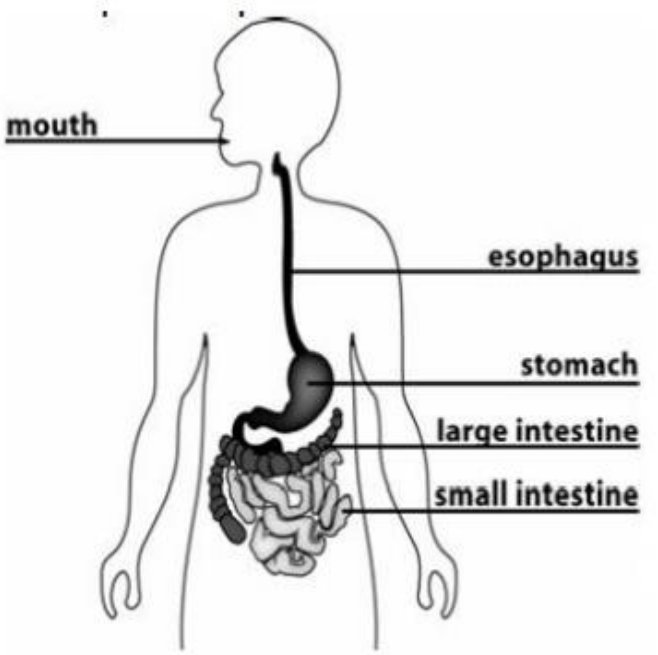
DIGESTIVE SYSTEM STUDY GUIDE

Why is the digestive system so important for the human body? It is vital for life because it breaks food into nutrients and moves the nutrients into the blood. The function of the digestive system is to process foods in to a useable source of energy. Without the digestive system we would not get the energy we need for survival.

The major parts of the digestive system include the **MOUTH**, **ESOPHAGUS**, **STOMACH**, and **INTESTINES**.

- Mouth: Digestion begins in the mouth. Food is first broken down by saliva and chewing in our mouth.
- Esophagus: Then the esophagus muscles move food and liquid into the stomach. This involuntary movement is called peristalsis.
- Stomach: Acids and churning in the stomach continue the process of digestion.
- Small Intestine: The longest organ of the digestive system is the small intestine.
- Large Intestine: This is where the waste products that are not absorbed in the small intestine are stored.

The digestive system is one of the systems of the body. Each part of the digestive system has an important job to do so the body can get nutrients from food. Here are the five major organs of this system:



Function of each organ in the digestive process:

First, the mouth has teeth to break food into pieces, and saliva to start to break down food chemicals. Then, the esophagus is a muscular tube that pushes food down to the stomach. The stomach has acid and movements that help to break down food. Then food goes to the small intestine, where chemicals break down food into nutrients and sugar for energy. The small intestine also has special cells that absorb what is needed. The large intestine is larger and stores leftover materials until they leave the body.

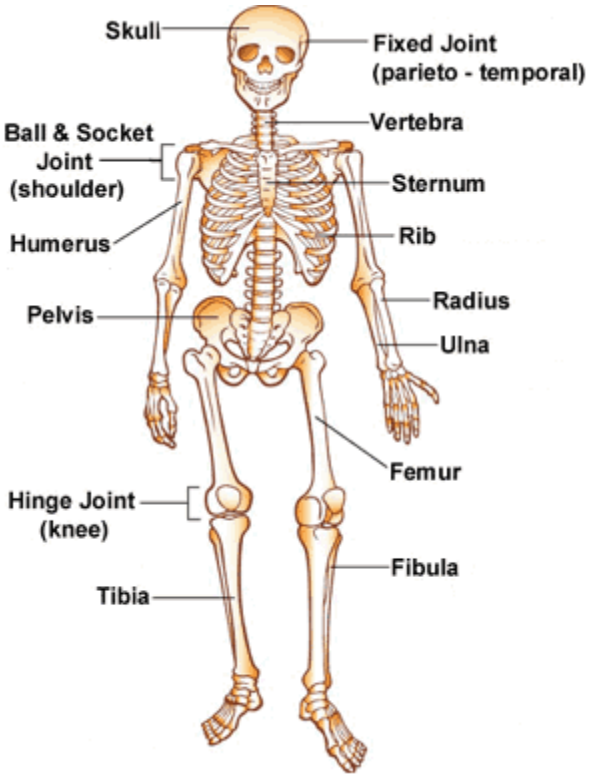
Skeletal & Muscular System Study Guide

The purpose of the **SKELETAL SYSTEM** is that it provides support for the body and protects vital organs. A major difference between human bodies and the bodies of animals that do not have skeletal system is that animals without skeletal systems have less protection for their organs. The primary purpose of the rib cage is to protecting vital soft organs like the heart and lungs, the skull to protect the brain, and the spine to protect the spinal cord.

Your bones are made up of living cells. Bones are not dry! They are flexible, light, and strong. There are 206 bones in an adult skeleton. The bones in our body come in many different shapes and sizes. This is because each bone is designed to do a unique job in your body. Places in the skeletal system where points come together are called joints.

