

Scheme of Work
Subject: STATISTICS
Unit: 1 - Charts and Graphs

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 1 PIXL - HIGHER UNIT 1			
	1. Multiple, Composite & percentage bar charts	Construct, draw, use and understand multiple or composite bar charts for qualitative and discrete data;	https://vle.mathswatch.co.uk/vle/browse/169 http://corbettmaths.com/2013/04/15/drawing-bar-charts/ http://corbettmaths.com/2012/08/10/reading-bar-charts/	End of unit diagnostic test		
	2. Choropleth Maps	Construct, draw, use and understand choropleth maps;				
	3. Population Pyramids	Construct, draw, use and understand understand the				

		distinction between well-presented and poorly presented data;				
	4. Vertical Line Graphs	Construct, draw, use and understand vertical line graphs;	https://vle.mathswatch.co.uk/vle/browse/220			
	5. Misleading Graphs	Understand the potential for visual misuse, by omission or misrepresentation;				
		Select the appropriate representation for the data;				
		Select the appropriate representation for the data;				

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 2 PIXL - HIGHER UNIT 2			
	1. Types of data; Qualitative & Quantitative Data; Discrete & Continuous Data; Primary & Secondary Data: Categorical Data	<p>Recognise that data can be obtained from primary and secondary sources;</p> <p>Recognise the difference between quantitative and qualitative variables;</p> <p>Recognise the difference between discrete and continuous data;</p>	<p>https://vle.mathswatch.co.uk/vle/browse/219</p> <p>http://corbettmaths.com/2013/04/20/data-handling-cycle/</p> <p>https://corbettmaths.com/2019/01/04/primary-secondary-data/</p> <p>http://corbettmaths.com/2013/04/20/quantitative-and-qualitative-data/</p> <p>http://corbettmaths.com/2013/05/12/discrete-and-continuous-data-corbettmaths/</p>	End of unit diagnostic test		

Recognise and use scales of measurement – categorical, ordinal, rank;

Categorise data through the use of well-defined, precise definitions or class boundaries;

2. Data Capture Sheets

MathsWatch 15

<https://vle.mathswatch.co.uk/vle/browse/169>

3. Questionnaires

Understand that there are different methods to collect primary data from different sources;

<https://corbettmaths.com/2016/08/07/venn-diagrams/>

Understand the aspects of accuracy, reliability, relevance and bias as related to secondary data;

Understand the techniques used to deal with possible

problems associated with the collection of data (including issues of sensitivity);

Form a hypothesis, and know the appropriate strategies to test this hypothesis;

Be aware of factors involved with testing a hypothesis (including time, costs, ethical issues, confidentiality and convenience);

Identify problems that may arise with the statistical enquiry cycle and come up with strategies to help overcome these.

Subject: STATISTICS**Unit: 3 - Sampling****Year Group: 11****Specification: AQA**

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 3 PIXL - HIGHER UNIT 2			
	1. Difference between sampling and a census. Meaning of the words Population and Sampling Frame	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;	MathsWatch 152 https://vle.mathswatch.co.uk/vle/browse/318	End of unit diagnostic test		

Understand that sample size has an impact on reliability and replication;

Understand, design and use a sampling frame

2. Random Sampling

Understand the terms random, randomness and random sample;

<http://corbettmaths.com/2013/11/13/random-sampling/>

Understand the use of random numbers and some of the methods of generating these

3. Stratified Sampling

Be able to select a random sample, or a stratified sample, by one category as a

MathsWatch 176

<https://vle.mathswatch.co.uk/vle/browse/343>

<http://corbettmaths.com/2012/08/27/stratified-sampling/>

		method of investigating a population				
	4. Pilot Surveys	Know the purpose of pilot surveys				
	5. Systematic, Cluster, Quota, Convenience Sampling	Know the difference between: i) opportunity (convenience) sampling; ii) systematic sampling; iii) quota sampling; iv) judgement sampling.				

