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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**  Ampere  Battery  Cell  Current  Electromotive force (emf) | Energy  Internal resistance  LDR  Load resistor  Lost volts  Maximum power | Ohm  Potential difference  Potential divider  Power  Resistance  Resistors in parallel | Resistors in series  Thermistor  Variable resistor  Volt |

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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 circuits  To 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 advantages  Make notes on each topic and complete the exam style practice questions | (1) Visit the Science Museum  and 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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