Pipelines use fluid pressure and hydraulics to transport liquids such as oil, water and other liquids over large distances.

Pumps provide a force that pushes the fluid through the pipes.

Water that comes out of our faucet comes from the lakes, rivers or from underground in wells. Thus water MUST flow up to get to your home. In order for water to travel up, it must be places under pressure in order to give the water particles the energy to move against gravity. (No energy from a pump means water sits in the low parts of pipes) The pressure transmitted in the pipes must be large enough to transport the water over large distance but not too much to make the pipes burst.

Friction in pipes - caused by rough surfaces or bends in pipes- can affect the fluids pressure. Particles lose energy as they brush past each other in the pipe or bump into walls. Therefore pump stations are needed along long distance to renew energy.

Valves - are devices used to regulate the flow of a liquid in a hydraulic system.

Our Body

The Heart, Part 1 - Under Pressure: Crash Course Anatomy & Physiology #25 - YouTube

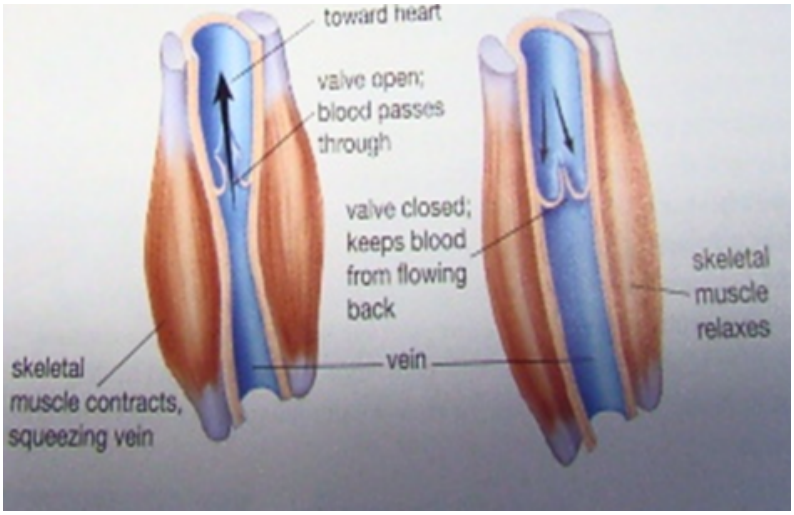
The heart in our body acts a pump.

*Highest blood pressure occurs close to the heart

*Lowest blood pressure in distant regions (hands and feet)

Arteries and capillaries act as the pipeline for blood

Valves in the veins keep the blood moving in one direction.



Air Pressure and Pneumatic

Pronounced new-mat-tics

-Air is a fluid that exerts pressure on everything that it surrounds.

Pneumatic - is the study of pressure in gas.

The pressure of the Earth's atmosphere is so well balanced by our body, both inside and out, that we hardly ever notice air pressure.

-Air pressure changes with altitude (This is why your ears may pop in a plane or while driving up a mountain. Your ear drums are adjusting to air pressure)

As you increase in altitude, fewer air particles press against you on the outside of your body. BUT the air pressure inside your body does not change as quickly. Thus, the number of particles pressing from the inside out is still the same as when you were at ground level. Your eardrum is a thin membrane that can be moved by this pressure causing a pop sound.