******

**LANGDON PARK SIXTH FORM**

|  |  |  |
| --- | --- | --- |
| **Subject: Physics** | **Year: Y12** | **Topic: 3.5.1 Electric Current** |

|  |
| --- |
| ***What and Why*** “What is an electric current? What are the laws that govern how electric current behaves in circuits? What is the nature of electrical resistance? What is a superconductor and where is it used in industry? |

|  |  |  |  |
| --- | --- | --- | --- |
| **Key terms**AmpereChargeCoulombCritical temperatureCurrentDiode | Electrical componentsElectronEnergyFilament lampJouleKirchhoff’s lawLight Dependent Resistor | OhmOhm’s lawPotential differencePowerResistanceResistivityShort circuit | SuperconductivityThermistorVoltVoltageWattWork |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning**  | **Extension – Cultural Capital and Reading** |
| **3.5.1.1:** I can define electric current and potential difference.I can apply Ohm’s law in circuits. **3.5.1.2:** To recall and describe the I-V graphs for a resistor, filament lamp and diode **3.5.1.3:** I can calculate the resistivity of a material and Know a method to determine the resistivity.To explain what is a superconductor and its applications in industry.Describe the properties and uses of (ntc) thermistors and LDRs | Use the Oxford AQA AS textbook p.202-211. Look at other textbooks in the library for alternative ideas, explanations and diagrams.**YouTube Videos:**(1) [What is CURRENT– electric current explained, electricity basics](https://www.youtube.com/watch?v=8Posj4WMo0o)(2) [Ohms Law Explained - The basics circuit theory](https://www.youtube.com/watch?v=HsLLq6Rm5tU)(3) [The Physics of superconductors](https://www.youtube.com/watch?v=h6FYs_AUCsQ)**Websites:**<http://alevelphysics.org.uk/charge.html><https://www.allaboutcircuits.com/textbook/direct-current/chpt-2/voltage-current-resistance-relate/><https://isaacphysics.org/concepts/cp_resistivity> | **Practicals:**(1) Required Practical 5: Determination of the resistivity of a wire (2) Investigating the $IV$ graphs for a resistor, filament lamp and a diode**Assessment**:Minitest on Electric current (2nd week Feb) | (1) Analyse data from the resistivity investigation. Determine uncertainty in values and error analysis(2) Review ks4 work on circuits(3) How do light sensors and temperature sensors work? Make notes on each topic and complete the exam style practice questions | (1) Find out about superconductors and their uses**Reading:****What Is Electricity? (Rookie Read-About Science)****by**[**Lisa Trumbauer**](https://www.amazon.co.uk/Lisa-Trumbauer/e/B001ITXJ2S?ref=sr_ntt_srch_lnk_1&qid=1594286932&sr=1-1) |

**Pre-assessment content review**

|  |  |  |
| --- | --- | --- |
| I feel secure in | I need to focus on | My action plan |

**Pre-assessment skills review**

|  |  |  |
| --- | --- | --- |
| I feel secure in | I need to focus on | My action plan |

**Post-assessment review**

|  |  |  |
| --- | --- | --- |
| Weaknesses in content knowledge | Skills I need to focus on | My action plan |
| Retest / review – teacher and student comment |

**Revision planning**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Spec point | Notes complete | Revision materials | Past paper Qs  | Timed conditions |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |