**LANGDON PARK SIXTH FORM**

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| **Subject: Mathematics** | **Year: Y12** | **Topic 9: Introduction to Statistics** |

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| ***What and Why*** “Statistics and data is central to the modern world and a key part of mathematics. In this unit you will learn the basics of statistics stating with exploring the difference between a population and a sample and the different ways of sampling. You will develop your understanding of different ways of representing data building on what you learned at GCSE, especially histograms and scatter diagrams and the interpretation of correlation. You will also build your understanding of and ability calculate and interpret measures of central tendency (averages) and variation, and in particular the important idea of standard deviation. Throughout all of this you will explore the Large Data Set provided by the exam board and a knowledge of which is crucial for A Level mathematics.”  |

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| **Key terms:**PopulationSampleParameterStatisticRandomOpportunityClusterQuotaHistogramScatter diagram Correlation | FrequencyFrequency DensityCentral TendencyModeMedianMeanOutlierVariationInterquartile RangeStandard DeviationSummary Statistics | **Key ideas*** The difference between a population and a sample
* The difference between a parameter and a statistic
* Different methods of sampling (random, quota, cluster, opportunity) and there strengths and weaknesses
* Characteristics and interpretation of histograms
* Understanding correlation and how to measure and interpret it
* Understanding how to deal with outliers and how to cleanse data
* Understanding what central tendency is and the different ways of measuring it
* Understanding variation and the different ways of measuring it
* Understanding what Large Data is and begin to learn how to deal with it using statistical methods
* Understand the Central Limit Theorem when dealing with repeated sample means
 | **Applications and skills:*** Carry out different methods of sampling and critique their limitations
* Construct and interpret histograms, cumulative frequency diagrams and box plots
* Plot and interpret scatter diagrams, including using measures of correlation
* Calculate measures of central tendency (mode, median, mean) and choose the most appropriate
* Calculate measures of variation including Interquartile Range and especially Standard Deviation, including from summary statistics
* Apply all these techniques to interrogating the Large Data Set supplied by the exam board
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| **Specification point** | **Pre-reading** | **Application and Assessment (date)** | **Independent learning** | **Extension – Cultural Capital and Reading** |
| H5 H6 | **Topics you should be confident in prior to unit:**Revise all GCSE data thoroughly**Useful revision website:**[**https://www.bbc.co.uk/bitesize/topics/zq6797h**](https://www.bbc.co.uk/bitesize/topics/zq6797h) | * End of unit assessment, which will also include selected year 12 material
* 50% seen
* 50% unseen
* 90% pass needed or resit required.
 | Kerboodle Online LoginMy MathsExam SolutionsMaths Genie  |  **VIDEOS: Useful overview of what Big Data is and why it matters:** [**https://www.youtube.com/watch?v=zez2Tv-bcXY**](https://www.youtube.com/watch?v=zez2Tv-bcXY)**Enrichment: A very useful collection of articles and problems on statistics which will get you thinking:** [**https://nrich.maths.org/statistics**](https://nrich.maths.org/statistics) |

**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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