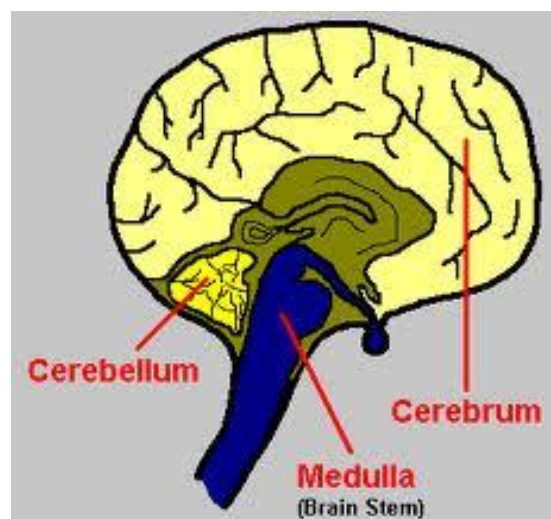
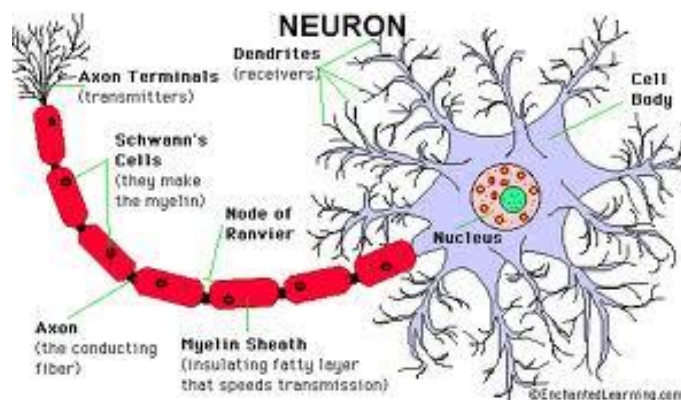


Human Body Systems Study Guide

Nervous System –

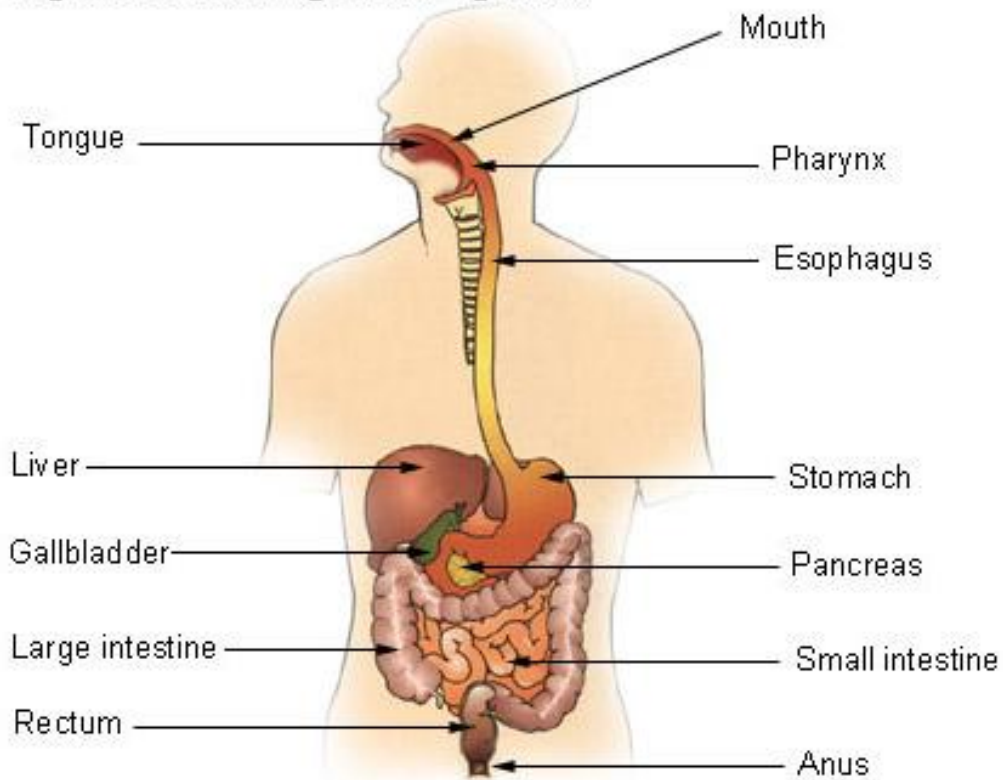
1. Brain stem – part of nervous system and controls the heartbeat and breathing by controlling the cardiac muscle and diaphragm. Also receives information from face, ears, eyes and nose.
2. Cerebrum – part of the brain that controls our thinking and emotions.
3. Neurons – nerve cell.
4. Brain – 3 main parts – cerebrum, cerebellum, brain stem.
5. Cerebellum- controls movement and balance.
6. Sensory nerves – the body receives information from the environment through the sensory nerves.
7. Axon – the long trunk part of the neuron.
8. Synapse – the space between neurons.
9. Motor nerve – carries instructions to the muscles from the spinal cord.



