The Heart

The miraculous pump that keeps you alive
Basic Functions of the Heart...

- Pumps blood throughout the body at very high pressures
- Takes deoxygenated blood and replenishes it with oxygen due to being connected to the lungs
The Basic Anatomy of the Heart

- **Atria**: The two thin walled chambers at the top of the heart that are the receiving areas for blood that comes to it after circulating through the body. They are low pressure areas.
- **Ventricles**: The bottom thick walled chambers of the heart that are responsible for discharging the blood and pushing throughout the body. They are the high pressure areas.
- **Valves**: Open only in one direction, prevent backflow
- **Aorta**: Thickest artery in the body. About as thick as a garden hose.
- **Pulmonary**: Whenever you see this, LUNGS are directly involved
- **Use this slide for the dissection next week!**
How the heart works...

Pictures and information taken from the crash course video...

https://www.youtube.com/watch?v=X9ZZ6tcxArl
1. The Pulmonary Circulation Loop

How the body removes the carbon dioxide from the blood and trades it for fresh oxygen your cells can use!
A. The right ventricle pumps blood through the pulmonary semilunar valve and into the pulmonary trunk.
B. The Pulmonary trunk splits and forms the left and right pulmonary artery (the only time deoxygenated blood travels through an artery) and the blood then travels into the lungs to pick up oxygen.
C.
The deoxygenated blood finds its way through very thin walled capillaries and picks up oxygen and the lungs release carbon dioxide.
D. The Blood then circles back to the heart by way of the four pulmonary veins (the pulmonary arteries and veins are the big exception to the artery/vein, oxygen/no oxygen rule). Remember that blood (all fluids) love to go from high pressure to low pressure so it travels to the relaxed left atrium.
E.
The Left atrium contracts and pushes blood through the mitral valve and into the left ventricle.
2. Systemic Loop

The journey your oxygenated blood takes to supply life to all of the cells in the body.
A.

- The oxygenated blood starts in the left ventricle.
- The left ventricle contracts and the mitral valve slams shut so the blood cannot go back into the left atrium.
B. The blood cannot go back into the left atrium and the blood is forced to go through the aortic semilunar valve and into the aorta.
C. The aortic valves then send the oxygenated blood into the arteries and capillaries and that goes to the rest of your body.
D.

After the body has had its oxygen feast, the oxygen poor blood comes back in via the Superior and Inferior Vena Cava which pours into the right atrium.
E.

When the right atrium contracts, the blood pushes through the tricuspid valve and into the right ventricle.
With the blood now in the right ventricle, the pulmonary circulation loop starts again! We have circled back to where we started in slide 6.

- Review these slides extensively
- There will be a quiz on this next week!