AS Physics - Waves (AE)

Self-Assessment - Personal Learning Checklist (PLC)

Please use the information below to check your knowledge / make revision cards and notes

Red = Not sure at all, I need to ask my teacher to help me with this

Yellow = OK, but I need some revision and need to ask my teacher to check my understanding

Green = I am confident in this area

Topics	Detail	R	Y	G
Progressive waves	State the difference between transverse and longitudinal waves and give an example of each type.			
	Describe the effect that a wave has on the particles in a medium for transverse, longitudinal and stationary wave patterns. Define amplitude, wavelength, frequency, period and can mark them on or calculate them from a diagram.			
	Use the wave equation to calculate speed, frequency or wavelength.			
	Calculate the frequency or period of a wave.			
	Determine the phase difference or path difference for wave(s) if provided with a diagram.			
Refraction at a plane surface	State what is meant by a polarised or an unpolarised wave and give uses of polarised waves. State that only transverse waves can be polarised. Define refractive index and calculate the speed of light in a substance.			
	State that the refractive index of air is 1.			
	Complete accurate ray diagrams to show light being refracted by materials.			
	Use Snells law to calculate n1, n2 , Θ_1 , Θ_2			
	Determine whether a ray is refracted or internally reflected at a boundary.			
	State the conditions necessary for internal reflection to occur. Calculate the critical angle for a boundary n=between two substances. Complete accurate ray diagrams to show light being internally reflected at a boundary.			
	Name the features of an optical fibre and give examples of uses of optical fibres.			

Interference	State the conditions necessary for the formation of an interference pattern.			
	Define the terms path difference and coherence. State the features that distinguish laser light from that produced by a bulb. An awareness of the safety precautions that need to be taken when using laser light.			
	Describe the appearance of the interference pattern produced by two sources/slits. Calculate the fringe spacing in an interference pattern, or D, s or λ. Describe the appearance of the interference pattern produced using white light.			
Diffraction	Describe the appearance of the interference pattern produced by a diffraction grating. Calculate the separation of the slits on a grating when provided with N, the number of lines per metre.			
	Use $n\lambda = d\sin\Theta$ to calculate position of observed orders.			
	Calculate the maximum number of orders observed. State uses for diffraction gratings eg. In spectrometers for spectral analysis of star light.			
	Draw intensity v position graphs for two source interference and diffraction grating pattern.			