The Circulatory System
Structures in the Circulatory System

- **Heart** - pumps blood throughout the entire body.
- Muscle that is the size of your fist.
- Has a left side that pumps blood with oxygen into the body.
- Has a right side that pumps deoxygenated blood into the lungs to pick up oxygen.
Heart Chambers

• Receives blood through 2 chambers: Left & Right Atrium

• Blood is pumped out by 2 lower chambers: Left & Right Ventricles.

• Valves control the flow of blood through the chambers so blood never goes back into a chamber once it is pumped out.
Circulation

• The Ventricle’s powerful contractions is what we feel as the heartbeat through the arteries.

• Circulation: One way high speed transport system carrying fuel and oxygen to all cells of the body.

• The heart beats about 70 times per minute

• 1 cup of blood equals 1 beat
Arteries, Veins & Capillaries

- **Arteries**: Thick walled tubes through which oxygenated blood travels from the heart to all parts of the body. Pumps blood **AWAY** from the heart. - Responsible for your “pulse”

- **Veins**: Returns deoxygenated blood to the heart and lungs from capillaries. Brings blood **TO** the heart. Thin blue lines.

- **Capillaries**: Tiniest blood vessels which connect the arteries and veins.
Blood Vessels...

- are like tunnels that carry blood through the body.
- consist of arteries, veins, and capillaries. Arteries carry oxygenated blood away from the heart to the body. Veins return deoxygenated blood to the heart. Capillaries connect the veins and arteries at the place where the blood begins its return trip to the heart.
Heart Parts

- Superior Vena Cava
- Inferior Vena Cava
- Deoxygenated Blood/ Oxygenated Blood
- Pulmonary Veins
- Pulmonary Arteries
- Aorta
- Right Atrium & Right Ventricle
- Left Atrium & Left Ventricle
- Valves
- Septum
The Parts

- Right Atrium - receives deoxygenated blood from all parts of the body.

- Right Ventricle - pumps deoxygenated blood to the lungs.

- Left atrium - receives oxygen-rich blood from the lungs.

- Left ventricle - pumps oxygen-rich blood to all parts of the body.

- Atrium - blood enters heart
- Ventricle - blood leaves heart
Vena Cava

- Superior Vena Cava: Returns blood from upper body to heart
- Inferior Vena Cava: Returns blood from lower body to heart
- Aorta: Carries blood to the body.
“The Path of Blood”

Materials:
- Path of Blood Worksheet
- Blue & red colored pencils, markers or crayons
- Pencil
“The Path of Blood”

1. The **Right Atrium (A)**, which is the upper chamber of the right side of the heart, receives blood from the upper body through the **Superior Vena Cava (B)** and from the lower body through the **Inferior Vena Cava (C)**. This blood is blue in color because it is returning from the body carrying CO2 (waste from the cells) that was released by body cells as the blood deposited oxygen.

2. Blood then flows through the **Tricuspid Valve (D)** into the **Right Ventricle (E)**, which is the lower chamber on the right side of the heart.

On your worksheet, label these parts on your heart in pencil and color them blue.
3. Through contraction of the right ventricle, the blue blood is forced through the **Pulmonary Valve (F)** into the **Pulmonary Artery (G)**. The **Pulmonary Artery (G)** branches to both the right and the left lung to pick up oxygen and release carbon dioxide wastes.

Label these parts on the heart and color them blue.
4. While in the lungs, the blood changes color to a bright red because it is now full of fresh oxygen needed by the body. It returns from both lungs through the **Pulmonary Veins (H)**.

5. The red blood carrying oxygen for all body cells will now re-enter the left upper chamber of the heart, the **Left Atrium (I)**. It then flows through the **Mitrval Valve (J)** and into the lower left chamber, the **Left Ventricle (K)**.

6. Finally, the oxygenated blood passes through the **Aortic Valve (L)** into the **Aorta (M)**, the largest artery, where it is sent to all parts of the body.

Label these parts on the heart and color these parts red.
The Heart

Use the information on page 12 to complete these activities:

1. Label these parts of the heart:
   - right atrium
   - left atrium
   - right ventricle
   - left ventricle
   - pulmonary artery
   - pulmonary vein
   - superior vena cava
   - inferior vena cava
   - valves—tricuspid
   - pulmonary
   - mitral
   - aortic

2. Lightly shade the sections blue that transport blood carrying carbon dioxide to the lungs.

3. Lightly shade the sections red that carry blood with a fresh supply of oxygen from the lungs to the body.

4. Draw arrows on the heart diagram to show the path blood takes on its journey through the heart.