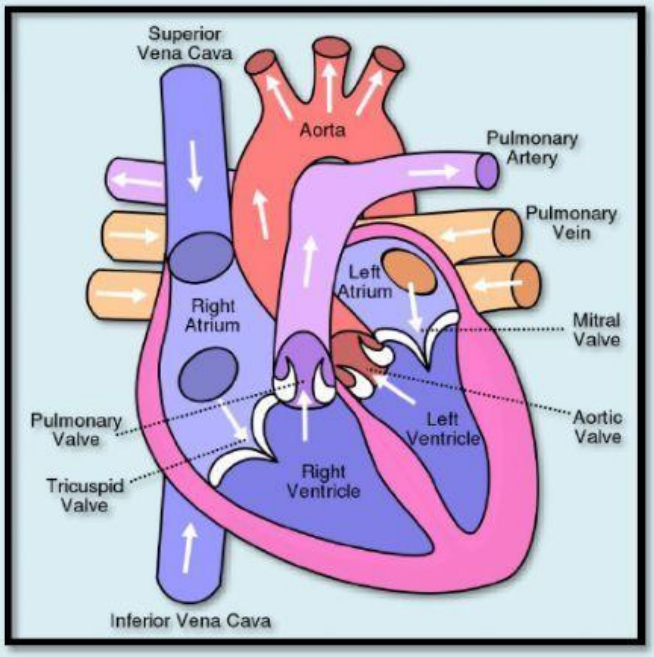
THE CIRCULATORY SYSTEM

What is the job of the Circulatory System?

The main organ of the circulatory system is the **heart**. The main job of the **heart** is to pump blood to every living cell in our body. The heart is divided into **four (4)** chambers. The two upper chambers are called **atriums** and the two lower chambers are called **ventricles**. A partition called a **septum** separates the right side of the heart from the left side. This prevents the blood on the left and right side of the heart from mixing. This is important because the left side of the heart is **oxygenated** or has blood rich in oxygen and carries blood to the body. However, the right side is **deoxygenated** or has blood with very little oxygen and takes blood to the lungs. Blood is carried around the body in blood vessels called **veins**, **arteries** and **capillaries**. The **circulatory System** is responsible for transporting materials throughout the entire body. It transports **nutrients**, **water**, and **oxygen** to your billions of body cells and carries away wastes such as **carbon dioxide** that body cells produce. It is an amazing highway that travels through your entire body connecting all your body cells.



Parts of the Circulatory System

The circulatory System is divided into three major parts:

1. The Heart
2. The Blood
3. The Blood Vessels

The Heart

The **Heart** is an amazing organ. The heart beats about 3 BILLION times during an average lifetime. It is a muscle about the size of your fist. The heart is located in the center of your chest slightly to the left. It's job is to pump your blood and keep the blood moving throughout your body. A **cardiologist** is a doctor with special training and skill in finding, treating and preventing diseases of the heart and blood vessels. A stethoscope is used to listen to the heart.

LIVEWORKSHEETS

It is your job to keep your heart healthy and there are three main things you need to remember in order to keep your heart healthy.

1. Exercise on a regular basis. Get outside and play. Keep that body moving (walk, jog, run, bike, skate, jump, swim).
2. Eat Healthy. Remember the Food Pyramid and make sure your eating your food from the bottom to top.
3. Don't Smoke! Don't Smoke! Don't Smoke! Don't Smoke! Don't Smoke!

The Blood

The blood is an amazing substance that is constantly flowing through our bodies.

- Your blood is pumped by your heart.
- Your blood travels through thousands of miles of blood vessels right within your own body.
- Your blood carries nutrients, water, oxygen and waste products to and from your body cells.
- A young person has about a gallon of blood. An adult has about 5 quarts.
- Your blood is not just a red liquid but rather is made up of liquids, solids and small amounts of oxygen and carbon dioxide.

Blood Cells

Red Blood Cells

Red Blood Cells are responsible for carrying oxygen and carbon dioxide. Red Blood Cells pick up oxygen in the lungs and transport it to all the body cells. After delivering the oxygen to the cells it gathers up the carbon dioxide(a waste gas produced as our cells are working) and transports carbon dioxide back to the lungs where it is removed from the body when we exhale(breath out). There are about **5,000,000** Red Blood Cells in ONE drop of blood.

White Blood Cells (Germinators)

White Blood Cells help the body fight off germs. White Blood Cells attack and destroy germs when they enter the body. When you have an infection your body will produce more White Blood Cells to help fight an infection. Sometimes our White Blood Cells need a little help and the Doctor will prescribe an antibiotic to help our White Blood Cells fight a large scale infection.

