

Year 12 Physics

Learning Programme 4

<p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p>What will I be learning about in this Learning Programme?</p> <p>The particulate nature of electromagnetic radiation,, the photo electric effect and use Einstein's equation. Thermal equilibrium and how to calculate the specific heat capacity of a substance.</p> <p>Where have I seen this learning before?</p> <p>electromagnetic spectrum and waves in LP3, specific heat capacity and internal energy at KS4</p> <p>What could I use it for?</p> <p>Module 5 in Yr13 looking at cosmology</p>		<p>Literacy:</p> <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
<p>In LP4.1, I will know:</p> <p>how to use Kirchhoff's laws to explain the distribution of pds in a potential divider. Calculate pds in potential dividers. how to investigate the relationship between resistance and pd in a potential divider circuit. PAG 4: Internal resistors and potential dividers</p>	<p>04/03/24 - (WK 1)</p> <p>Key Vocabulary</p> <p>potential divider</p>	<p>Homework</p> <p>PPQ on potential dividers and completion of electricity workbook</p>
<p>In LP4.2, I will know:</p> <p>how to complete an investigation into amplitude and frequency of sound waves using an oscilloscope; how to define phase difference and convert between degrees and radians. How to Find phase difference from displacement-time graphs. PAG 5 diffraction/ waves / oscilloscopes</p>	<p>11/03/24 - (WK 2)</p> <p>Key Vocabulary</p> <p>Intensity</p>	<p>Homework</p> <p>Properties of waves and phase workbook</p>
<p>In LP4.3, I will know:</p> <p>how to describe reflection, refraction, polarisation, and diffraction of all waves. Explore some of these processes with a ripple tank. Describe techniques and procedures used to observe polarising effects using microwaves and light; how to describe techniques and procedures used to observe polarising effects using microwaves and light. PAG 6 - planks constant Extended Task.</p>	<p>18/03/24 - (WK 1)</p> <p>Key Vocabulary</p> <p>refraction</p>	<p>Homework</p> <p>Behaviour of waves PPQs</p>
<p>In LP4.4, I will know:</p> <p>how to describe and determine the intensity of a progressive wave; how to describe the electromagnetic spectrum and the properties of electromagnetic waves. How to describe the orders of magnitude of wavelengths of the principal radiations from radio waves to gamma rays. How to describe plane polarised waves and polarisation of electromagnetic waves.</p>	<p>25/03/24 - (WK 2)</p> <p>Key Vocabulary</p> <p>internal reflection</p>	<p>Homework</p> <p>Electromagnetic Spectrum PPQs</p>
<p>In LP4.5, I will know:</p> <p>how to describe refraction of light with reference to the refractive index. Carry out calculations using the refraction law $n \sin \theta = k$; how to describe the conditions needed for total internal reflection to occur. how to explain the principle of superposition of waves. List and describe techniques and procedures used for superposition experiments using sound, light, and microwaves;</p>	<p>15/04/24 - (WK 1)</p> <p>Key Vocabulary</p> <p>superposition</p>	<p>Homework</p> <p>Snells law PPQs</p>
<p>In LP4.6, I will know:</p> <p>how to define interference, coherence, path difference, and phase difference. How to describe constructive interference and destructive interference in terms of path difference and phase difference. describe two-source interference for sound and microwaves. how to explain the particulate nature (photon model) of electromagnetic radiation; how to determine the Planck constant using different coloured LEDs. Extended Task.</p>	<p>22/04/24 - (WK 2)</p> <p>Key Vocabulary</p> <p>interference</p>	<p>Homework</p> <p>Interference PPQs</p>
<p>In LP4.7, I will know:</p> <p>how to explain the photoelectric effect; how to explain Einstein's photoelectric equation $h f = \phi + K_{max}$. that the maximum kinetic energy of the photoelectrons is independent of the intensity of the incident radiation; how to explain electron diffraction.</p>	<p>29/04/24 - (WK 1)</p> <p>Key Vocabulary</p> <p>photoelectric</p>	<p>Homework</p> <p>Photoelectric effect PPQs</p>
<p>In LP4.8, I will know:</p> <p>How to explain wave-particle duality Completion of Waves practical activities - e.g. wave on a wire/string, light practicals Revision for exams</p>	<p>06/05/24 - (WK 2)</p> <p>Key Vocabulary</p> <p>Photon</p>	<p>Homework</p> <p>completion of waves booklets</p>
<p>Resources to support learning:</p> <p>Knowledge organiser, Microsoft TEAMS, https://www.physicsandmathstutor.com/physics-revision/a-level-ocr-a/</p>		
<p>FFET Award Challenge for this Learning Programme:</p> <p>LP4 Year 12 Physics: Complete three independent learning tasks and evaluate how they have helped you</p>		

PRT Task 1

PRT Task 2