of the skeletal system.)
- the heart and blood (The heart and blood are parts of the circulatory system.)
- lungs (Lungs are part of the respiratory system.)
- the spinal cord and brain (The spinal cord and brain are parts of the nervous system.)
- the stomach (The stomach is part of the digestive system.)

Cells, Tissues, Organs, Systems (Instructional Master 4B-1)

10 *minutes*

- Distribute a copy of Instructional Master 4B-1 (Cells, Tissues, Organs, Systems) to each student. Have students complete the worksheet by writing the correct word in each blank to show the progression from cells to systems.

Domain-Related Trade Book

20 *minutes*

- Refer to the list of recommended trade books in the Introduction at the front of this *Supplemental Guide*, and choose one trade book about cells, organs, or body systems to read aloud to the class. [Suggested trade books are Items 3, 4, 20, 24 and 25.]
- Explain to students that the person who wrote the book is called the author. Tell students the name of the author. Explain to students that the person who makes the pictures for the book is called an illustrator. Tell students the name of the illustrator. Show students where they can find this information on the cover of the book or on the title page.

- As you read, use the same strategies that you have been using when reading the read-aloud selections—pause and ask occasional questions; rapidly clarify critical vocabulary within the context of the read-aloud; etc.
- After you finish reading the trade book aloud, lead students in a discussion as to how the story or information in this book relates to the read-alouds in this domain.
- Provide students with drawing paper, drawing tools, and writing tools. Have students draw one detail or idea from the trade book that is new or different from the read-aloud they heard. Then have students write two or three sentences to go along with their drawings. Have students share their drawings and writing with their partners or home-language peers.



Pausing Point

PP

Note to Teacher

You should pause here and spend one day reviewing, reinforcing, or extending the material taught thus far.

You may have students do any combination of the activities listed below, but it is highly recommended you use the Mid-Domain Student Performance Task Assessment to assess students' knowledge of body systems and their organizational levels, including cells, tissues, and organs. The other activities may be done in any order. You may also choose to do an activity with the whole class or with a small group of students who would benefit from the particular activity.

Core Content Objectives Up to This Pausing Point

Students will:

- ✓ Identify the five senses and associated body parts
- ✓ Identify the skeletal, muscular, circulatory, nervous, digestive, and excretory systems as important systems in the human body
- ✓ Describe the significant contributions of Anton van Leeuwenhoek
- ✓ Explain that all living things are made of microscopic cells
- ✓ Describe the relationship among cells, tissues, organs, and systems

Student Performance Task Assessments

10 Cells, Tissues, Organs, and Systems

Materials: Instructional Master PP-1

Part I (front): Have students identify Anton van Leeuwenhoek's work and discovery.

Part II (back): Assess students' knowledge of the relationship among cells, tissues, organs, and systems. Read the words in the Word Bank with students. Tell students that words will be used more than once. Read each sentence to students.