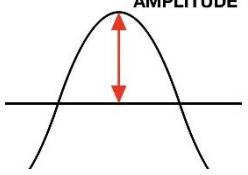
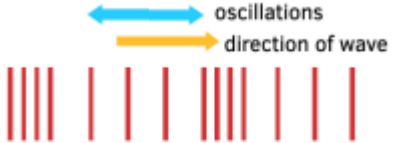
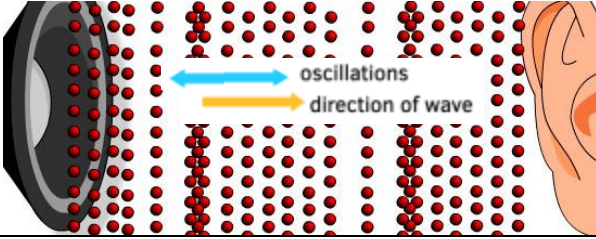
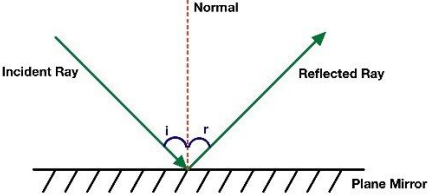
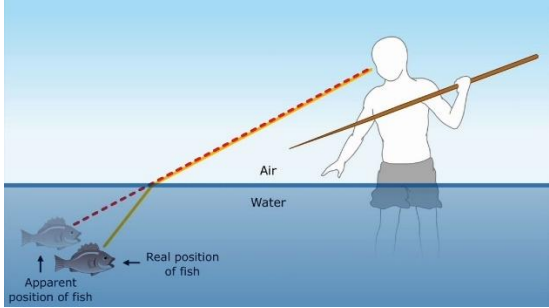
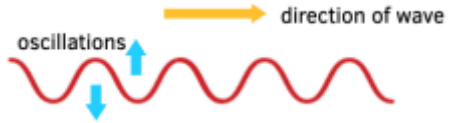
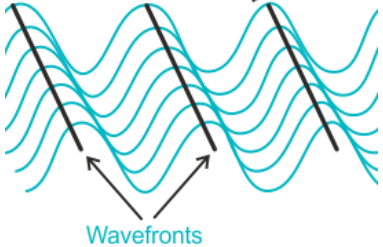
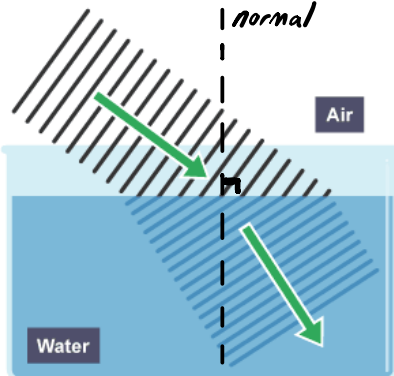


3b Waves Year 9

Key word	Simple meaning	GCSE definition	Words in a sentence	Translation
Amplitude	Wave height 	The maximum displacement from the equilibrium .	The sound was loud because it had a big amplitude . A guitarist uses an amplifier to increase the amplitude of the wave. Find the amplitude by measuring from peak to trough and then halving that number.	
Doppler Effect	Waves appear to change when a person is moving.	The observed frequency and wavelength of a wave changes when its source is moving relative to an observer.	When the ambulance was driving towards the person, the wavefronts were closer together. The observed wavelength was smaller, so the observed frequency was larger. This is an example of the Doppler Effect .	
Electromagnetic wave	A type of wave e.g. light	A transverse wave where the electric and magnetic fields oscillate perpendicular to the direction of energy transfer. Electromagnetic waves are radio waves, microwaves, infra red, visible, ultra violet, x-ray, gamma .	Radio waves are electromagnetic waves . Radios detect radio waves in the metal area.	
Frequency	How often e.g. 10 per second.	The number of waves passing a point in a second. $f = \frac{1}{T}$	50 complete waves passed a point in 5 seconds so the frequency was 10Hz. The time period of the wave is 0.1 seconds so the frequency of the wave is $1/0.1 = 10$ Hz.	
Longitudinal wave	A type of wave e.g. sound	A wave where the oscillations are parallel to the direction of energy transfer. 	Sound is a longitudinal wave as the air particles oscillate parallel to the direction the sound wave travels. 	
Peak or crest	Top of the wave.	Point of maximum displacement.	The wavelength can be measured between two peaks .	

(Time) Period	Time for one wave to pass.	The time it takes for one complete wave to pass a point. $T = \frac{1}{f}$	The pupil started the stopwatch when the peak of the wave passed her and stopped the stopwatch when the next peak passed her. She measured the time period .	
Reflected	Bounce back. E.g. light reflects off a mirror.	Reflection is when waves bounce off a surface with the reflected angle same as the incident angle to the normal . 	The sound wave reflected off the side of the building, so everyone heard their echo . A tennis ball bounces at the same angle of incidence and reflection . The reflected ray was measured at 30° from the normal . The angle of incidence was also 30°.	
Refracted	Waves change speed and direction.	Refraction is when a wave changes speed and direction when it enters a different medium . 	The light from the fish in the water refracted when it went from water to air so the fish appears in a different position.	
Transverse wave	A type of wave e.g. water	A wave where the oscillations are perpendicular to the direction of energy transfer. 	Light is a transverse wave because the electric field oscillates perpendicular to the direction the light travels.	
Trough	Bottom of the wave.	Point of minimum displacement.	The wavelength can be measured between two troughs .	
Wave speed	How fast the wave is moving. E.g. 300 meters per second.	The speed at which the wave energy moves. Wave speed = frequency x wavelength $v = f\lambda$	The wave speed changed when the light travelled from water to air . The wave speed was slower in the water than in the air.	

			The wave speed of light in a vacuum is constant, $v=3 \times 10^8 \text{m/s}$.	
Wavefront	<p>A line marking the top of the wave.</p> 	Lines that mark the peak of a wave. These are used in diagrams to show wavelength and direction.	<p>This wave front diagram shows how the wavelength gets smaller and the direction changes towards the normal.</p> <p>The wave fronts are always perpendicular to the wave direction. They are marked in black lines on this diagram.</p> 	
Wavelength	The distance between two waves.	The distance between two adjacent like points on a wave. E.g. from peak to peak.	The total distance across 4 waves was 24m, so the wavelength was 6m.	

