: Year 11 Curriculum and Assessment Map

Year 11	Subject Statistics	
Intent	**Year 11 GCSE Statistics** The aims and objectives of this qualification are to enable students to develop statistical fluency and understanding through: • the use of statistical techniques in a variety of authentic investigations, using real-world data in contexts such as, but not limited to, populations, climate, sales etc. • identifying trends through carrying out appropriate calculations and data visualisation techniques • the application of statistical techniques across the curriculum, in subjects such as the sciences, social sciences, computing, geography, business and economics, and outside the classroom in the world in general • critically evaluating data, calculations and evaluations that would be commonly encountered in their studies and in everyday life • understanding how technology has enabled the collection, visualisation and analysis of large quantities of data to inform decision-making processes in public, commercial and academic sectors, including how technology can be used to generate diagrams and visualisations to represent data • understand ways that data can be organised, processed and presented, including statistical measures to compare data, understanding the advantages of using technology to automate processing • applying appropriate mathematical and statistical formulae, and building on prior knowledge. **Catch-up Tutoring sessions will be provided from September for students who are most behind, supporting their understanding of core concepts/topic knowledge and deepening and developing their core knowledge and skills. From November, individual targeted intervention sessions will be provided to fill further specific needs and gaps and to refine skills required for their Maths GCSE exam.**	
	September - December	**January - March**	**April - July**

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THE JUBILEE ACADEMY

UNIT 1: The collection of data	UNIT 2: Processing, representing and analysing data	UNIT 3: Summarising data: measures of central tendency and dispersion	UNIT 5: Time series analysis	UNIT 6: Probability	UNIT 7: Index numbers
1a. Types of data • Recognise that data can be obtained from primary and secondary sources; • Recognise the difference between quantitative and qualitative variables; • Recognise the difference between discrete and continuous data; • Recognise and use scales of measurement – categorical, ordinal, rank; • Categorise data through the use of well-defined, precise definitions or class boundaries; • Understand, use and define situations for	**2a. Qualitative and discrete data** • Construct, draw, use and understand graphs. • Understand the distinction between well-presented and poorly presented data; • Understand the potential for visual misuse, by omission or misrepresentation; • Select the appropriate representation for the data; • Group data into class intervals and be aware of the advantages and implications of doing so. **2b. Continuous**	**3a. Measures of central tendency – mode, median and mean** • Calculate the mean, mode and median for a list of numbers; • Calculate the mean, mode and median for discrete data listed in a table (grouped); • Calculate the mean, mode and median for continuous data listed in a table (grouped); **3b. Measures of dispersion – range, quartiles, interquartile range and percentiles** • Calculate the range for a list of numbers;	**5a. Calculating moving averages, seasonal and cyclic trends** • Plot points as a time series; • Draw a trend line by eye and use it to make a prediction; • Interpret seasonal and cyclic trends in context; Calculate and use a 4 point moving average	• Calculate probabilities from selected data and interpret • Understand the meaning of the words 'impossible', 'certain', 'highly likely', 'likely', 'unlikely', 'possible', 'evens', and present them on a likelihood and number scale. • Use probability to calculated expected frequency for a population. • Compare expected frequencies and actual frequencies. To recognise that experimental probability will tend towards theoretical probability as the number of trials increases. • Use collected data and calculated probabilities to	**7a. Interpreting index numbers in context and simple calculations** • Have an understanding of the retail price index (RPI), consumer price index (CPI) and gross domestic product (GDP) and other index numbers in context; • Calculate and interpret simple index numbers; • Calculate and interpret rates of change over time including, but not limited to, births, deaths, house prices, unemployment and percentage change. Revision for GCSE Exam **The collection of data** **UNIT 2:**

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	• grouped and ungrouped data;
	• Understand the meaning of bivariate data;
	• Know the difference between independent and dependent variables.
	1b. Population and sampling
	• Understand the meaning of the terms population and sample;
	• Understand the word 'census' with regard to small scale and large scale populations;
	• Understand the reasons for sampling and that sample data is used to estimate values in a population;
	• Understand that sample size has an
		data
		• Construct, draw, use and understand:
		  • Pie charts;
		  • Frequency polygons;
		  • Cumulative frequency diagrams;
		  • Population pyramids;
		  • Box plots;
		• Understand the distinction between well-presented and poorly presented data;
		• Understand the potential for visual misuse, by omission or misrepresentation;
		• Select the appropriate representation for the data;
		• Group data into class intervals and be aware of the advantages and
			• Calculate the five number summary (minimum, lower quartile, median, upper quartile, highest value) for a list of numbers;
			• Use interpolation to calculate the median;
			• Calculate the interquartile range;
			• Calculate the percentiles for a set of data.
			3c. Box plots, skewness and representing outliers
			UNIT 4: Scatter diagrams and correlation
			4a. Describing correlation by inspection, lines of best fit and Spearman's rank correlation coefficient
					determine and interpret relative risks and absolute risks, and express in terms of expected frequencies in groups.
					To know and apply formulae conditional probability and independent events
					6b. Probability from two-way tables, sample space diagrams, tree diagrams and Venn diagrams
					• Produce, understand and use a sample space;
					• Understand the terms mutually exclusive and exhaustive and to understand the addition law $\mathrm{P}(A \text{ or } B) = \mathrm{P}(A) + \mathrm{P}(B)$ for two mutually exclusive events;
						Processing, representing and analysing data
						UNIT 3: Summarising data: measures of central tendency and dispersion
						UNIT 5: Time series analysis
						UNIT 6: Probability

	• impact on reliability and replication; • Understand, design and use a sampling frame. **1c. Sampling methods** • Understand the terms random, randomness and random sample; • Understand the use of random numbers and some of the methods of generating these: • Be able to select a random sample, or a stratified sample, by one category as a method of investigating a population; • Appreciate how bias in a sampling procedure might occur and how it might be minimised;	• implications of doing so; • Use calculated/given summary statistics for continuous data to make estimates of population characteristics, for example, samples to estimate the population mean.	• Plot points as points on a scatter diagram; • Recognise positive, negative and zero correlation by inspection; • Understand the distinction between correlation and causality; • Draw a line of best fit to the points on a scatter diagram through $(\overline{x}, \overline{y})$; • Understand the pitfalls of interpolation and extrapolation; • Interpret data presented in the form of a scatter diagram; • Know and apply the following words: positive, negative, zero, causation, association, interpolation, extrapolation, independent variable, explanatory variable, response		• Draw and use probability tree diagrams, Venn diagrams and two-way tables; • To calculate probabilities from tree diagrams, Venn diagrams and two-way tables including conditional probabilities; • Understand, use and apply the addition for mutually exclusive events, and multiplication laws for independent events.	

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	• Know the difference sampling techniques		variable, dependent variable; • .			
Impact	***AP1*** ***End Aut 2*** ***Diagnostic Assessment*** ***Mock 1 GCSE past paper***		***AP2*** ***End Spring 1*** ***Diagnostic Assessment*** ***Mock Exam: GCSE past paper (2 papers)***		***AP3*** ***End Summer 1*** ***Diagnostic Assessment*** ***GCSE Statistics Paper 1 and papers 2 External***	