DIGESTIVE SYSTEM

The human body has many systems that work together to keep it healthy. Each system works with different organs such as the heart or liver to complete a certain function. The digestive system is responsible for taking the food a person eats and breaking it down. Once broken down, the food transforms into energy, vitamins, and minerals for the body's organs and cells.

The process of digestion has two types: mechanical digestion and chemical digestion. Mechanical digestion is when a person chews the food and physically breaks it down into smaller pieces. With chemical digestion, enzymes break down food into molecules for the body to use as nutrients.

There are five stages in the digestive system. Placing food in your mouth is called ingestion. First, a person chews the food to break it down. The tongue begins to break down certain foods that are starchy (potatoes or bread), using enzymes. Enzymes are a protein molecule that have specific jobs such as breaking down certain foods or speeding up chemical reactions in the body. Your mouth creates saliva also called spit. Saliva has enzymes that break down food to make it soft and easy to swallow.

The second phase of digestion is swallowing. In this phase, the food goes to the pharynx which is at the back of the throat. The tongue pushes the food to the back of the throat. A tiny flap of <u>cartilage</u> called the epiglottis automatically closes the windpipe. Food then travels to the esophagus, which is about 10 inches long. Muscles <u>contract</u> along the esophagus, pushing the food forward the stomach. This action is called peristalsis. The esophagus is a tube that passes food from the pharynx to the stomach.

The next stop is the stomach, an organ that acts as a sac and holds food. The stomach has three layers of muscles around its walls. Although the stomach is small when it is empty, it can expand and become large enough

TEXT MARKING

YELLOW

Where is the pharynx located?

GREEN

About how long is the esophagus?

BLUE

What is chemical digestion?

PINK

What are enzymes?

WORDS TO KNOW

UNDERLINE (IN PASSAGE) THEN DEFINE

<u>cartilage</u> -

<u>contract</u> -

and each one has blood vessels called capillaries.

Every time a person breathes in, the diaphragm flattens. The dome-shaped diaphragm, located under the lungs, controls breathing and separates the chest and abdominal cavities. When a breath is taken, the brain sends signals to the diaphragm telling it to flatten. This gives the lungs above it room to expand (grow larger) and fill with air. The brain also sends signals to the muscles around the ribs telling them to move, giving the lungs more space as well. The lungs are protected by 12 sets of ribs called the rib cage.

Looking at all the **components** of the respiratory system, the whole process of breathing is **complex**. When a person breathes in, air goes through the nose and mouth, down the windpipe to the bronchi and alveoli. At the same time, the brain signals for the diaphragm and rib muscles to make space and the lungs expand. Air in the alveoli. Oxygen in the blood in the capillaries takes up oxygen from the air in the alveoli. Oxygen in the bloodstream is picked up by the hemoglobin in red blood cells. The blood travels and takes oxygen to the heart and other parts of the body that need it. While the blood delivers the oxygen, it also picks up carbon dioxide, which is a waste product the body needs to get rid of. The blood brings the carbon dioxide to the alveoli where it releases the oxygen. The diaphragm and the rib muscles go back to their normal state, which needs less space for the lungs. This forces air, which contains the carbon dioxide, out of the body. This is when a person breathes out (exhales) and gets rid of the carbon dioxide.

Every time a person breathes, many body parts work together to get air in and complete the process. It all happens automatically and without a person even thinking about it. The respiratory system is hard at work every second of the day.

TEXT MARKING

YELLOW

What does oxygen in the bloodstream get picked up by?

GREEN

What does expand mean?

BLUE

How many sets of ribs do the lungs protect?

PINK

Where is the diaphragm located?

WORDS TO KNOW

UNDERLINE (IN PASSAGE) THEN DEFINE

components -

complex -

blood vessels; the veins and the arteries. Arteries carry blood from the heart to the rest of the body while veins carry used blood back to the heart. The main artery leaving the heart is called the aorta. Every time the heart beats, it sends blood throughout the body. The blood gives nutrients and oxygen to the cells and takes carbon dioxide and other waste the body doesn't need. The blood then returns to the heart after giving the cells oxygen. The heart pumps the blood to the lungs so it can get more oxygen and the cycle repeats.