Platelets

Platelets are blood cells that help stop bleeding. When we cut ourselves we have broken a blood vessel and the blood leaks out. In order to plug up the holes where the blood is leaking from the platelets start to stick to the opening of the damaged blood vessels. As the platelets stick to the opening of the damaged vessel they attract more platelets, fibers and other blood cells to help form a plug to seal the broken blood vessel. When the platelet plug is completely formed the wound stops bleeding. We call our platelet plugs scabs.

LIVEWORKSHEETS

Plasma

Plasma is the liquid part of the blood. Approximately half of your blood is made of plasma. The plasma carries the blood cells and other components throughout the body. Plasma is made in the liver.

Where are the blood cells made?

The Red Blood Cells, White Blood Cells and Platelets are made by the bone marrow. Bone marrow is a soft tissue inside of our bones that produces blood cells.

The Blood Vessels

In class we talked about three types of **blood vessels**:

1. Arteries
2. Capillaries
3. Veins

Arteries

1. **Arteries** are blood vessels that carry blood AWAY from the heart, much of which is oxygen rich. Remember, A A Arteries Away. The **Aorta** is the main artery of the body, supplying oxygenated blood to the circulatory system.

Capillaries

Capillaries are tiny blood vessels as thin or thinner than the hairs on your head. Capillaries connect arteries to veins. Food substances(nutrients), oxygen and wastes pass in and out of your blood through the capillary walls.

Veins

Veins carry blood back toward your heart. The largest vein is the **Vena Cava**

AMAZING FACTS

- One drop of blood contains a half a drop of plasma, **5 MILLION** Red Blood Cells, **10 Thousand** White Blood Cells and **250 Thousand** Platelets.
- You have thousands of miles of blood vessels in your body. "Bill Nye the Science Guy" claims that you could **wrap your blood vessels around the equator TWICE!**
- Keep your heart healthy...it's going to have to beat about **3 BILLION times during your lifetime!**

LIVEWORKSHEETS

How blood flows in our body

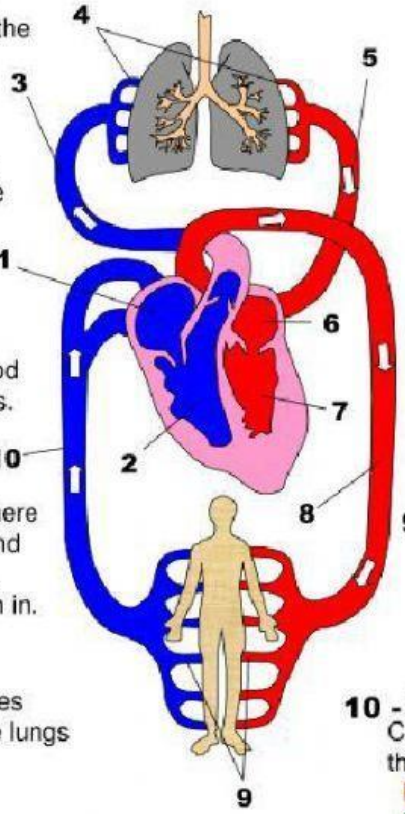
1 - Right Atrium - Receives deoxygenated blood from the rest of the body.
From: veins
to: right ventricle

2 - Right Ventricle – Pumps Deoxygenated blood to the lungs
From: right atrium
to: pulmonary artery

3 - Pulmonary Arteries – Carries deoxygenated blood From the heart to the lungs.
From: right ventricle
to: capillaries in lungs

4 - Capillaries in Lungs – Where the exchange of oxygen and carbon dioxide take place. carbon dioxide out, oxygen in.
From: pulmonary arteries
to: pulmonary veins

5 - Pulmonary Veins – Carries oxygenated blood from the lungs to the heart.
From: capillaries in lungs
to: left atrium



6 - Left Atrium – Receives oxygenated blood from the lungs.
From: Pulmonary veins
to: left ventricle

7 - Left Ventricle – Pumps oxygenated blood from the heart to the rest of the body.
From: left atrium
to: arteries

8 - Arteries – Lead away from heart. Carries oxygenated blood from the heart to the rest of the body.
From: left ventricle
to: capillaries in body

9 - Capillaries in Body – Where the exchange of oxygen and carbon dioxide take place. oxygen out, carbon dioxide in.
From: arteries
to: veins

10 - Veins – Lead back to the heart. Carries deoxygenated blood from the body's cells to the heart.
From: capillaries in body
to: right atrium

LIVEWORKSHEETS