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**LANGDON PARK SIXTH FORM**

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| **Subject: Mathematics** | **Year: Y12** | **Topic: 1 Proof, Algebra and Logarithms** |

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| ***What and Why*:** This unit focuses on some of the key algebraic skills you will need throughout your time at A-level. You will become confident with quadratics, cubics, and the factor theorem, algebraic division, and learn about ways to manipulate algebraic fractions. All of this will be applied constantly throughout the A-level maths curriculum. |

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| **Key Terms**  **Quadratics:**   * Factorising * Expanding * Completing the square * Sketching Inequalities | **Cubics:**   * Expanding * Sketching   **Factor Theorem:**   * Definition * Applying to find factors * Factorising cubics to sketch | **Algebraic Division:**   * Long division with no remainders * With remainders * Factorising by inspection * Grid method | **Partial Fractions:**   * Splitting with 2 factors * splitting with 3 factors * repeated roots * improper fractions * via substitution * via simultaneous equations |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Home learning** | **Extension – Cultural Capital and Reading** |
| B1-B6  B10  F4-7 | **Topics you should be confident in prior to unit:**   * GCSE Grade 7-9 algebra * Linear equations: Solving, sketching * Expressions: Simplifying, expanding, factorising, rearranging, substitution * Functions: Notation e.g. f(x) * Linear Inequalities: Solving * Simultaneous equations including linear and quadratic * Algebraic fractions: Simplifying, solving * Laws of indices: simplifying, fractional, negatives * Surds: simplifying, arithmetic   **Websites**   * <https://www.purplemath.com/modules/factrthm.htm> * <https://www.purplemath.com/modules/logs.htm> * <https://www.purplemath.com/modules/logrules.htm> | * End of unit assessment * 50% seen * 50% unseen   90% pass needed or resit required. | * Kerboodle Online * My Maths * Exam Solutions * Maths Genie | **Online Mathematical articles and content can be found here:**   * <https://plus.maths.org/content/> * <https://nrich.maths.org/secondary> * <http://www.cut-the-knot.org/>   **Recommended Reading:**   * How to think like a mathematician – Kevin Houston * The Code Book – Simon Singh   **Enrichment**   * <https://undergroundmathematics.org/thinking-about-algebra/r8158> * <https://undergroundmathematics.org/exp-and-log/log-lineup> * <https://undergroundmathematics.org/exp-and-log/changing-bases> |

**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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