

Follow-up Discussion

The most important part of this segment is to examine both the facts and beliefs generated by the class in their "Everything We Know About..." list. Research indicates that students will retain their previous misconceptions — in preference to the new information — until they actively recognize and correct their own errors. Because of this, it is important to lead students to the correct ideas while identifying and correcting any misconceptions from the class list. After reviewing the list, encourage students to share the answers they got to the questions raised, before viewing the program.

Raising a thought-provoking question is a good way to assess the overall depth of student understanding. A couple of suggestions are listed below:

- Which body system is the most important? Why do you think so?
- Could we live without one of our body systems? Why or why not?

Follow-up Activities

- Have students build models showing how muscles move bones using rubber bands and sticks.
- Have the students draw pictures of what they would look like if they had no bones.
- Use chicken wings, legs and thighs to demonstrate whole muscles, muscle fibers, tendons, ligaments, cartilage, bones, and marrow.
- For any organ system, have student groups come up with analogies relating the organs of a system to anything familiar to them.

Suggested Internet Resources

Periodically, Internet Resources are updated on our Web site at www.LibraryVideo.com

- www.asd.wednet.edu/EagleCreek/Barnard/wl/bs/bswq.html
The "Body Systems WebQuest" is a great resource to teach kids how their body systems work and what is needed to keep each system working well.
- www.brainpop.com/health/
"Brain POP" is an educational health and science site that has movies and printable activity pages.

Suggested Print Resources

- Burnie, David. *Concise Encyclopedia of the Human Body*. DK Publishing, New York, NY; 2000.
- Cole, Joanna. *Your Insides*. Putnam, New York, NY; 1998.
- Eldon, Dorry and Horton, Bobby. *Lyrical Life Science, Volume 3 — The Human Body*. Lyrical Learning. Corvallis, OR; 1999. This title is an audio-cassette.
- Morgan, Sally. *The Human Body*. Kingfisher, New York, NY; 1996.

TEACHER'S GUIDE CONSULTANT

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All About Cells & Body Systems

Grades K-4

This guide is a supplement, designed for educators to use when presenting this program in an instructional setting.

Before Viewing: Research in learning suggests that it is important for the teacher to discover what the students know — or think they know — about a topic, at the start of a new unit, so that their accurate conceptions can be validated and reinforced, and their misconceptions identified and corrected. Therefore, after reviewing the pre-viewing discussion questions provided for your class, create an "Everything We Know About..." list. Preview key vocabulary words and have students raise additional questions they hope will be answered by this program. Most importantly, students should be told that as "science detectives" they must listen closely, so that after viewing the program, they will be able to tell whether or not the facts/beliefs they put on their list were scientifically accurate.

After Viewing: After a brief discussion about the program, challenge your "science detectives" to prove or disprove the accuracy of the facts they put on their "Everything We Know About..." list. Discuss what else they learned and use the follow-up questions and activities to inspire further discussion. Encourage students to research the topic further with the Internet and reading resources provided.

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Program Summary

The human body is truly amazing! Each body part does a specific job and many of those parts work closely together as a team to keep the human body healthy and functioning. The human body is called a system because many separate parts work together to keep the body alive, similar to the way the parts of a bicycle work together to make a bike work. What's so amazing is that each of these separate parts is a smaller system itself, made of parts called organs. Each organ is made of its own special material called tissue, and tissues are made of the smallest players on the team — cells. Cells are like tiny living machines that are constantly busy, working together to keep you alive.

Your body is carried on a frame of over 200 bones that can move because of the muscles that are attached to them. They help you walk, run, play and even sit up straight. The skeletal system gives our body shape and protects important body organs from damage. But without the muscular system, we couldn't move or even smile!

The digestive system processes the food you eat so that it can be used for energy, growth and development. Digestion begins the moment food enters the mouth. From there, swallowing sends your meal on a journey through a long tube that ends in your stomach with the help of special muscles that push the food along. Digestive juices in the stomach break the food down even more before it passes into the intestines, where nutrients are removed for distribution to all of the cells in the body.

The respiratory system has an important job as well: to get oxygen to every living cell in our body. Our blood, which is part of the circulatory system, carries the oxygen from the respiratory system and the nutrients from the digestive system to nourish all of the cells in the body. The heart is the main organ of the circulatory system and works like a pump, pushing the blood supply through blood vessels through every part of the body. Blood cells are made inside of our bones and include special white cells that help us to fight infections. These white blood cells are part of our immune system and they work to protect our body from invaders.

