**Circulatory System**

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**Circulatory System**

Major Organs:

* Heart
* Blood Vessels

Systems Functions:

 Transports materials to and from your cells.

Describe how 2 organs from this system work together to fulfill the systems function:

* The heart and vessels carry blood to all parts of the body.

How are cellular needs met by this system?

* When blood carries oxygen to all parts of the body.
* Cells are able to use that oxygen to break down foods in the process of respiration.

Diseases, disorders or medical problems:

* Hypertension
	+ Unusually High Blood Pressure
* Atherosclerosis
	+ Hardening of the fats in the veins
* Stroke
	+ When a blood vessel in the brain becomes clogged or ruptures and parts of the brain don’t receive oxygen.

Personal behaviors that affect the circulatory system:

* Don’t smoke
* Exercise
* Eat Healthy- fish, fruits and veggies
* Maintain a healthy weight



**Digestive System**

Major Organs:

* Mouth & Salivary Glands
* Esophagus
* Stomach
* Pancreas
* Gallbladder
* Small intestine
* Large intestine
* Colon

Systems Functions:

The digestive system is a series of organs and glands that process food.

Describe how 2 organs from this system work together to fulfill the systems function:

The stomach and intestines break down food, take what the body needs and then excrete the rest as waste.

How are cellular needs met by this system?

Cells receive the needed nutrition to carry on life functions as a result of the work of this system.

Diseases, disorders or medical problems:

* Diabetes
	+ A disease that results in the glucose (sugar) level of the blood being higher than the normal-range.
	+ It is caused by a person’s inability to either produce or use properly a natural chemical produced in the body called insulin.
	+ The higher level of blood sugar results in many disorders of the body, for example an increase in problems with circulation of blood.
	+ Diabetes can lead to kidney disease or heart disease or cause vision problems.
* Appendicitis
	+ Inflammation of the appendix.
	+ This is a medical emergency.

Personal behaviors that affect the Digestive system:

* Eat healthy
	+ High fiber
	+ Low fat
	+ Eat probiotics like yogurt
* Drink lots of water
* Avoid stress
* Don’t drink alcohol or lots of caffeine
* Don’t smoke

**Endocrine System**

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**Endocrine System**

Major Organs:

* Pituitary Gland
* Thyroid gland
* Thymus gland
* Adrenal gland
* Pancreas

Systems Functions:

The endocrine system is the collection of glands that produce hormones that regulate metabolism, growth and development, tissue function, reproduction, sleep, and mood, among other things.

Describe how 2 organs from this system work together to fulfill the systems function:

* The thyroid gland secretes adequate amounts of thyroid hormones into the blood.
* The pituitary gland senses the normal levels of thyroid hormone in the bloodstream and adjusts its release of thyrotropin, the pituitary hormone that stimulates the thyroid gland to produce thyroid hormones.

How are cellular needs met by this system?

* A gland is a group of cells that produces and secretes, or gives off, chemicals.
* A gland selects and removes materials from the blood, processes them, and secretes the finished chemical product for use somewhere in the body.

Diseases, disorders or medical problems:

* Hypothyroidism occurs when the thyroid gland does not produce enough thyroid hormone to meet the body’s needs.
* Thyroid cancer begins in the thyroid gland and starts when the cells in the thyroid begin to change, grow uncontrollably and eventually form a tumor.
* Diabetes, A disease that results in the glucose (sugar) level of the blood being higher than the normal-range. It is the most common disease of the endocrine system.

Personal behaviors that affect the Endocrine system:

General health, aging and genes affect this system most. So if you want to keep it healthy take care of your other systems.

**Excretory System**

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Major Organs:

* Kidneys
* Ureters
* Bladder
* Urethra

Systems Functions:

The main function of the excretory system is to filter out cellular wastes, toxins (chemicals that could be poisonous to the body), and excess water that result from cellular respiration.

Describe how 2 organs from this system work together to fulfill the systems function:

The kidney’s get rid of urea, excess water and other waste materials. The ureters connect the kidneys to the bladder, which stores waste until it is eliminated through the urethra.

How are cellular needs met by this system?

 Cellular waste is eliminated by this system.

Diseases, disorders or medical problems:

Kidney Stones- This disease is when uric acid form crystals that bundle up in the kidneys, this prevents the kidneys to function correctly and causes the host pain. The 2 cures are to let the stones "pass" through or by surgery.

Personal behaviors that affect the excretory system:

* Eat Healthy
* Exercise
* Drink a Lot of water

**Immune System**



Major Organs:

* Tonsils
* Lymph nodes
* Thymus gland
* Bone marrow
* Spleen

Systems Functions:

* The **immune system** protects against disease.
* To function properly, an **immune system** must detect a wide variety of agents, known as pathogens, from viruses to parasitic worms, and distinguish them from the organism's own healthy tissue.