Digestive System –

1. The function of the digestive system is to provide the body with nutrients.
2. Stomach – churns the food and produces acids that helps indigestion.
3. Pancreas - releases enzymes into small intestines to break down food.
4. Small intestines – food passes through the walls of the small intestines and sends nutrients through the capillaries to the cells of the body.
5. Gall bladder – stores bile made by the liver and sends it to the stomach to aide in digestion.
6. Esophagus – muscular tube the leads from the mouth into the stomach.
7. Salivary glands – produces the fluid (spit) that breaks down food in the mouth.
8. Large intestines – absorbs the remaining water and waste and prepares it to exit.

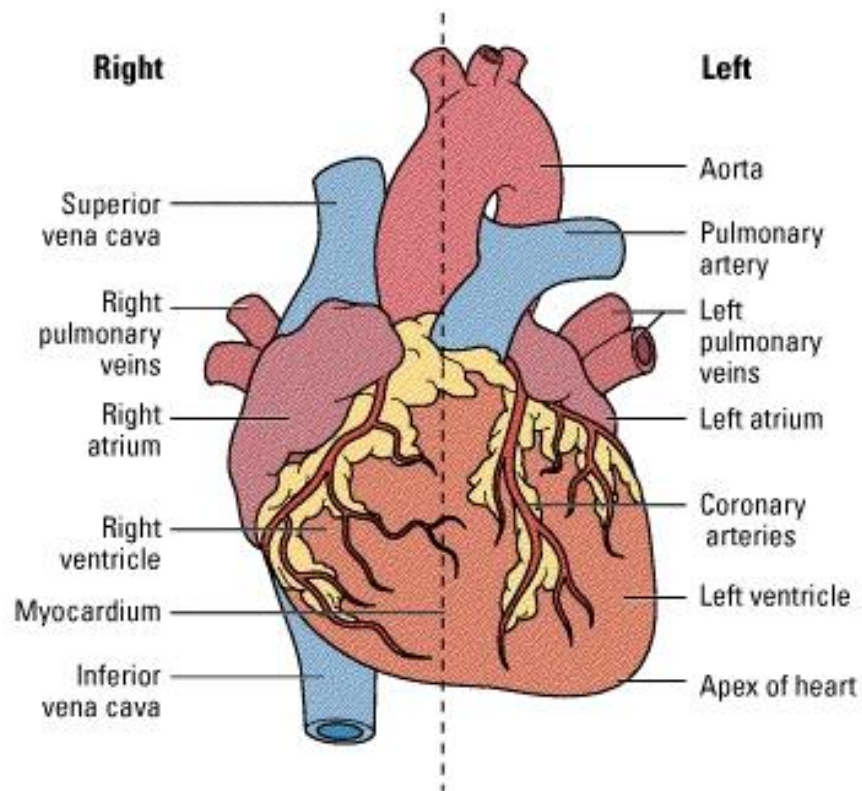
Organs of the Digestive System



Circulatory System –

1. Capillaries – the smallest blood vessels in the body.
2. Arteries – blood vessels that carry blood away from the heart.
3. Veins – blood vessels that carry blood to the heart.
4. Ventricle – lower chambers of the heart that pumps blood.
5. Atria – upper chambers of the heart that collects blood.
6. Left ventricle – pumps O rich blood out of the heart to the body.
7. Pulmonary veins – carries O rich blood from the lungs to the heart.
8. Septum – thin muscular wall that separates the left and right side of heart.
9. Aorta – largest blood vessel in the body.
10. Cardiovascular – combines circulatory (heart) and respiratory (lungs).