Scheme of Work
Subject: STATISTICS
Unit: 4 - Extension of GCSE Maths

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
10 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT PIXL - HIGHER UNIT 3			
	1. Pictograms 2. Stem and Leaf Diagrams 3. Bar Charts	Construct, draw, use and understand pictograms; Construct, draw, use and understand stem and leaf diagrams;	https://vle.mathswatch.co.uk/vle/browse/170 http://corbettmaths.com/2013/05/25/drawing-pictograms/ http://corbettmaths.com/2012/08/09/reading-pictograms/ https://vle.mathswatch.co.uk/vle/browse/1210 http://corbettmaths.com/2012/08/02/drawing-stem-and-leaf-diagrams/ http://corbettmaths.com/2012/08/02/reading-stem-and-leaf-diagrams-video/	End of unit diagnostic test		

<https://vle.mathswatch.co.uk/vle/browse/169>

Construct, draw, use and understand bar charts;

<http://corbettmaths.com/2013/04/15/drawing-bar-charts/>

<http://corbettmaths.com/2012/08/10/reading-bar-charts/>

4. Pie Charts

Construct, draw, use and understand pie charts

<https://vle.mathswatch.co.uk/vle/browse/288>

<http://corbettmaths.com/2013/02/27/drawing-a-pie-chart/>

<http://corbettmaths.com/2013/05/25/interpreting-pie-charts/>

5. Comparative Pie Charts

Construct, draw, use and understand comparative pie charts

6. Averages

Calculate the mean, mode and median for a list of numbers;

<https://vle.mathswatch.co.uk/vle/browse/218>

<http://corbettmaths.com/2012/08/02/the-median/>

<http://corbettmaths.com/2012/08/02/the-mean/>

<http://corbettmaths.com/2013/12/21/the-mode-video56/>

<http://corbettmaths.com/2012/08/02/the-range-video/>

Calculate the mean, mode and median for discrete data listed in a table (grouped);

<https://vle.mathswatch.co.uk/vle/browse/290>

<https://vle.mathswatch.co.uk/vle/browse/291>

<http://corbettmaths.com/2013/03/16/median-for-a-frequency-table/>

<http://corbettmaths.com/2012/08/19/means-from-frequency-tables/>

		<p>Calculate the mean, mode and median for continuous data listed in a table (grouped);</p> <p>Understand the appropriateness, advantages and disadvantages of each of the three measures of central tendency</p>	<p>https://vle.mathswatch.co.uk/vle/browse/290</p> <p>https://vle.mathswatch.co.uk/vle/browse/291</p> <p>http://corbettmaths.com/2012/08/23/medians-and-quartiles-from-grouped-frequency-tables-and-histograms/</p> <p>http://corbettmaths.com/2012/08/19/estimated-means-from-grouped-data/</p>			
	7. Capture / Recapture Method	Apply and use Peterson's data capture technique to estimate population sizes and know the assumptions made	<p>https://corbettmaths.com/2016/09/18/17416/</p>			

Scheme of Work
Subject: STATISTICS
Unit: 5 - Probability 1

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 5 PIXL - HIGHER UNIT 4			
	1. Basic probability	Understand the meaning of the words ‘impossible’, ‘certain’, ‘highly likely’, ‘likely’, ‘unlikely’, ‘possible’, ‘evens’, and present them on a likelihood and number scale Calculate probabilities from selected data and interpret	https://vle.mathswatch.co.uk/vle/browse/168 http://corbettmaths.com/2013/05/12/probability-scale/ MathsWatch 58, 59 https://vle.mathswatch.co.uk/vle/browse/214 https://vle.mathswatch.co.uk/vle/browse/215 http://corbettmaths.com/2013/06/15/probability/			
			MathsWatch 126			

<p>2 Interpreting data from a table</p>	<p>Construct, draw, use and understand two-way tables and tally charts.</p> <p>Produce, understand and use a sample space;</p>	<p>https://vle.mathswatch.co.uk/vle/browse/285</p> <p>http://corbettmaths.com/2012/08/10/two-way-tables/</p> <p>http://corbettmaths.com/2013/05/07/tally-charts-corbettmaths/</p> <p>http://corbettmaths.com/2013/05/04/listing-outcomes/</p> <p>http://corbettmaths.com/2013/06/18/sample-space-diagrams/</p>	<p>End of unit diagnostic test</p>		
<p>3. Complex probability without a tree diagram</p>	<p>Use probability to calculate expected frequency for a population.</p> <p>Compare expected frequencies and actual frequencies. To recognise that experimental probability will tend towards theoretical probability as the number of trials increases.</p> <p>Use collected data and calculated probabilities to determine and interpret relative risks and absolute risks, and express in terms of expected frequencies in groups.</p>	<p>MathsWatch 59, 60</p> <p>https://vle.mathswatch.co.uk/vle/browse/215</p> <p>https://vle.mathswatch.co.uk/vle/browse/216</p> <p>http://corbettmaths.com/2013/06/20/relative-frequency/</p> <p>https://vle.mathswatch.co.uk/vle/browse/284</p> <p>http://corbettmaths.com/2013/06/20/relative-frequency/</p>			