Describe how 2 organs from this system work together to fulfill the systems function:

* The tonsils and adenoids act as filters to remove debris and antigens entering the respiratory tract.
* Lymph nodes act as filter to remove debris and antigens and foster contact with T lymphocytes.
* Bone marrow contains stem cells, which mature and become antibody-producing plasma cells that react to many bacteria, viruses and other antigens.
* The thymus contains cells that mature into T lymphocytes and specifically react to viruses, parasites, fungi, foreign tissue, and other antigens; controls dell-mediated immunity.
* Spleen acts as a filter to remove debris and antigens and to foster contact with T lymphocytes.

How are cellular needs met by this system?

Any cells being attacked by bacteria, viruses or other antigens will be protected by the cells of this system.

Diseases, disorders or medical problems:

* AIDS
	+ Acquired immunodeficiency syndrome (AIDS) is caused by the human immunodeficiency virus (HIV).
	+ This virus attacks the cells in the immune system making the organism unable to fight off other pathogens that may attack the body.
* Lupus
	+ A chronic, autoimmune disease that can damage any part of the body (skin, joints, and/or organs inside the body). Chronic means that the signs and symptoms tend to last longer than six weeks and often for many years.

Personal behaviors that affect the Immune system:

* Get enough sleep
* Eat healthy- lots of fruits and vegetables, whole grains, low fat.
* Wash hands regularly
* Cook meat thoroughly
* Don’t smoke
* Maintain a healthy weight
* Don’t smoke or drink alcohol



Major Organs:

* Skin
	+ Epidermis
	+ Dermis
	+ Hypodermis
	+ Hair
	+ Nails

Systems Functions:

* Covers the body and prevents the loss of water
* Protects the body from infection and injury.
* Helps to regulate body temperature, get rid of wastes (sweat), receive information from the environment and produce vitamin D.
* Receptor for touch, pressure, pain, heat, and cold.

Describe how 2 organs from this system work together to fulfill the systems function:

* The integumentary system is very interesting because it is an organ but also a system, so the entire organ works to perform all functions.
* Hair and nails consist of dead skin cells and grow when cells of this system die.

How are cellular needs met by this system?

* The skin is the first line of defense and helps protect cells from harm.
* The skin is a receptor for pain, pressure, hot and cold and sends messages to the brain using nerve cells.
* This system provides protection to all body cells.

Diseases, disorders or medical problems:

* Athlete’s foot
	+ A common fungal infection of the skin of the feet.
	+ The fungus may be contracted from public environments and then grows in the warm and moist environment usually between the toes, and can be difficult to cure.
* Skin Cancer
	+ A Disease in which skin cells found in the outer layers of the skin becomes damaged.
	+ Factors that can lead to skin cancer are damaging ultraviolet rays (UV) from the Sun or tanning beds and heredity.

Personal behaviors that affect the Integumentary system:

* Don’t smoke (Wrinkles)
* Eat healthy
* Wear sunscreen
* Bathe or shower to Wash your skin everyday

**Muscular System**

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Major Organs:

* Skeletal Muscles
* Smooth Muscles
* Cardiac Muscles

Systems Functions:

* The main function of the muscular system is to provide movement.

Describe how 2 organs from this system work together to fulfill the systems function:

* Skeletal muscles are Voluntary muscles attached to bones and provide the force needed to move the bones.
	+ Tendons connect skeletal muscles to bones.
* Smooth muscles are involuntary muscles that control many types of movement within the body (such as digestion.)
* Cardiac muscles are involuntary muscles that form the heart.

How are cellular needs met by this system?

* Muscles control the movement of materials through some organs like the stomach, intestines and the heart.
* Cells are able to have their needs met as a result of this movement.

Diseases, disorders or medical problems:

* Muscular Dystrophy
	+ Carried by the mother, Muscular Dystrophy is a sex-linked genetic disorder of the muscles that causes muscles to weaken slowly due to a lack of the protein dystrophin, which holds the skeletal muscle cells together. When a person has this disease, fatty deposits replace their muscle tissues.
* Myopathy
	+ Myopathy is a disease that causes the skeletal or voluntary muscles to become weak or wasted. Myopathies sometimes occur as a result of drug side effects, chemical poisoning, or a chronic disorder of the immune system.
* Fibromyalgia
	+ Fibromyalgia can be described as pain in the muscles, ligaments, and tendons, fatigue and multiple tender points.

Personal behaviors that affect the Muscular system:

* Eat Healthy
* Stay Strong
* Stay Hydrated
* Warm Up and Stretch

**Nervous System**

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Major Organs:

* Brain
* Spinal Cord
* Peripheral Nerves

Systems Functions:

The main functions of the nervous system are to receive stimuli from inside and outside the body, to interpret the stimuli, and initiate responses for survival.

2 organs from this system work together to fulfill the systems function:

* The brain is an organ of the central nervous system, which has three distinct parts that all serve to control and coordinate the activities of the body.
	+ The cerebrum controls thoughts, voluntary actions, and the sensations related to the five senses.
	+ The cerebellum helps with balance and coordination.
	+ The brain stem is located at the base of the brain and controls vital and involuntary processes (for example, breathing, the beating of the heart, and digestion).
* The spinal cord is a bundle of nerves that begins at the brain stem and continues down the center of the back through the vertebrae. It connects with the peripheral nerves.
* The peripheral nerves consist of a network of nerves that branch out from the spinal cord and connect to the rest of the body.
* They transmit signals to and from the brain through the spinal cord.

