

SP4: **Waves** (Paper 1)

Lesson	Objectives Tracker Sheet	Date covered	I know this well	I need to do more work on this
SP4a Describing waves	P4.1 Recall that waves transfer energy and information without transferring matter.			
	P4.3 Define and use the terms frequency and wavelength as applied to waves.			
	P4.4 Use the terms, amplitude, period and wave velocity as applied to waves.			
	P4.5 Describe the difference between longitudinal and transverse waves by referring to sound, electromagnetic, seismic and water waves.			
SP4b Wave speeds	P4.6 Recall and use both the equations below for all waves: wave speed (metre/second, m/s) = frequency (hertz, Hz) \times wavelength (metre, m) $v = f \times \lambda$ wave speed (metre/second, m/s) = distance (metre, m) \div time (second, s) $v = x/t$			
	P4.7 Describe how to measure the velocity of sound in air and ripples on water surfaces.			
SP4b Investigating waves – Core practical	P4.17 Investigate the suitability of equipment to measure the speed/frequency/wavelength of a wave in a solid and a fluid.			
SP4c Refraction	P4.10 Explain how waves will be refracted at a boundary in terms of the change of direction and speed.			
SP4d Waves crossing boundaries	SP4.9P Describe the effects of: a reflection b refraction c transmission d absorption of waves at material interfaces.			
	SP4.16P Describe how changes, if any, in velocity, frequency and wavelength, in the transmission of sound waves from one medium to another are inter-related.			
SP4e Ears and hearing	SP4.12P H Describe the processes which convert wave disturbances between sound			

	<p>waves and vibrations in solids, and:</p> <p>a explain why such processes only work over a limited frequency range</p> <p>b use this to explain the way the human ear works.</p>			
SP4f Ultrasound	SP4.8P H Calculate depth or distance from time and wave velocity.			
	SP4.13P H Recall that sound with frequencies greater than 20 000 hertz, Hz, is known as ultrasound			
	SP4.15P H Explain uses of ultrasound and infrasound, including: sonar foetal scanning.			
SP4g Infrasound	SP4.14P H Recall that sound with frequencies less than 20 hertz, Hz, is known as infrasound.			
	SP4.15P H Explain uses of ultrasound and infrasound, including: exploration of the Earth's core.			