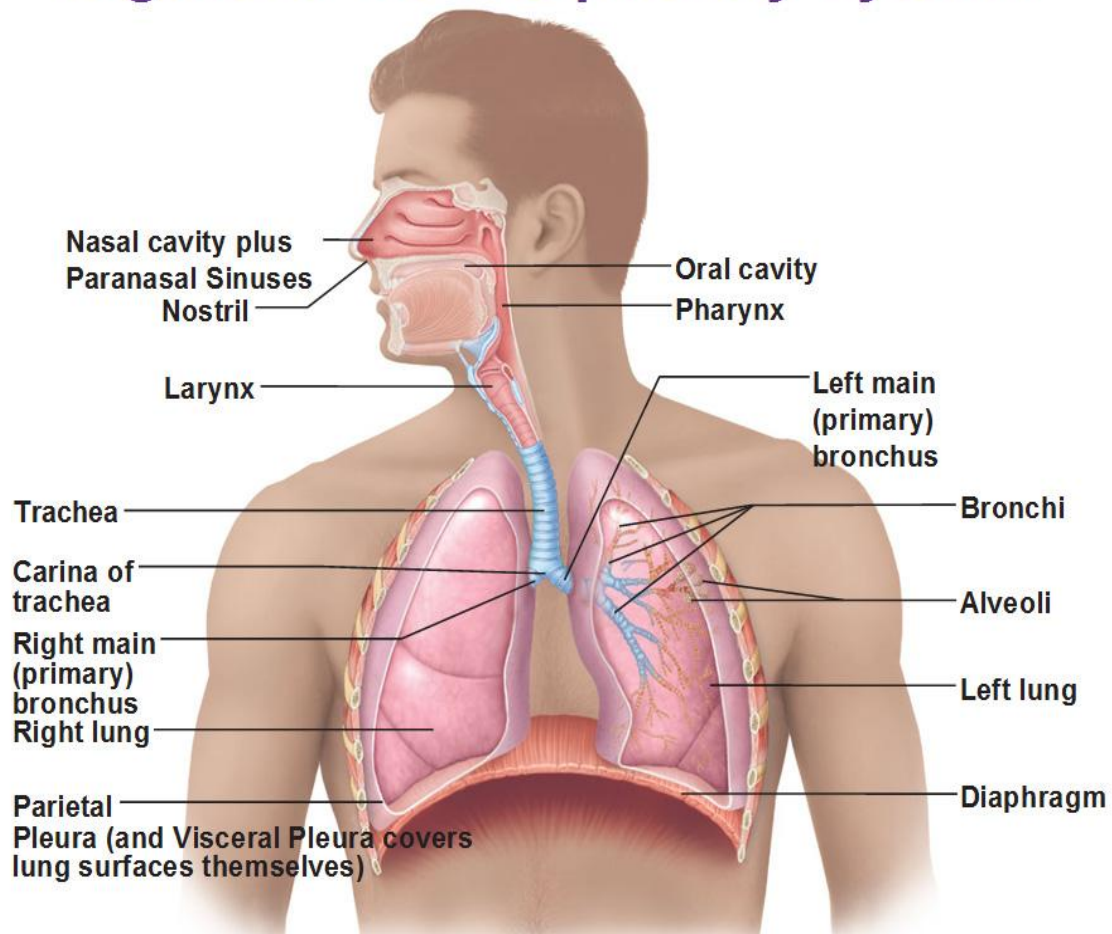
The Heart: Outside



Respiratory System –

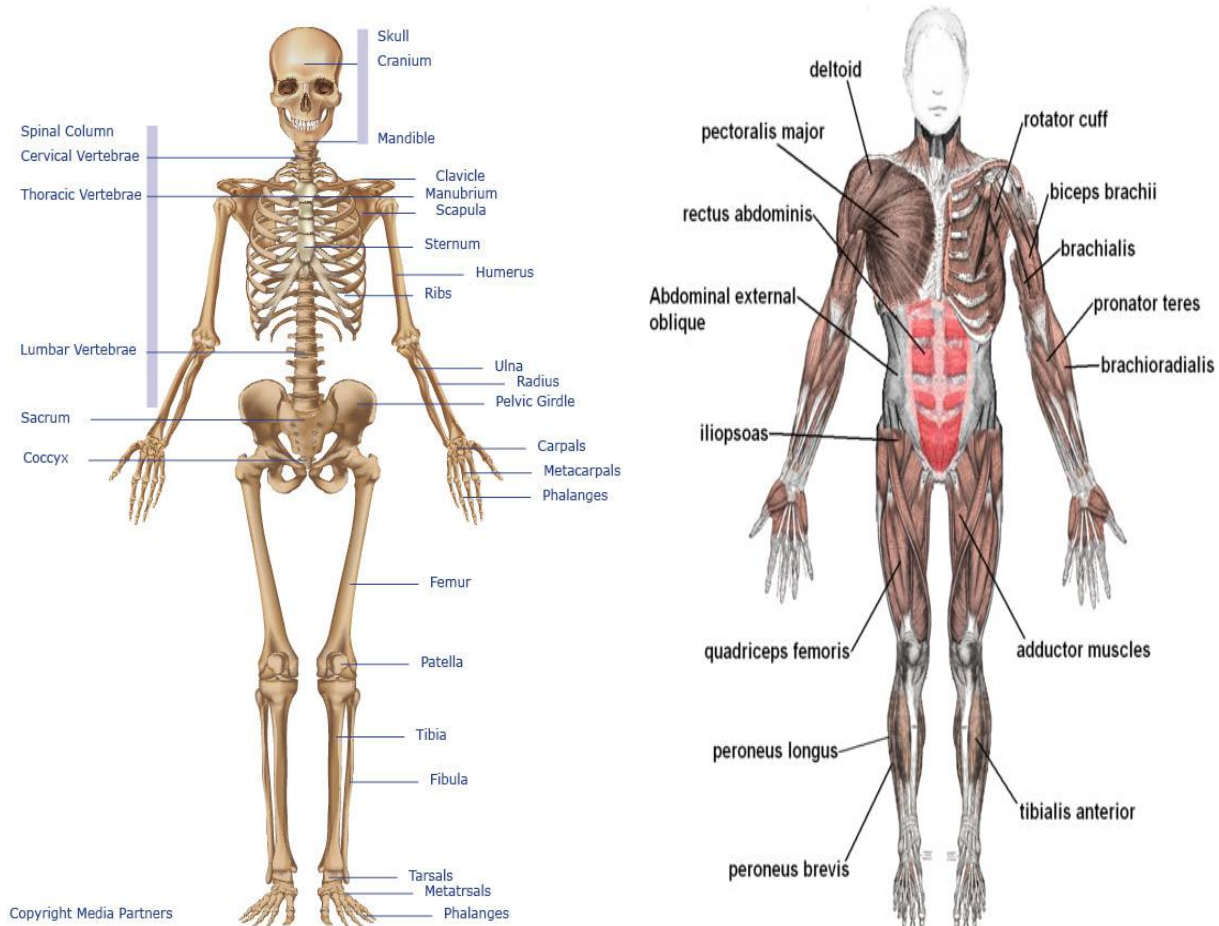
1. CO₂ – carbon dioxide which is removed by the lungs.
2. Trachea – attaches to the lungs and is also called the wind pipe.
3. Diaphragm – large breathing muscle attached to the lungs and separates the heart and lungs from the abdominal cavity.
4. Capillaries – smallest blood vessels where Oxygen is exchanged for CO₂ in the lungs.
5. Respiratory system – main function is to supply the body with Oxygen.
6. Bronchial tubes – two small tubes attaching the trachea to the lungs.
7. Alveoli – tiny air sacs in the lungs surrounded by capillaries.
8. Bronchioles – small tubes within the lungs that transport air to the alveoli.

