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**LANGDON PARK SIXTH FORM**

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| **Subject: Physics** | **Year: Y12** | **Topic: 3.5.1 Direct Current Circuits** |

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| ***What and Why*** “What are the roles of various components in a circuit. How can we evaluate the properties of a circuit? Why is the heating effect in a circuit a problem and what are the methods employed to reduce this?” |

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| **Key terms**AmpereBatteryCellCurrentElectromotive force (emf) | EnergyInternal resistanceLDRLoad resistorLost voltsMaximum power | OhmPotential differencePotential dividerPowerResistanceResistors in parallel | Resistors in seriesThermistorVariable resistorVolt |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning**  | **Extension – Cultural Capital and Reading** |
| **3.5.1.4:** I can calculate the combined resistance in series and parallel circuitsTo calculate the energy and power.I can describe the relationships between currents, voltages and resistances in series and parallel circuits, including cells in series and identical cells in parallel.**3.5.1.5:** I can define a potential divider and construct circuits where the output pd is variable**3.5.1.6:** I can determine the internal resistance of a cell I know how to determine the internal resistance of a cell experimentally | Use the Oxford AQA AS textbook p.214-227. Look at other textbooks in the library for alternative ideas, explanations and diagrams.**YouTube Videos:**(1) [EMF & Internal Resistance - A-level Physics](https://www.youtube.com/watch?v=9r3Xgd79MFw)(2) [Voltage Dividers - Electronics Basics 12](https://www.youtube.com/watch?v=fmSC0NoaG_I)(3) [Series and Parallel Circuits](https://www.youtube.com/watch?v=x2EuYqj_0Uk) **Websites:**<https://www.allaboutcircuits.com/textbook/direct-current/chpt-5/what-are-series-and-parallel-circuits/><http://physicsnet.co.uk/a-level-physics-as-a2/current-electricity/resistivity/> | **Practicals:**(1) Required Practical 6: Determination of the internal resistance and emf of a cell (2) Investigating resistors in series and in parallel**Assessment**:Minitest on Circuits (3rd week Feb)Multiple choice test on Electricity (4th week Feb)  | (1) Investigate how an LDR works(2) Find out about the arrangement of laptop batteries and their advantagesMake notes on each topic and complete the exam style practice questions | (1) Visit the Science Museumand make notes on electrical circuits and generators |

**Pre-assessment content review**

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

**Pre-assessment skills review**

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

**Post-assessment review**

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

**Revision planning**

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