

SCRIPT:

An introduction to the human body systems.

Hello, this is Mrs. Sanchez. By the end of this homework video presentation, you will be able to demonstrate understanding that there are different systems within the body and that they work independently and together to form a functioning human body. You will also be able to show understanding of homeostasis.

We have already studied that cells make up body tissues, tissues make up organs, and organs are part of an organ system for example circulatory, respiratory, and so on.

It is important to remember that organ systems do not work in isolation, they work together as part of a big team.

Here's an introduction to the major organ systems:

The **circulatory system** is the body's transport system, delivering materials through the body including **blood**, gases and wastes. A network of tubes called **blood vessels** are connected to the **heart** that pumps the blood through this network of blood vessels. The heart is the hardest working muscle in the body, pumping nearly 2 gallons of blood through the body.

The **digestive system** provides the way to break down food and absorb nutrients that our body needs to grow, move and maintain homeostasis (or balance). The digestive system is made up of a series of tube-like organs, converting our meals into body fuel. There's about 30 feet of these pipeworks starting with the mouth and ending in the anus.

The **endocrine system** consists of glands that release chemicals known as hormones into the bloodstream. Hormones regulate many body functions such as metabolism, **growth** and reproduction.

The **immune system** is a network of cells, tissues and organs that work together to protect the body from infection. It's main function is to prevent or limit infection. Here we have a phagocyte encircling an offending bacteria.

The **integumentary system** consists of skin, hair, nails, glands and nerves. It's main function is to act as a barrier to protect the body from outside world. It also functions to retain body fluids, protect against disease, eliminate waste products and regulate body temperature. Skin is the body's largest organ, and it's first line of defense.

The **lymphatic system** is a network of tissues and organs that primarily consist of lymph vessels, lymph nodes and lymph. It's primary function is to transport lymph, a clear, colorless fluid containing white blood cells that helps rid the body of toxins, waste and other unwanted materials. Lymph nodes are an important component of the body's immune system and help in fighting infection.

The **muscular system** is made up of muscle tissues in the body working together enabling us to move, pump blood, digest food and lift heavy things. There are three different types of muscle tissue: skeletal muscle (attached to bones), smooth muscle (involuntary muscles like in digestive organs, arteries and veins, stomach and intestines) , and cardiac (heart) muscle.

The **nervous system** is the part of the body that monitors and responds to changes in the environment. This complex system is responsible for functions as basic as **controlling** your heartbeat and telling us its time to eat or go to the bathroom. The brain and spinal cord make up the central nervous system. Pairs of nerves outside of the central nervous system are known as the peripheral nervous system. At the cellular level, we have neurons.

The **respiratory system, involves the lungs**, is responsible for the exchange of gasses essential for the body and all its cells, the most important of which is the exchange of oxygen and carbon dioxide that happens with each breath in the lungs. We breath in the air around us, and we exhale carbon dioxide.

The **urinary system** removes waste from the blood, just like a filter would remove waste from an aquarium. The urinary system also removes excess water and salts. The kidneys do most of this work.

The **skeletal system** provide shape and support for the body. Without it we would be a shapeless mass of cells. The skeletal system is made up 206 of bones, cartilage and ligaments. Also produces bone marrow from inside the bone.

The **reproductive system** is a collection of organs that work together for the purpose of producing a new life.

Homeostasis

We know that the various body systems work hand in hand to keep us in healthy balance. **Homeostasis** is defined as the body's regulation of steady, life-maintaining conditions.

Body temperature example

A good example of system regulation of your body can be found in the regulation of body temperatures. You are a homeothermic organism, which means you regulate your own body temperature. Other species like reptiles are not homeothermic. Anyway, if your body gets too cold, a series of actions are taken to warm your body. Sensors throughout your nervous system can recognize when the temperature drops and might trigger your muscular system to start shivering. The constant contractions of your muscles allow heat to be generated. Your nervous and endocrine systems may also contract the blood vessels of your circulatory system to keep blood in the core of your body and not the extremities (like fingers).

Organ systems working together

The various organ systems work together to maintain homeostasis. An example is how the skeletal and respiratory systems work together during breathing. When the skeletal muscles and diaphragm contract enlarging the chest cavity, air is drawn into the lungs. This makes it possible for gas exchange to occur, the respiratory system's primary function.

(Optional -- not sure how to go about this- ???)

Try this with me:

1. Take a deep breathe
2. Observe your chest movement. What did you notice?
3. If your ribs were broken, how would this affect your breathing?

To provide oxygen and remove carbon dioxide for your body, both the respiratory and the muscular system need to work together.)

Why do we need to know this?

Understanding the body systems is necessary so we can figure out that to do when things go wrong. More amazing is how all the systems work together to keep you healthy and allow you to do what you do! Can you think of other ways organ systems work together?

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Homeostasis: http://www.biology4kids.com/files/systems_regulation.html

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