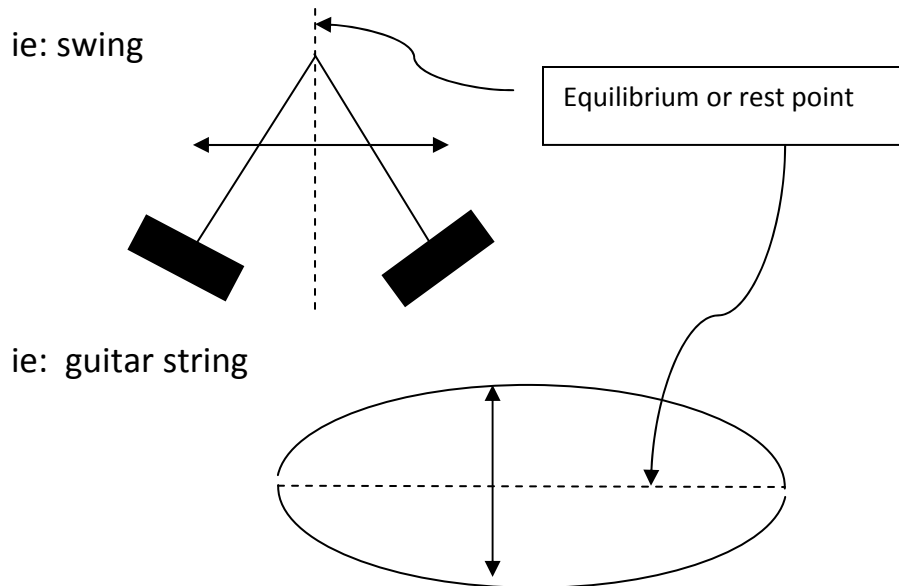


## Vibrations & Waves

**Mechanical wave** – the transfer of energy through a material due to a vibration.

**Vibration** – the repetitive motion of an object around an equilibrium point.



**Medium** – the material that transmits the wave energy. Medium affects speed of wave.

ie: air (sound waves), water (water waves), rock (earthquake waves)

notice: mediums can be gas, liquid or solid!

Wave speed greatest in solid...then liquid...then gas.

**Being 'elastic'** - objects that return easily to their resting point (equilibrium) are said to be elastic. These are good at transmitting waves.

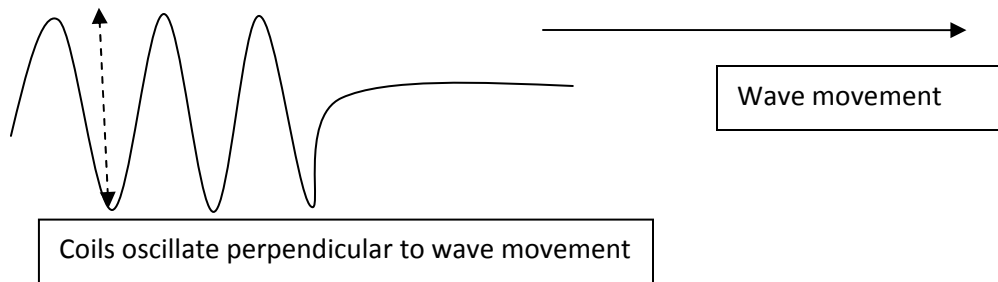
**No Net movement** – The particles of the medium do not experience any net movement. They simply oscillate around a central point (equilibrium).

## Transverse & Longitudinal waves

The difference between these 2 waves is how the particles move relative to the wave movement.

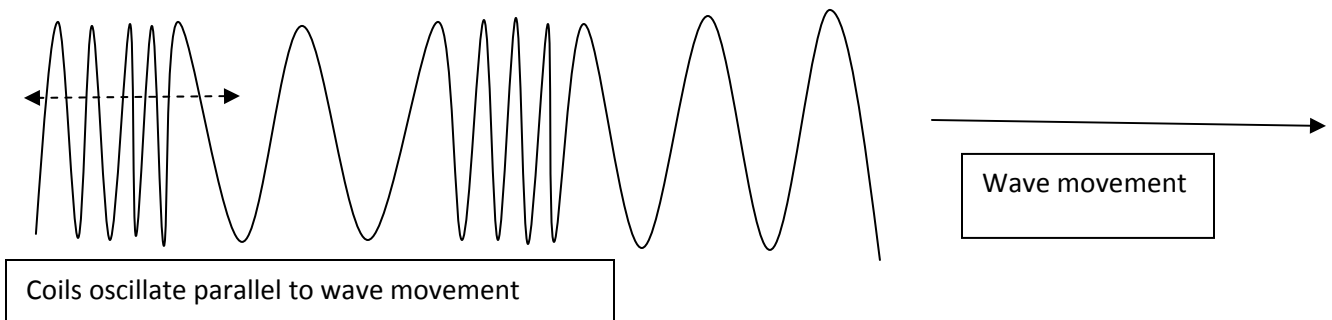
If particles move perpendicular to wave motion, then you have a TRANSVERSE WAVE

ie: classic wave with long springs. Draw...



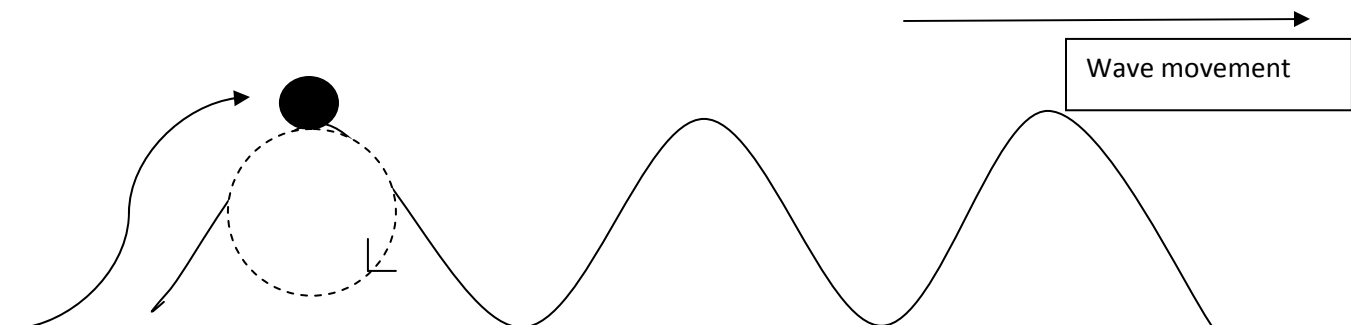
If the particles move parallel to wave motion, then you have a LONGITUDINAL WAVE

ie: squishy/stretchy elastic. Draw.....



Sometimes a wave is a little of both! This is a COMPLEX WAVE MOTION.

ie: water waves. Draw.....



Floating object (or water molecule) will actually make a repetitive circular motion. (little forward/back and little up/down)

## **Wave Characteristics**

Generally we will work with transverse waves.

Homework: pg. 380 # 1, 3, 6,

Pg. 384 # 2, 3, 6, 7, 9

Sketch Fig. 2 on page 385. Include all labels.

Write definitions for all the labels (on side of page.)