The Ellesmere Port C of E College

Part of the Frank Field Education Trust

# Year 10 Physics (separate)
# Learning Programme 2

The LORIC skill focus for his LP is: ORGANISATION
The Moral Virtues focus for this LP are: COMPASSION and HONESTY

Compassion - the quality of feeling pity and concern for the sufferings or misfortunes of others.
Honesty - the quality of being truthful.

**What will I be learning about in this Learning Programme?**
How static charges behave.
How current and potential difference behaves in series and parallel circuits; how resistance affects the behaviour of circuits.
The National Grid and how electricity is used domestically.

**Where have I seen this learning before?**
You have covered electrical circuits at KS3, in particular building circuits and investigating electromagnets

**What could I use it for?**
Electricity and circuits is a key idea in physics and electronics. This knowledge is built upon in year 11 when studying electromagnets. It is also built upon in A level physics in the module; electrons, waves and photons.

**Literacy:**
- 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

| In LP2.1, I will know: 21/10/24 - (WK 2) | Key Vocabulary | Homework |
|---|---|---|
| how to describe the advantages and disadvantages of renewable energy sources (wind, water, waves, tides, hydroelectricity, the solar, geothermal and bio-fuel);<br>how to describe the advantages and disadvantages of non-renewable energy resources (fossil fuels and nuclear fuels);<br>how to compare non-renewable and renewable energy resources in terms of transport, environmental issues, heating, cost and | Renewable | Energy resources exam questions |
| **In LP2.2, I will know: 04/11/24 - (WK 1)** | **Key Vocabulary** | **Homework** |
| how to recall and draw the standard circuit diagram symbols;<br>describe how to build working circuits using standard circuit diagrams;<br>how to describe conventional current and to define current as the rate of flow of charge, applying the equation Q=It. | Component | circuit diagrams exam question |
| **LP2 RLW, I will: 11/11/24 - (WK 2)** | | |
| review my learning, recalling and applying key knowledge, and focus on closing any gaps in my knowledge. | | |
| **In LP2.3, I will know: 18/11/24 - (WK 1)** | **Key Vocabulary** | **Homework** |
| how to define Potential difference as the energy per unit charge;<br>how to describe and explain the factors that can affect resistance, and apply and rearrange the equation V=IR;<br>how to apply the rules for current and potential difference in series and parallel circuits.<br><br>Extended Task. | Resistance | ohms law calculations |
| **In LP2.4, I will know: 25/11/24 - (WK 2)** | **Key Vocabulary** | **Homework** |
| how to calculate the total resistance in circuits that contain components connected in series;<br>factors that effect resistance required practical's - Resistors in series and parallel & length of wire;<br>LP2 summative assessment. | Series, parallel | required practical exam question |
| **In LP2.5, I will know: 02/12/24 - (WK 1)** | **Key Vocabulary** | **Homework** |
| how to draw and explain current/voltage graphs for a resistor (ohmic), diode, and filament lamp (non-ohmic)- required practical<br>how to draw and explain graphs to show how resistance varies with temperature in a thermistor and brightness with an LDR;<br>my strengths and areas for developments following the LP2 summative assessment and PRT. | Ohmic | IV graphs exam question - required practical |
| **In LP2.6, I will know: 09/12/24 - (WK 2)** | **Key Vocabulary** | **Homework** |
| how to describe the difference between alternating and direct current;<br>how to describe and explain the correct wiring of a 3pin plug and the safety functions associated with it;<br>how Power is transferred in electrical devices and apply the equations P=IV and P=I^2xR;<br>how Energy is transferred in domestic appliances, and apply the equations E=QV and E=Pt;<br>Extended Task. | Alternating current | plugs and electrical safety question |
| **In LP2.7, I will know: 16/12/24 - (WK 1)** | **Key Vocabulary** | **Homework** |
| how electricity is transferred from power stations to consumers using the National Grid;<br>how to explain why step-up and step-down transformers are used to prevent energy losses;<br>how to describe electrostatic forces between charged objects and how the transfer of electrons can result in the build-up of static charge; | Transformer | National Grid and transformers questions |

PRT Task 1

PRT Task 2

**Resources to support learning:**
Knowledge organisers, BBC Bitesize, Booklet

**FFET Award Challenge for this Learning Programme:**
LP2 Year 10 Science: Create a revision resource on a topic of your choice