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**LANGDON PARK SIXTH FORM**

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| **Subject: Physics** | **Year: Y13** | **Topic: 3.7.5 Magnetic Fields**  |

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| ***What and Why*** “What is the Motor Effect? What are its applications? How a magnetic force is produced when there is a current and a magnetic field. Why does a charged particle moving a circular fashion in a magnetic field and how did this contribute to the creation of the mass spectrometer and the Cyclotron for accelerating particles at CERN? How are magnets used in load speakers, microphones and electric motors?” |

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| **Key terms**Alternating currentChargeCircular motionCouple | CoupleCyclotronDirect currentFleming’s left hand ruleFlux | Flux linkageForceLines of forceMagnetic flux densityMagnetism | Motor effectPowerTeslaVelocity selectorWeber |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning**  | **Extension – Cultural Capital and Reading** |
| **3.7.5.1:** I explain why a current-carrying conductor experiences a force in a magnetic field. I can define magnetic flux density, $B.$**3.7.5.2**: I can describe the motion of a charged particle in a magnetic field and the application of a Cyclotron, Mass spectrometer and the role of a velocity selectorI can analyse electron deflection in a cathode ray tube.**3.7.5.3:**  I can define magnetic flux and magnetic flux linkage. | Use the Oxford AQA A2 textbook p.126 to 135. Look at other textbooks in the library for alternative ideas, explanations and diagrams.**YouTube Videos:**(1) Charges in magnetic fields(2) Lenz’s law(3) [Principle and Working of Cyclotron](https://www.youtube.com/watch?v=m2jp0klZHEE) **Websites:**<https://revisionscience.com/a2-level-level-revision/physics-level-revision/fields/magnetic-fields> | **Practicals:**(1) Required practical 10: Investigating the variation of the force on a wire versus flux density(2) Observe magnetic field lines for magnets, electromagnets and a straight current-carrying wire**Assessment**:Minitest on Magnetic Fields (1st week Dec) | (1) Using ideas from Circular motion and Magnetic fields write a report on how a cyclotron works and its use (CPAC 5)Make notes on each topic and complete the exam style practice questions | (1) Research how the following scientists contributed to magnetism:Michael FaradayHans Christian OerstedCarl Friedrich Gauss**Reading:**The Prince ofMathematics: CarlFriedrich GaussBy M. B. W. Tent  |

**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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