**LANGDON PARK SIXTH FORM**

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| **Subject: Mathematics** | **Year: Y12** | **Topic 4: All about Functions 1** |

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| ***What and Why*:** Functions are an extremely important mathematical idea that will be applied throughout your mathematical career. In this unit, you will build upon your knowledge of quadratic graphs, learn about the transformation of graphs and the formal definition of functions. |

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| **Key terms**  **Quadratics**   * Work with quadratic functions and their graphs; * The discriminant of a quadratic function, including the conditions for real and repeated roots * Completing the square * Solution of quadratic equations including solving quadratic equations in a function of the unknown * Solve quadratic inequalities | **Transformations**   * Understand the effect of simple transformations on the graph of y = f(x) including sketching associated graphs: y = af(x) , y = f (x) + a, y = f (x + a) , y = f(ax) , and combinations of these transformations**.** * Understand the order of these transformations when there is a combination of more than one transformation. | **Functions**   * Understand and use the definition of a function; domain and range of functions. * Understand and use composite functions. * Find inverse functions and their graphs. * Use flow diagrams to find an inverse. * Understand geometrically what a reflection is and in the line y=x. * Understand how the domain and range of a function and its inverse are connected. |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Independent learning** | **Extension – Cultural Capital and Reading** |
| B3, B7, B8, B9, B11, C3, C4, E1, E3, E4, E5, E8, | **Topics you should be confident in prior to unit:**   * Linear and quadratic functions, Quadratic formula * Transformations and vector notation, Sketching graphs * GCSE Trigonometry including graphs of trigonometric functions.   **Websites**  [**http://www.a-levelmathstutor.com/functions.php**](http://www.a-levelmathstutor.com/functions.php) | * End of unit assessment * 50% seen * 50% unseen * 90% pass needed or resit required. | Kerboodle Online Login  My Maths  Exam Solutions  Maths Genie | **Online Mathematical articles and content can be found here:**  <https://nrich.maths.org/5748> - women in mathematics  <https://nrich.maths.org/6843> - the history of trigonometry. |

**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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