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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-B6B10F4-7 | **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>
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**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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