Our body also has a system that helps us get rid of things that the body does not need. This is the job of the excretory system, which involves the lungs, skin, kidneys, bladder and intestines. Our lungs remove the waste gases our body cannot use. Solid waste products leave the body after the digestive system is finished removing the nutrients. Our kidneys filter our blood, removing all liquid and chemical waste products and storing it as urine in the bladder until we get rid of it. Excess salts and liquids are also eliminated through pores in the skin as sweat.

All of our cells get messages from the endocrine system, a collection of organs that make special chemicals called hormones. Specific hormones are released by the endocrine system when needed by the body to do a number of different jobs. Hormones help our body to grow and mature, help us recover from injury, digest our food and even help us to perform well under pressure.

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The most important body system of all is the nervous system: the brain, spinal cord and nerves. The brain is the control center of the entire body. Nerves connect our sense organs to the brain through the spinal cord so it can monitor what we see, hear, smell, taste and touch. Messages then travel from the brain through the nerves to tell our body parts what to do and how to react. All the body systems must constantly work together to keep the human body healthy and alive!

Vocabulary

The following words are included for teacher reference or for use with students. They are listed in the order in which they appear in the video.

system — A set of parts that work well together to do a job. The human body is a system made of smaller parts called organ systems that are made of organs, tissues and cells.

organs — Parts of the body that have specific jobs, like the heart, lungs, liver, kidneys and brain.

tissue — Living material that makes up the organs of the body.

cells — The microscopic, living building blocks from which every living thing is made. The human body is composed of over 75 trillion cells.

skeletal system — The 206 bones of the human body and the tissues that connect them. The skeletal system gives your body its structure and provides protection for the inner organs.

muscular system — The muscles that give your body the ability to move and bend. Some muscles are attached to bones and can be moved voluntarily while others, like the heart, contract and relax on their own.

digestive system — The mouth, stomach and intestines, which are responsible for breaking down the food we eat into particles that are small enough for the cells to take in.

respiratory system — The nose, mouth, trachea and the lungs; they are responsible for taking in oxygen from the air and getting rid of carbon dioxide and water vapor.

circulatory system — The blood, blood vessels and the heart; they are responsible for transporting nutrients, eliminating waste and maintaining the health of every cell.

excretory system — The organs responsible for eliminating waste products from the human body, including the kidneys, bladder and even the skin.

immune system — All the cells and organs in your body that protect you from disease-causing germs.

endocrine system — The organs that make and send special chemical messengers called hormones throughout the body to help the body grow, to burn sugar for energy, to digest foods, to recover from injury and to help the body perform well under pressure.

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reproductive system — The organs, glands and other structures that allow an organism to have babies.

hormones — Special chemicals made by the endocrine system to help the body grow and develop.

nervous system — The organs that are responsible for controlling the entire body: the brain, nerves, spinal cord and the sense organs that help us learn what is going on around us: ears, eyes, nose, tongue and skin.

Pre-viewing Discussion

Before students generate their list of “Everything We Know About...” this topic, stimulate and focus their thinking by raising these questions so that their list will better reflect the key ideas in this show:

- What are some body systems?
- How do body systems work together?

After the class has completed their “Everything We Know About...” list, ask them what other questions they have that they hope will be answered during this program. Have students listen closely to learn if everything on their class list is accurate and to hear if any of their own questions are answered.

Focus Questions

1. What is a system? Name a body system.
2. What are body systems made of?
3. What are some examples of organs?
4. What are organs made of?
5. What is tissue made of?
6. What do cells have to do with body systems?
7. What do bones do for your body?
8. What systems work together to allow us to move our bodies?
9. What are some muscles that we cannot control?
10. Why do we need to eat food? What are nutrients?
11. What systems work together to help the food we eat get to all the cells in our body?
12. What is the job of the respiratory system? What are its parts?
13. How does the respiratory system work with the circulatory system?
14. Where is blood made?
15. What systems work together to help the body get rid of things it doesn't need?
16. How does the immune system protect us?
17. What does the endocrine system produce?
18. What system is the “command center” of the human body? What are its parts?