

## Waves 1

Specification reference	Checklist questions	
4.4.1 a	Can you describe progressive waves, both longitudinal and transverse?	<input type="checkbox"/>
4.4.1 b i	Can you define displacement, amplitude, wavelength, period, phase difference, frequency, and speed of a wave?	<input type="checkbox"/>
4.4.1 b ii	Can you list and describe techniques and procedures used to use an oscilloscope to determine frequency?	<input type="checkbox"/>
4.4.1 c	Can you use the equation $f = \frac{1}{T}$ ?	<input type="checkbox"/>
4.4.1 d	Can you use the wave equation $v = f\lambda$ ?	<input type="checkbox"/>
4.4.1 e	Can you produce graphical representations of transverse and longitudinal waves?	<input type="checkbox"/>
4.4.1 f i	Can you describe reflection, refraction, polarisation, and diffraction of all waves?	<input type="checkbox"/>
4.4.1 f ii	Can you list and describe techniques and procedures used to demonstrate wave effects using a ripple tank?	<input type="checkbox"/>
4.4.1 f iii	Can you list and describe techniques and procedures used to observe polarising effects using microwaves and light?	<input type="checkbox"/>
4.4.1 g	Can you describe and determine the intensity of a progressive wave using $I = \frac{P}{A}$ and intensity $\propto$ (amplitude) <sup>2</sup> ?	<input type="checkbox"/>
4.4.2 a	Can you describe the electromagnetic spectrum and the properties of electromagnetic waves?	<input type="checkbox"/>

Specification reference	Checklist questions	
4.4.2 b	Can you describe the orders of magnitude of wavelengths of the principal radiations from radio waves to gamma rays?	<input type="checkbox"/>
4.4.2 c	Can you describe plane polarised waves and polarisation of electromagnetic waves?	<input type="checkbox"/>
4.4.2 d i	Can you describe refraction of light with reference to the refractive index?	<input type="checkbox"/>
4.4.2 d i	Can you carry out calculations using the refraction law $n \sin \theta = k$ ?	<input type="checkbox"/>
4.4.2 d ii	Can you list and describe techniques and procedures used to investigate refraction and total internal reflection of light using ray boxes, and transparent rectangular and semi-circular blocks?	<input type="checkbox"/>
4.4.2 e	Can you define and calculate the critical angle using $\sin C = \frac{1}{n}$ ?	<input type="checkbox"/>
4.4.2 e	Can you describe the conditions needed for total internal reflection to occur?	<input type="checkbox"/>