Organs of the Respiratory System



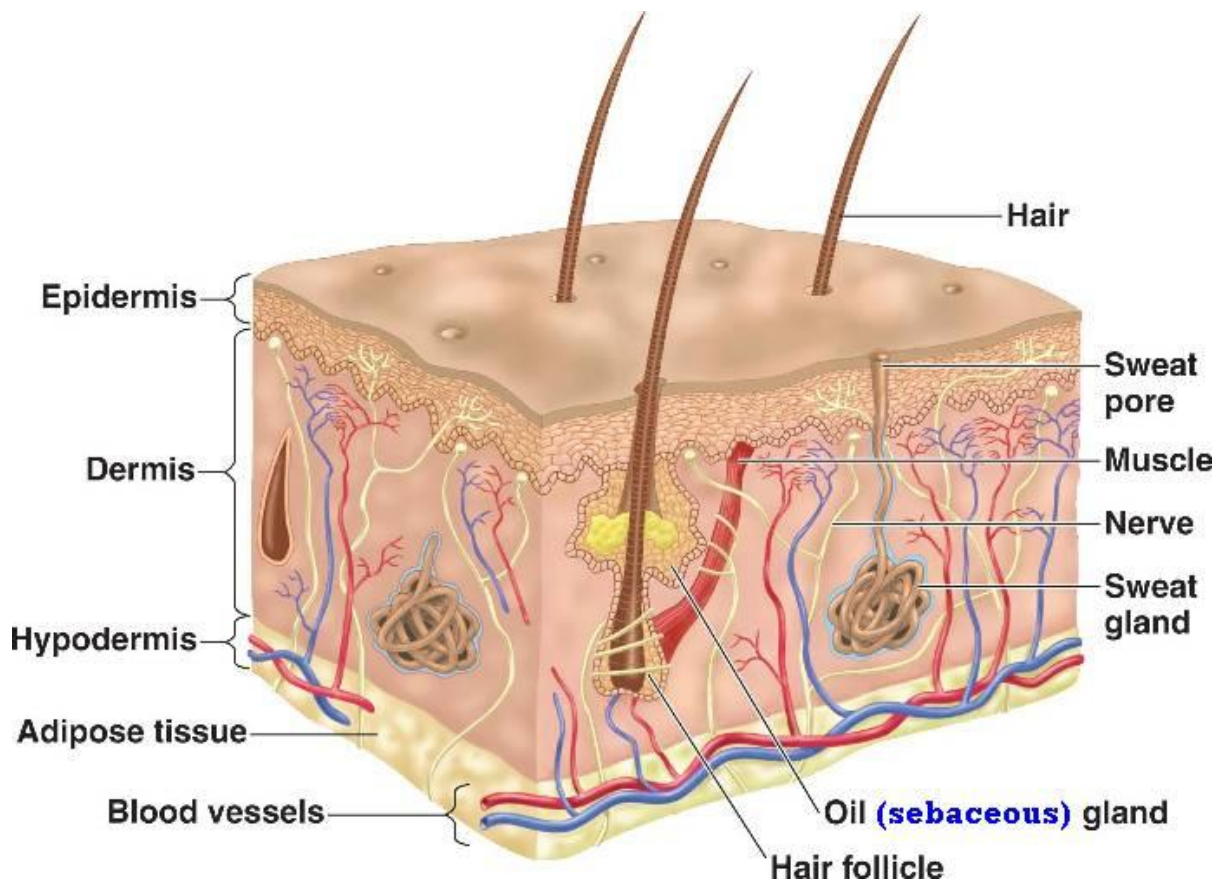
Muscular & Skeletal System –

1. Ribs – 12 bones connected to the sternum and protect the hearts and lungs.
2. Skeletal muscles – provides power needed to move bones and joints.
3. Cartilage – covers the end of bones to protect them from wear and tear.
4. Ligaments – bands of strong tissue that connects bone to bone.
5. Joints – where bones come together.
6. Cardiac muscle – provides power for the heart to pump blood.
7. Smooth muscles – found attached to internal organs besides the heart.
8. Tendons – tough fibrous band that attaches muscles to bone.



Integumentary System –

1. The Integumentary system (skin, hair, nails) protects the body from damage and water loss.
2. Sweat glands and hair regulate temperature of the body. Sweat glands also remove waste.
3. Epidermis waterproofs and protects deeper tissues.
4. Dermis is connective tissue that provides a site for nerve endings and blood vessels.
5. Hypodermis is a layer of fat that provides cushioning.
6. The skin also produces melanin to protect the body against sunburn, and manufactures Vitamin D from exposure to sunlight.



Immune system –

1. This system protects the body from infections and destroys bacteria and viruses, which are also called pathogens and germs.
2. Bone marrow - makes the cells that fight disease. The bone marrow is responsible for the production of important immune system cells like B cells, granulocytes, natural killer cells and immature thymocytes. It also produces red blood cells and platelets.
3. Thymus - produces mature T- cells.
4. Lymph nodes -White blood cells are housed in the lymph nodes. White blood cells, or leukocytes, fight pathogens or diseases. There are several different kinds of leukocytes, which are all manufactured in the bone marrow and all work together as a team to protect the body against disease. Three types of white blood cells - B-cells, T-cells and macrophages – are defensive cells that circulate the body looking for invaders. The macrophages are the first to locate the invading germs.
5. Spleen - This organ of the immune system is composed of a variety of white blood cells (T-cells, B-cells, natural killer cells, macrophages, dendritic cells) and red blood cells. It acts as an immunologic filter of the blood.
6. Antibodies are produced by the white blood cells and cover the germ cells in the body to make them easier to kill.
7. Adenoids - located in the back of the nasal cavity, the adenoids protect vital body organs from invading germs, like a sponge.
8. Tonsils – located in the throat, the tonsils protect vital body organs from germs by trapping them from inhaled air.

