

Wave Notes Day 2

Types of waves

Electromagnetic -

- Travels at the speed of light 3.0×10^8 m/s
- Does not need a medium

Mechanical - Needs a medium to travel on

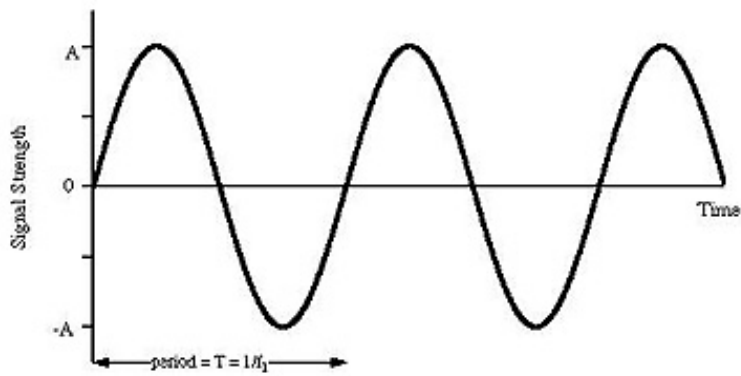
- Speed of the wave depends on the medium it travels on.

2 types of mechanical waves

Longitudinal - vibrations are parallel to the motion of the wave

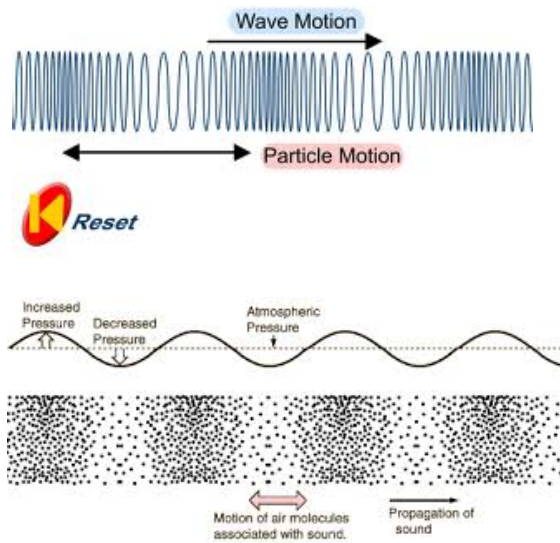
Transverse - vibrations are perpendicular to the motion of the wave

Transverse Wave



(a) Sine Wave

Longitudinal wave



Slinky

Sound Wave

Electromagnetic wave

Radio waves

light waves

x-rays

gamma rays

UV rays

IR rays

Mechanical waves

Ocean waves

Earthquakes waves (seismic waves)

wave on a rope

sound wave

Any wave that is not an electromagnetic is mechanical

Period and Frequency

(T) **Period** = The time in seconds it takes one wave to pass a given point

(f) **Frequency** = The amount of waves that pass a given point per second

$$T = \frac{1}{f}$$

$$f = \frac{1}{T}$$

A wave has a frequency of 2 Hz, what is the period?

$$T = \frac{1}{2\text{Hz}} = \frac{1}{2} = 0.5\text{s}$$

A wave has a frequency of 10 Hz. what is the period?

$$T = \frac{1}{f} = \frac{1}{10} = \textcircled{0.1\text{s}}$$