

Year 12 Physics

Learning Programme 4

The LORIC skill focus for his LP is: INITIATIVE. The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE. Integrity - Having strong moral principles. Gratitude - Feeling and expressing thanks.			Literacy: <ul style="list-style-type: none">• Capital letters must be used at the start of sentences and for the first letter of proper nouns• Full stops must be used at the end of a sentence• Question marks must be used at the end of a question• Apostrophes should only be used for possession or omission• Days of the week and months must be spelled correctly• Key words must be spelled correctly
What will I be learning about in this Learning Programme? Experiments to determine the properties of light. The particle nature of electromagnetic radiation,, the photo electric effect and use Einstein's equation.			
Where have I seen this learning before? electromagnetic spectrum and waves in LP3 and KS4.			
What could I use it for? Module 5 in Yr13 looking at cosmology.			
In LP4.1, I will know:	10/03/25 - (WK 2)	Key Vocabulary	Homework
assessment week - summative assessment 2; PAG6.2 investigate refraction and total internal reflection of light; how to describe the principle of superposition of waves; how to describe constructive interference and destructive interference in terms of path difference and phase difference.		superpose	Chapter 12 Waves 2 - workbook questions about superposition
In LP4.2, I will know:	17/03/25 - (WK 1)	Key Vocabulary	Homework
how to describe Young double-slit experiment using visible light; how to determine the wavelength of light using a diffraction grating; PAG 5.1 techniques and procedures used to determine the wavelength of light using (1) a double-slit, and (2) a diffracton grating.		interference	Chapter 13 Waves 2 - workbook questions about experiments with light
In LP4.3, I will know:	24/03/25 - (WK 2)	Key Vocabulary	Homework
how to describe stationary (standing) waves using microwaves, stretched strings and air columns; how to describe the) fundamental mode of vibraton (1st harmonic); harmonics; how to describe the stationary wave patterns for a stretched string and air columns in closed and open tubes.		harmonics	Chapter 13 Waves 2 - workbook questions about fundamental frequencies
Extended Task.			
In LP4.4, I will know:	31/03/25 - (WK 1)	Key Vocabulary	Homework
LP4 Formative assessment 1; how to describe a photon as a quantum of energy of electromagnetc radiaton; my strengths and areas for development following the assessment and PRT.		photon	Revision for Formative Assessment
In LP4.5, I will know:	21/04/25 - (WK 2)	Key Vocabulary	Homework
how to calculate the energy of a photon, $E=hf$; how to explain the one-to-one interaction between a photon and a surface electron causing the photoelectric effect; PAG6.2 Determine the Planck constant using diferent coloured LEDs.		photoelectric	Chapter 12 Waves 2 - workbook questions about the photoelectric effect
In LP4.6, I will know:	28/04/25 - (WK 1)	Key Vocabulary	Homework
how to describe and use Einstein's photoelectric equaton $hf=\Phi+KE_{max}$; how to describe the diffraction of electrons and use the de Broglie equation; PAG2.2 Investigating springs in series and parallel.		de Broglie	Chapter 12 Waves 2 - workbook questions about wave-particle duality
Extended Task.			
In LP4.7, I will know:	05/05/25 - (WK 2)	Key Vocabulary	Homework
LP4 Formative assessment 2; my strengths and areas for development following the assessment and PRT; PAG1.2 Terminal Velocity of a fluid.		wave-particle duality	Revision for formative assessment
Resources to support learning:			
Knowledge organiser, seneca, https://www.physicsandmathstutor.com/physics-revision/a-level-ocr-a/ , workbooks and textbook			
FFET Award Challenge for this Learning Programme:			
LP4 Year 12 Physics: Complete three independent learning tasks and evaluate how they have helped you			

