**LANGDON PARK SIXTH FORM**

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| **Subject: Mathematics** | **Year: Y13** | **Topic 4.4 Statistics - Hypothesis Testing** |

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| ***What and Why*** “You have already learned about both the Binomial and the Normal probability distributions. One of the most important applications of these is their use in testing hypothesis on a rigorous statistical basis. This is crucial in a wide range of applications of mathematics- from economics to medicine and engineering and much more. You will learn how to set up and carry out hypotheses tests, and so gain mathematical evidence for making judgements about the reliability or otherwise of particular statements and conclusions based on the data available. You will also explore a little how hypotheses tests can be used to make similar judgments about correlation. This is a tricky unit but one which there are a significant number of marks available for in A Level maths and which can help you attain the higher grades.” |

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| **Key terms:**  Hypotheses  Null Hypothesis  Alternative Hypothesis  Significance Level  One tailed  Two tailed  Critical value  Critical region  Acceptance value | **Key ideas**   * Understand what a hypothesis is * Understand what a null and an alternative hypothesis are * Understand what a statistical test, using either Binomial or Normal distributions, on a null hypothesis involves * Understand what a significance level means * Understand the difference between one tailed and two tailed hypothesis test is * Understand how hypothesis tests can apply to questions of correlation | **Applications and skills:**   * Be able to formulate precisely both null and alternative hypotheses for situations involving both Binomial and Normal probability distributions * Be able to carry out a hypothesis test to an appropriate significance level * Be able to apply all the above to situations when a one tailed or a two tailed hypothesis test is appropriate * Be able to carry out a hypothesis test given appropriate significance levels and statistics on situations involving correlation |

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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Independent learning** | **Extension – Cultural Capital and Reading** |
| O1- O3 | **Topics you should be confident in prior to unit:**  The material you learned in the units on both Binomial and Normal Distributions | * End of unit assessment, which will also include selected year 12 material * 50% seen * 50% unseen * 90% pass needed or resit required. | Kerboodle Online Login  My Maths  Exam Solutions  Maths Genie | **VIDEO:** A useful video giving an overview of hypothesis testing  [**https://www.youtube.com/watch?v=VK-rnA3-41c**](https://www.youtube.com/watch?v=VK-rnA3-41c)  **Enrichment:** A very useful collection of articles and problems which will help you really deepen your understanding of hypothesis testing  [**https://nrich.maths.org/search/?search=hypothesis+test&tab=1&fs=111110000000111**](https://nrich.maths.org/search/?search=hypothesis+test&tab=1&fs=111110000000111) |

**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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