Year 10: ASK Yourself!

Subject: Physics
Unit: 6 – Waves

	Launching 1-2	Developing 3-4	Progressing 5-6	Mastering 7-9
Skills				
	To be able to use the wave equation $v = \lambda \times f$ to calculate wave speed. To be able to use ray diagrams to determine the nature of the image formed by a lens.	To be able to draw a labelled ray diagram to illustrate reflection of a wave at a boundary.	To be able to rearrange and apply the wave equation. To be able to construct ray diagrams to illustrate refraction at a boundary.	To be able to use wavefront diagrams to explain refraction in terms of a change in wave velocity. To be able to use ray diagrams to determine the position and magnification of images.
Knowledge				
	To be able to provide examples of longitudinal and transverse waves, energy transfer by waves (including EM waves). To be able to describe the range of normal human hearing. To be able to define the term ultrasound. To be able to name the main groupings of the EM spectrum. To be able to describe the hazardous effects of gamma rays, X-rays and	To be able to describe the amplitude, wavelength, frequency and period of a wave. To be able to describe how sound waves travel through air or solids. To be able to describe examples of reflection, transmission and absorption of waves (EM waves) at material interfaces. To be able to describe how ultrasound waves can be used for	To be able to describe how to measure the speed of sound waves in air. To be able to describe evidence that, for e.g. ripples on a water surface, it is the wave and not the water itself that travels. To be able to compare the groupings of the EM spectrum in terms of wavelength and frequency. To be able to explain the risks associated with the use of ionising	To be able to explain the difference between transverse and longitudinal waves. To be able to explain how to calculate the depth of water using echo sounding. To be able to describe how different substances may absorb, transmit, refract or reflect EM waves in ways that vary with wavelength. To be able to explain how P and S waves can be

	ultraviolet radiation. To be able to state that each colour in the visible spectrum has its own narrow band of wavelength. To be able to state that in a convex lens parallel rays of light are brought to a focus at the principal focus. To be able to state that the hotter the body the more radiation it emits in a given time.	medical and industrial imaging. To be able to describe how radio waves are produced. To be able to describe examples of energy transfer by EM waves. To be able to explain that a perfect black body absorbs all the radiation incident on it, and does not reflect or transmit any radiation.	and ultraviolet radiation. To be able to explain why each type of EM wave is suitable for the application. To be able to describe that colour filters absorb certain wavelengths and transmit other wavelengths. To be able to explain that the colour of an opaque object depends on which wavelengths are more strongly reflected.	used to deduce information about the structure of the Earth. To be able to evaluate the risks and consequences of exposure to radiation. To be able to explain how the temperature of a body is related to the balance between incoming radiation absorbed and radiation emitted.