How are cellular needs met by this system?

Cellular needs are met by this system as information is transmitted to the brain regarding the needs of the body down to the cell.

Diseases, disorders or medical problems:

* Parkinson’s disease
	+ A disease of the nervous system that occurs when certain nerve cells in the brain stop functioning properly, affecting the muscular system.
	+ The major symptoms are severe shaking (tremors) and disabilities involving movement.
	+ At present, there is no cure.
* Multiple Sclerosis
	+ Literally means, “many hardenings”
	+ MS is a disease of unknown cause that manifests as multiple hard plaques of degeneration of the insulating layer of nerve fibers in the central nervous system.
	+ The loss of insulation allows, “short circuiting” of nerve impulses. Depending upon where the degeneration occurs, patients may suffer paralysis, sensory disturbances or blindness.

Personal behaviors that affect the Nervous system:

* Healthy Diet
* Exercise your brain through puzzles, reading, & writing.
* Get plenty of rest.

**Respiratory System**



Major Organs:

* Nasal Cavity -Diaphragm
* Pharynx -Lung
* Bronchus -Trachea

Systems Functions:

* The main function of the respiratory system is to provide gas exchange between the blood and the air.
* When air is inhaled, the lungs remove some of the oxygen. Carbon dioxide is exhaled back into the environment.

Describe how 2 organs from this system work together to fulfill the systems function:

* The nose collects air from the environment and moistens and heats the air before it enters the trachea.
* The Trachea moves air from the nose to the lungs.
* Bronchial tubes move air from the trachea to the lungs. One bronchus leads to each lung.
* The lungs are the main organs where gases are exchanged between the air and the blood.
* Alveoli in the lungs are where the gas exchange takes place.
* The diaphragm is the muscle that aids in the breathing process.

How are cellular needs met by this system?

* The respiratory system takes oxygen from the air and gets it to the bloodstream where it can be taken and used by cells.
* This system also rids the blood of carbon dioxide that has been released by cells and collected by tissues.

Diseases, disorders or medical problems:

* Colds
	+ An illness caused by a viral infection located in the respiratory system.
	+ Once inside the human body, the cold virus multiplies and attacks the mucous membranes of the nose and throat causing the common effects of the cold (for example, sore throat, runny nose or fever).
	+ Because the cold is caused by a virus it cannot be treated with an antibiotic.
* Flu
	+ Influenza, commonly known as "the flu," is a highly contagious viral infection of the respiratory system.
	+ Influenza typically causes fever, muscle aches, and a more severe cough than the common cold and usually lasts longer.
* Asthma
	+ Asthma is a disease that affects the lungs and the airways that deliver air to the lungs.
	+ It causes periodic attacks of wheezing and difficult breathing.
	+ An asthma attack occurs when the airways become inflamed in response to a stimulus, such as dust, mold, pets, exercise, or cold weather.
	+ However, some attacks start for no apparent reason.

Personal behaviors that affect the Respiratory system:

* Don’t smoke
* Exercise
* Drink water

**Reproductive System**

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Major Organs:

* Testes
* Uterus
* Ovaries
* Prostate

Systems Functions:

 Reproduction

 Passing genetic material from parent to offspring

Describe how 2 organs from this system work together to fulfill the systems function:

* Testes create and store male sex cells, sperm
* Vas deferens connects testes with urethra.
* Ovaries create and store female sex cells, eggs.
* Fallopian tubes carry egg to uterus.
* Uterus houses developing fetus.

How are cellular needs met by this system?

* Sex cells allow for the production of new life.

Diseases, disorders or medical problems:

* STd’s: covered in health
* Cancer of reproductive organs.

Personal behaviors that affect the reproductive system:

* Healthy diet
* Physical activity
* Good hygiene

**Skeletal System **

**Skeletal System**

Major Organs:

* Bones

Systems Functions:

* The main functions of the skeletal system are to provide support for the body, to protect internal organs, and to provide attachment sites for the muscles.

Describe how 2 organs from this system work together to fulfill the systems function:

* Provide shape and support for the body and protection for many organs and structures.
	+ Some bones produce blood cells
	+ Some store minerals
* Joints occur where two or more bones meet
* Ligaments attach bones at the joints

How are cellular needs met by this system?

* Bone cells are responsible for bone production, repairing themselves and communicating with other cells in the body.

Diseases, disorders or medical problems:

* Osteoporosis
	+ Makes bones weak and likely to break.
* Osteogenesis imperfect
	+ Makes bones brittle
* Bone cancer
	+ Uncontrolled growth of abnormal bone cells

Personal behaviors that affect the skeletal system:

* Consume calcium and vitamin D
* Avoid a lot of salt -Exercise