P3 Topic 1 Revision tracker

PHYSICS

Learning objectives I can:	I can do this very well	I can do this quite well	I need to do more work on this
1.1 Demonstrate an understanding of the methods that medical physicists can employ to help doctors solve medical problems, including: **a** CAT scans			
b ultrasounds			
c endoscopes			
d ionising and non-ionising radiation			
1.2 Use the word 'radiation' to describe any form of energy originating from a source, including both waves and particles			
1.3 Demonstrate an understanding that the intensity of radiation will decrease with distance from a source and according to the nature of the medium through which it is travelling			
H **1.4** Use the equation: intensity = $\frac{\text{power of incident radiation}}{\text{area}}$ $I = \frac{P}{A}$			
HSW 12 Describe the benefits, drawbacks and risks of using new scientific and technological developments			
1.10 Identify the following features in a diagram of the eye – cornea, iris, pupil, lens, retina, ciliary muscles			
1.11 Demonstrate an understanding that light is focused on the retina by the action of the lens and cornea			
1.12 Recall that the average adult human eye has a near point at about 25 cm and a far point at infinity			
HSW 3 Describe how phenomena are explained using scientific models			
1.5 Describe the refraction of light by converging and diverging lenses.			
1.13 Explain the symptoms and causes of short sight and long sight (you will not be expected to draw scaled ray diagrams, but you may be asked to interpret them)			
1.14 Compare and contrast treatments for short sight and long sight, including the use of: **a** simple lenses			
b contact lenses			
H **c** laser correction (combined lens equation is not required, you will not be expected to draw scaled ray diagrams, but you may be asked to interpret them)			
1.8 Investigate variations of image characteristics with objects at different distances from a converging lens			
1.6 Relate the power of a lens to its shape			
1.7 Use the equation: power of lens (dioptre, D) = $\frac{1}{\text{focal length (metre, m)}}$			
1.9 Use the lens equation: $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ (f = focal length (m), u = object distance (m), v = image			

distance (m)) The use of the real positive sign convention is preferred and will be used in the exam			
HSW 11 Present information, develop an argument and draw a conclusion, using scientific, technical and mathematical language			
1.15 Explain, with the aid of ray diagrams, reflection and refraction, including the law of reflection			
H 1.16 Calculate critical angle using Snell's Law			
1.17 Explain refraction in terms of change of speed of radiation			
1.19 Investigate TIR between different media			
1.18 Investigate the critical angle for Perspex/air or water/air boundaries			
1.20 Explain how TIR is used in optical fibres			
1.21 Explain uses of optical fibres in endoscopes			
1.22 Explain uses of ultrasound in diagnosis and treatment			
HSW 13 Explain how and why decisions about uses of science and technology are made			