**Key terms:**

**cardiovascular system:** a collection of organs that transport blood throughout the body (consists of heart and blood vessels)

**heart:** organ made of cardiac muscle with four chambers; responsible for pumping blood

**atrium:** chamber of the heart in the UPPER section

**ventricle:** LOWER chambers of the heart

**valves:** flap-like structures in heart near arteries the close to prevent blood from going backward

**blood pressure:** the force with which blood is pumped through the arteries

**artery:** a blood vessel that carries blood away from the heart to the body’s organs

**capillary:** a tiny blood vessel that allows the exchange between blood and cells in other tissue

**vein:** a blood vessel that carries blood back to the heart

**atherosclerosis:** cholesterol builds along the walls of blood vessels; causes heart attack when clogs vessels totally

**hypertension:** abnormally high blood pressure

**stroke:** blood vessel to brain becomes clogged or ruptures; part of the brain receives no oxygen and brain cells die

**heart attack:** heart muscle cells die and part of the heart muscle is damaged

**heart failure:** heart can’t pump enough blood to meet the body’s needs → organs may be damaged due to lack of oxygen and fluids/waste build-up
The Heart

- Made of cardiac muscle
- Right side pumps oxygen-poor blood to the lungs.
- Left side pumps oxygen-rich blood to the body.
- The upper chambers are called ATRIA.
- The lower chambers are called VENTRICLES.
- Valves (located between atria and ventricles) close to prevent blood from flowing backward.

Blood Flow

1) Oxygen-poor blood travels through veins to the heart and enters the RIGHT ATRIUM.
2) The right atrium contracts, squeezing blood down into the RIGHT VENTRICLE.
3) Blood is then sent to the LUNGS to gather oxygen, and returns to the heart entering the LEFT ATRIUM.
4) The left atrium contracts, squeezing blood down into the LEFT VENTRICLE.
5) Blood is then sent through arteries to the BODY to deliver oxygen to all organs.
6) Process repeats!
Blood Vessels

**ARTERIES**
Carry blood AWAY from the heart

***Arteries have thick walls because blood flows with a lot of pressure (this is blood pressure!)

**CAPILLARIES**
Tiny blood vessels that allow the exchange of oxygen-rich blood and wastes in body cells

***VERY thin – only one cell thick so nutrients and oxygen can pass through to organs, and waste products can be passed back

**VEINS**
Carries blood back TO the heart

***Veins have valves that help blood from flowing backward
***Skeletal muscles contract, pushing blood through veins to the heart

Two Types of Circulation

**Pulmonary Circulation**
Circulation of blood between heart and lungs
Heart pumps blood to the lungs where carbon dioxide (waste) leaves the blood and oxygen enters blood. Blood then flows back to the heart.

**Systemic Circulation**
Circulation of blood between the heart and the rest of the body.
Heart pumps blood full of oxygen to the body and collects waste products and carbon dioxide to send out of the body.
# Cardiovascular Problems

<table>
<thead>
<tr>
<th><strong>ATHEROSCLEROSIS</strong></th>
<th><strong>HYPERTENSION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholesterol builds up inside blood vessels; vessels narrow and can become clogged which can lead to a heart attack</td>
<td>Abnormally high blood pressure; increases risk of heart attack, heart failure, kidney disease, and stroke</td>
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<th><strong>STROKE</strong></th>
<th><strong>HEART ATTACK</strong></th>
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<td>Blood vessel in the brain becomes clogged or breaks open; brain receives no oxygen to that part and brain cells may die</td>
<td>Heart muscle cells die and part of the heart muscle is damaged due blocked arteries not allowing oxygen to get through</td>
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<td>Heart cannot pump enough blood to meet the demands of the body; cells in organs may die from lack of oxygen or by the build-up of fluids/wastes not being taken away</td>
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