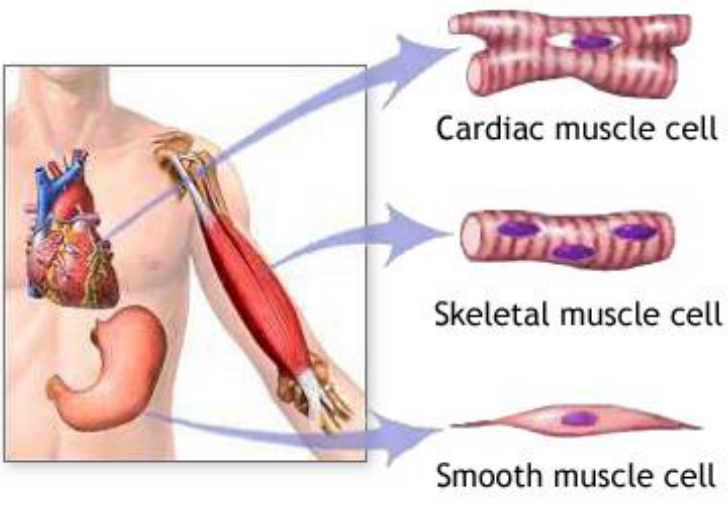
The **MUSCULAR SYSTEM** provides movement for the body. Many bones have more than one muscle attached to them because each muscle pulls the bone in a different direction.

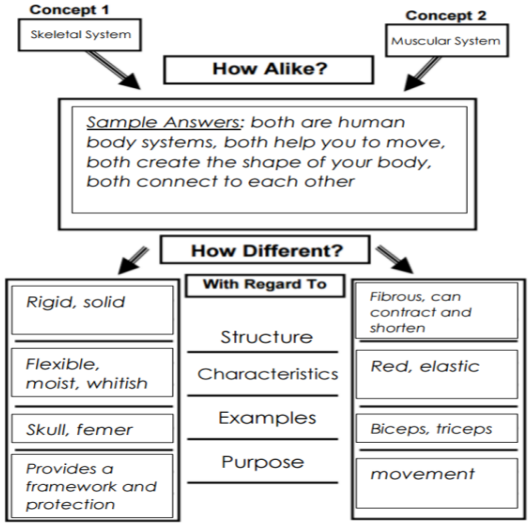
MAJOR BONES IN THE BODY:



There are <u>involuntary</u> muscles (muscles that you *cannot* control) and <u>voluntary muscles</u> (muscles that you *can* control). Involuntary muscles include the heart, muscles involved in blinking, digesting food, and breathing. Voluntary muscles include leg and arm muscles.

There are also <u>smooth muscles</u> (esophagus and blood vessels), <u>cardiac muscle</u> (only the heart) and <u>skeletal muscles</u> (biceps and quadriceps). The skeletal muscles found in your leg function differently than the heart muscle by being voluntary and moving when you want them to move. To help you understand some of the characteristics of a skeletal muscle, gently pull and release the ends of rubber band. To help you understand some of the characteristics of the muscle in your heart, gently squeeze and release a balloon partially filled with water.





Respiratory system study Guide

Facts and Functions:

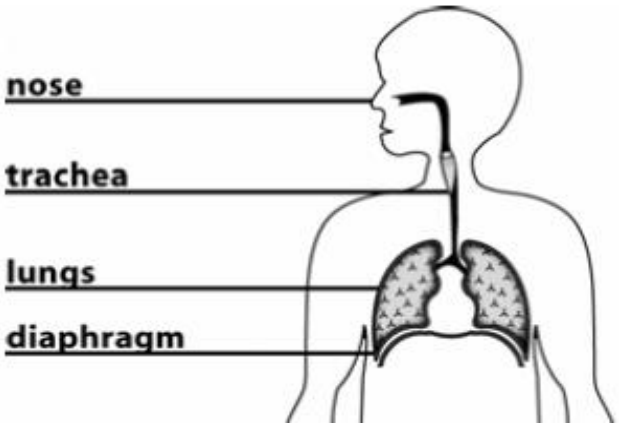
- The respiratory system is so important because it controls breathing and gas exchange in the body. The respiratory system brings oxygen into the human body and removes carbon dioxide.
- The nose, throat, and trachea form a passageway for air to enter and for waste gases to exit the body.
- The lungs expand and draw in air when the diaphragm expands. The lungs expel air when the diaphragm contracts. This expanding and contracting of the lungs is an involuntary action. Lungs are made of spongy tissue with lots of surface area to increase contact with the air.
- Asthma makes it hard for people to breathe because it narrows the breathing tubes. If someone is having difficulties breathing they should go to the doctor to have them examine their respiratory system to see if one part is not functioning properly.

