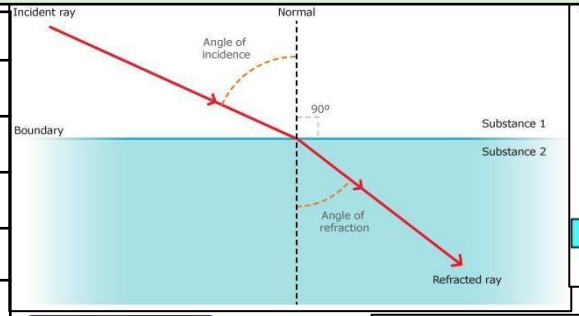
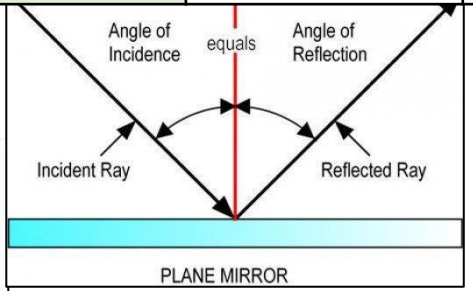
Science Department

KNOWLEDGE & VOCABULARY ORGANISER

Physics - Light & Sound

Keyword	Definition
Angle of Incidence	Angle between the normal and incident ray.
Angle of reflection	The angle between the reflected ray and the normal.
Diffuse Scattering	When light is reflected off a surface in all directions.
Dispersion	Spreading out of the different wavelengths of light, caused by refraction of light as it passes through a prism.
Frequency	The number of waves produced each second. The unit of frequency is hertz (Hz).
Amplitude	The maximum height of a wave from the middle of the wave to its peak or trough.
Wavelength	The length of a single wave, measured from one wave peak to the next.
Pitch	The frequency of a sound. Sounds with a high pitch have a high frequency.
Incident Ray	Light ray moving towards a surface or boundary.
Reflected Ray	Light ray leaving a surface or boundary.
Law of reflection	In reflection at a surface, the angle of incidence equals the angle of reflection.
Spectrum	A series of similar waves arranged in order of wavelength or frequency.
Echo	A sound caused by the reflection of a sound wave from a smooth surface back to the listener.

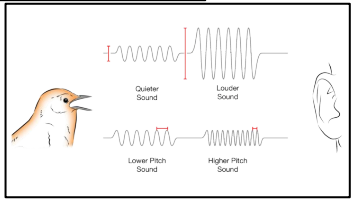


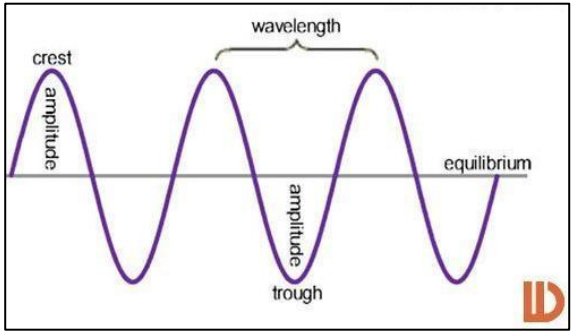


Longitudinal Waves
In longitudinal waves, the vibrations are parallel to the direction of wave travel. Examples are: Sound Waves, Ultrasound Waves, Seismic P-Waves.

$$v = f\lambda$$

v = velocity
f = frequency
λ = wavelength





Light can travel through a vacuum but sound cannot. Sound needs a medium to travel through either a solid, liquid or gas. Sound travels fastest in a solid because the particles are closer together.

Further Reading:
https://www.bbc.com/bitesize/guides/zq7thyc/revision/1
https://www.bbc.com/bitesize/guides/z8d2mp3/revision/1

Transverse Waves
In transverse waves, the vibrations are at right angles to the direction of wave travel.
Examples include: Ripples on water, vibrations on a guitar string and a Mexican Wave. Electromagnetic waves such as light waves, microwaves and radio waves.