**Chapter 6 – Waves**

Wave – A wave is a traveling disturbance that moves through space and matter. Waves transfer energy from one place to another, but do not move matter.

Medium - The medium is the matter that a wave travels through.

Wave Speed:

Wave move at different speeds in different mediums.

Fastest in solids, slowest in gases

Higher temperature = faster speed

Higher density = faster speed

Higher elasticity = faster speed

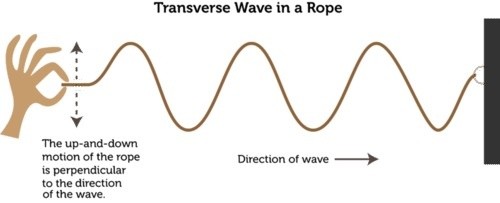
\*SPEED OF LIGHT NEVER CHANGES!

Mechanical Waves Electromagnetic Waves

Must have a medium\*\* to travel through Can travel through empty space

Vibrations Oscillation

Ex. Sound waves, water waves Ex. radiowaves, x-rays, u.v rays, visible light, gamma rays, micro waves

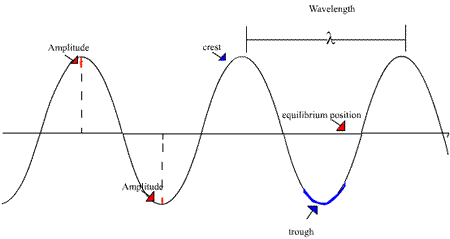
Transverse waves :  a wave where the disturbance moves perpendicular to the direction of the wave.  Water waves are transverse waves.

Parts of a transverse wave (water waves)

Crest – top of wave

Trough – bottom of wave

Amplitude – from rest position (middle) to top of a wave or from rest position to bottom of a wave



Rest position

Wavelength - the distance between two corresponding points on back-to-back cycles of a wave. Ex. From the crest of one wave to the crest of the next wave.

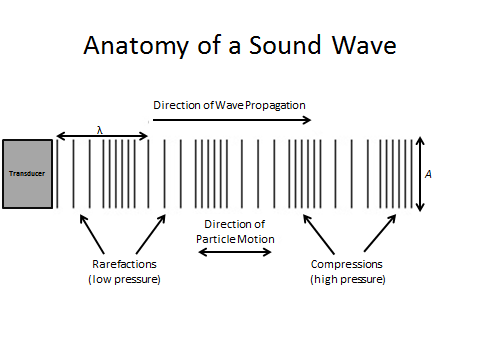
Frequency - the number of times that a wave passes a point in 1 second.

Longitudnal wave: A longitudinal wave is a wave where the disturbance travels in the same direction as the wave. Sound waves are longitudinal.

Parts of a longitudnal wave

compression: place in a wave where there the pulses are close together

rarefaction: place in a wave where the pulses are farther apart

wavelength: distance between two compressions or two rarefactions