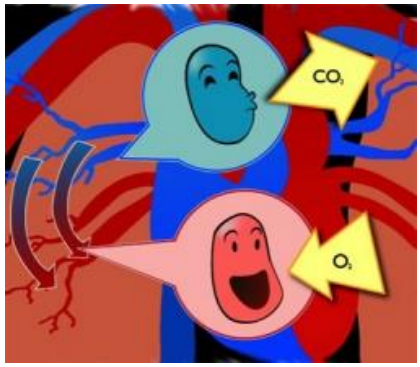
Comparing the RESPIRATORY SYSTEM to other body systems:

- The small intestine and lungs are similar because both separate needed from unneeded parts of the materials our bodies take in.
- When someone is exercising both the circulatory and respiratory systems provide oxygen to the body. The lungs are the organs of the respiratory system that most directly connected to the circulatory system.

Respiration Sequence:

- The nose has two nostrils that let air in.
- The trachea is a long tube that carries air from the nose (and mouth) to the lungs.
- The lungs are large spongy organs that can inflate and shrink. They have a lot of surface area to let oxygen into the blood and let wastes out.
- The diaphragm is a flat muscle below the lungs. When the diaphragm moves, the lungs expand and contract and the person breathes in and out.



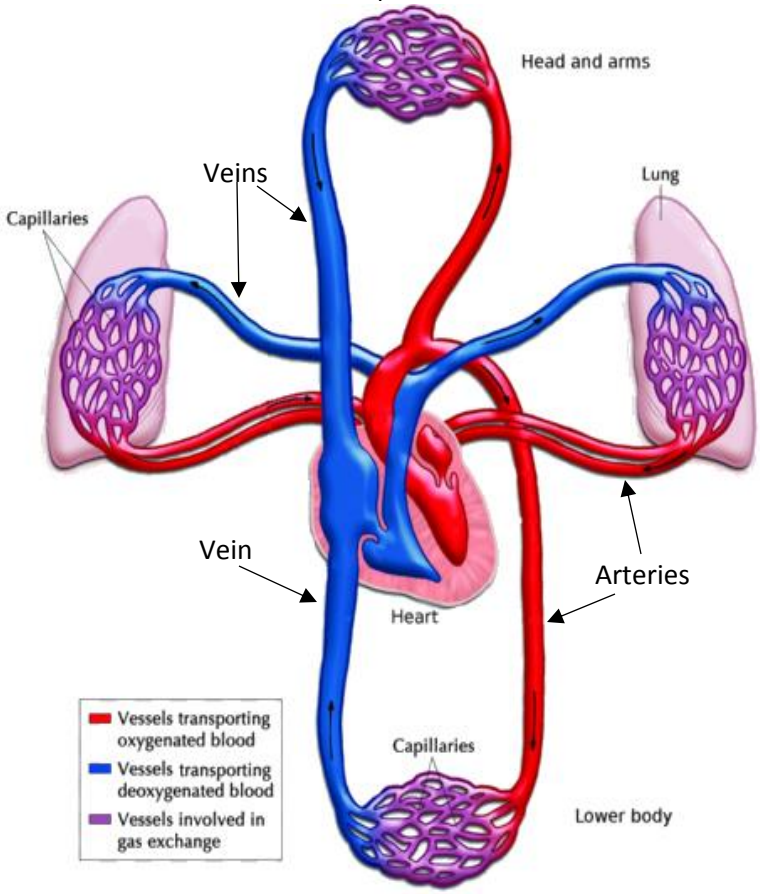


Cardiovascular and Circulatory Systems Study Guide

- The human body has many functions. Every part of the body helps keep the body working. The circulatory and cardiovascular systems keep oxygen and nutrients moving through the body.
- The pumping of the heart in the human body happens without us thinking about it.
- The heart is a muscle which contracts and expands like a pump to circulate blood throughout the body. The heart is the major organ of the cardiovascular system.
- To help you understand some of the characteristics of the muscle in your heart, gently squeeze and release a balloon partially filled with water.
- The main function of the heart is to circulate blood through the body. Blood contains fluid and red blood cells that carry oxygen, nutrients, and waste. Arteries carries blood away from the heart to the rest of the body. Veins carries blood back towards the heart. Arteries and veins branch out into capillaries, which are the smallest blood vessels.
- The cardiovascular and circulatory systems work together to deliver oxygen from the lungs for muscle energy and removes carbon dioxide, a waste gas.
- The circulatory system works with the digestive system through blood carrying nutrients throughout the body.
- The skeletal system works with the circulatory system because the skeletal system produces red blood cells and the circulatory system transports those cells where they need to go.

Myth: Your blood and veins are blue.
Truth: The blood in your veins is dark red.
Read more about this →here←

Here is a diagram that shows how the heart, arteries, veins, and capillaries are related.



What is the job of the cardiovascular and circulatory systems?

The heart and circulatory system (also called the cardiovascular system) make up the network that delivers blood to the body's tissues. With each heartbeat, oxygen rich blood is sent through **ARTERIES** to other parts of our bodies. Then it goes into the tiniest of all blood vessel called **CAPILLARIES**. Here is when the blood carrying oxygen and nutrients is sent to all of our cells. Then waste products such as carbon dioxide are also removed by the capillaries and sent back to the heart through **VEINS**.