The digestive system takes the food a person eats and breaks it down. This is so the body can take the nutrients it needs from the food and get rid of the waste. There are five steps within the digestive system. Many organs are part of this system including the stomach and liver. There are two processes for digestion; mechanical and chemical. Mechanical is the physical breakdown of food by chewing and chemical is when the food is broken down into **molecules** that the body can take nutrients from.

The respiratory system brings oxygen into the body by the lungs and windpipe. Inhalation brings oxygen into the lungs, while exhalation removes carbon dioxide from the body. Tiny air sacs called alveoli allow oxygen to be passed to red blood cells. The nose, mouth, and throat (pharynx) are part of the upper respiratory tract. The lower respiratory **tract** includes the voice box (larynx), windpipe (trachea), airways (bronchi), and lungs.

The lymphatic system helps keep body fluids in balance while fighting infections. Invaders such as a viruses or bacteria are called pathogens. The lymphatic system includes the bone marrow, thymus gland, tonsils, appendix, and lymph nodes.

The endocrine system makes hormones that help regulate the other body systems and help the body grow. The urinary system eliminates waste products from the body. The reproductive system is essential for having babies. Lastly, the integumentary system includes the skin, hair, and nails.

TEXT MARKING

YELLOW

What is the job of alveoli?

GREEN

What is the lymphatic system called?

BLUE

What carries used blood back to the heart?

PINK

How many steps is the digestive system?

WORDS TO KNOW

UNDERLINE (IN PASSAGE) THEN DEFINE

molecules - smaller units

tract - structure or region

IMMUNE SYSTEM

The immune system (from the Latin word "immunis" meaning "free" or "untouched") is the body's **defense** system, responsible for keeping the body healthy and strong. It protects the body from anything harmful such as viruses, bacteria, and invading germs that can make a person sick. These harmful invaders are called pathogens or antigens. The immune system includes the skin, white blood cells, and the lymph system.

The immune system, just like every other system in the human body, works with organs to complete its function, or job. This system works mainly with the spleen, lymph nodes, thymus, and bone marrow. It also works with cells and tissues to fight off the pathogens. These organs and cells work alongside the immune system to fight off tiny **invaders** that are attacking the body and causing harm. Lymph nodes are glands that collect and destroy bacteria and viruses before they spread to the rest of the body.

The immune system builds cells that are ready to fight pathogens who enter the body. These are cells that are made for specific diseases and other cells that care for anything else. When the body is invaded by pathogens, signals are sent to the immune system to take action. The immune system sends these cells to the area and fight them off.

White blood cells, also called leukocytes, are made in the bone marrow and stored in several locations throughout the body. There are two types of these cells: T cells and B cells. B cells release antibodies which attack antigens. Antigens are the tiny invaders that can cause disease. Antibodies, also called immunoglobulins, are a Y-shaped protein the body creates to fight the pathogens. The antibodies attach to the pathogen and destroy it. There are two specific T cells: helper cells and killer T cells. The helper cells tell the B cells to start making antibodies if needed or tell the killer T cells to begin attacking. The killer T cells destroy cells in the body

TEXT MARKING

YELLOW

What are white blood cells also called?

GREEN

What are antibodies?

BLUE

What are lymph nodes?

PINK

What do B cells do?

WORDS TO KNOW

UNDERLINE (IN PASSAGE) THEN DEFINE

defense - resist attack

invaders - intruders

SPARK SOME *creativity*

ESCAPE ROOMS

SCAVENGER HUNTS

SPY MYSTERY

THINKTIVITY

SECRET MESSAGES

TEXT DETECTIVE

BREAKOUTS

READING CHALLENGE

INTERACTIVE NOTEBOOK

COLOR BY NUMBER

DIGITAL ESCAPES

DIGITAL BOARD GAME

GOOGLE SLIDES

TASK CARDS GAME

GOOGLE FORMS

PUZZLE STATIONS

BOOM CARDS

READING PASSAGES

LET'S CONNECT

BLOG

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