

Year 12 Exploring Physics

Learning Programme 1

The LORIC skill focus for his LP is: LEADERSHIP The Moral Virtues focus for this LP are: COURAGE and HUMILITY. Courage - Acting with bravery and overcoming fears. I will show courage by answering a question in class even when I'm not 100% sure of the answer. Humility - Having a modest view of oneself. I will show humility by admitting mistakes and asking for help when needed.			Literacy Non-Negotiables: • 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 • Vocabulary to be taught using the Frayer model
What will I be learning about in this Learning Programme? How physicists use Ohmic and Non-Ohmic circuit components and how charge moves around DC circuits.			
Where have I seen this learning before? You have encountered the fundamentals of current and electron movement at GCSE and KS3.			
What could I use it for? Understanding the characteristics of DC electricity and circuit components is crucial for electrical engineering			
In LP1.1, I will know: How to draw circuit diagrams using circuit symbols; How to describe conventional current and electron flow.	01/09/26 - (WK 1)	Key Vocabulary Conventional current	Homework Charge and Current Workbook - circuit diagrams
In LP1.2, I will know: How to describe Kirchhof's first law; conservation of charge; How to describe mean drift velocity of charge carriers, $I = Anev$, and the distinction between conductors, semiconductors and insulators in terms of n.	07/09/26 - (WK 2)	Key Vocabulary Conduction	Homework Charge and Current Workbook - circuit calculations
In LP1.3, I will know: How to describe the distinction between e.m.f. and p.d. in terms of energy transfer; How to calculate energy transfer $eV = \frac{1}{2}mv^2$ for electrons and other charged particles. Extended Task.	14/09/26 - (WK 1)	Key Vocabulary Electromotive force	Homework Energy, Power and Resistance workbook - p.d. and EMF calculations
In LP1.4, I will know: How to describe Ohm's law and calculate the resistance of a component; My strengths and areas for developments following the LP1 formative assessment and PRT.	21/09/26 - (WK 2)	Key Vocabulary Resistance	Homework Energy, Power and Resistance workbook -Resistance questions
In LP1.5, I will know: How to describe the I-V characteristics of resistor, filament lamp, thermistor, diode and light-emitting diode (LED); How to describe the variation of resistance for light-dependent resistor (LDR) with light intensity; and negative temperature coefficient (NTC) thermistor with temperature.	28/09/26 - (WK 1)	Key Vocabulary Diode	Homework Energy, Power and Resistance workbook -Components and their I-V Characteristics
In LP1.6, I will know: How to carry out the PAG3.2 Investigating components; How to describe and calculate the resistivity of a material. Extended Task.	05/10/26 - (WK 2)	Key Vocabulary Ohms law	Homework Practical write up
In LP1.7, I will know: How to carry out the PAG3.1 investigation to determine the resistivity of a metal; My strengths and areas for development following the LP1 summative assessment and PRT.	12/10/26 - (WK 1)	Key Vocabulary Resistivity	Homework Energy, Power and Resistance workbook -Resistance and Resistivity
Resources to support learning: Textbook, www.physicsandmathstutor.com , www.marlingphysics.co.uk , Synergy, EPC knowledge organiser.			
FEET Award Challenge for this Learning Programme: Watch the Rough Science series and write a short review on what you have learnt about how Science can be used to solve problems in the real world.			

PRT Task 1

PRT Task 2