		<p>To know and apply formulae conditional probability and independent events</p> <p>Understand the terms mutually exclusive and exhaustive and to understand the addition law $P(A \text{ or } B) = P(A) + P(B)$ for two mutually exclusive events;</p>	<p>https://vle.mathswatch.co.uk/vle/browse/215</p> <p>http://corbettmaths.com/2013/06/18/conditional-probability/</p> <p>http://corbettmaths.com/2013/06/16/independent-events/</p> <p>https://vle.mathswatch.co.uk/vle/browse/375</p> <p>https://vle.mathswatch.co.uk/vle/browse/216</p> <p>http://corbettmaths.com/2013/06/15/the-or-rule/</p> <p>http://corbettmaths.com/2013/05/15/probability-of-not-happening/</p>			
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Scheme of Work
Subject: STATISTICS
Unit: 6 - Probability 2

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 6 PIXL - HIGHER UNIT 4			
	1. Two way tables 2. Tree diagrams	Draw and use two-way tables including conditional probabilities Draw and use probability tree diagrams including conditional probabilities	MathsWatch 61 https://vle.mathswatch.co.uk/vle/browse/217 http://corbettmaths.com/2013/06/18/conditional-probability/ MathsWatch 151, 175 https://vle.mathswatch.co.uk/vle/browse/317 https://vle.mathswatch.co.uk/vle/browse/342 http://corbettmaths.com/2013/05/07/tree-diagrams/ https://corbettmaths.com/2017/03/26/frequency-trees/ MathsWatch 127a, 127b, 185	End of unit diagnostic test		

3. Venn diagrams

Draw and use Venn diagrams including conditional probabilities

<https://vle.mathswatch.co.uk/vle/browse/286>

<https://vle.mathswatch.co.uk/vle/browse/287>

<https://vle.mathswatch.co.uk/vle/browse/353>

<https://corbettmaths.com/2019/03/27/set-notation/>

<https://corbettmaths.com/2016/08/07/venn-diagrams/>

Recognise positive, negative and zero correlation by inspection;

Understand the distinction between correlation and causality

Describe and make comparisons of the strength of correlation by inspection

3. Exploratory & response variables

Know and apply the following words: positive, negative, zero, causation, association, interpolation, extrapolation, independent variable, explanatory variable, response variable, dependent variable

4. Line of best fit and estimating

Draw a line of best fit to the points on a scatter diagram through (\bar{x}, \bar{y})

	<p>5. Equation of the line of best fit</p>	<p>Find the equation of the regression line</p>	<p>MathsWatch 96, 97, 159a https://vle.mathswatch.co.uk/vle/browse/255 https://vle.mathswatch.co.uk/vle/browse/325 https://vle.mathswatch.co.uk/vle/browse/326 http://corbettmaths.com/2013/05/29/finding-the-equation-of-a-straight-line/ http://corbettmaths.com/2013/05/29/finding-the-equation-passing-through-two-points/</p>			
	<p>6. Non-linear models</p>					
	<p>7. Spearman's Rank correlation coefficient</p>	<p>Interpret Spearman's rank correlation coefficient in the context of a problem</p> <p>Understand the distinction between Spearman's and Pearson's correlation coefficients</p> <p>Calculate and interpret Spearman's rank correlation coefficient</p> <p>Interpret Pearson's product moment correlation coefficient</p>				

Scheme of Work
Subject: STATISTICS
Unit: 8 - Cumulative Frequency and Box Plots

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 8 PIXL - HIGHER UNIT 6			
	1. Completing a cumulative frequency table 2. Drawing a cumulative frequency curve	Construct, draw, use and understand cumulative frequency tables Construct and draw cumulative frequency diagrams	MathsWatch 186 https://vle.mathswatch.co.uk/vle/browse/354 http://corbettmaths.com/2012/08/09/drawing-cumulative-frequency-graphs/	End of unit diagnostic test		

3. Extracting information from a cumulative frequency curve

Interpret cumulative frequency diagrams

<http://corbettmaths.com/2012/08/09/reading-cumulative-frequency-graphs/>

4. Drawing Boxplots

Construct, interpret and use box plots from summary statistics;

MathsWatch 187

<https://vle.mathswatch.co.uk/vle/browse/355>

<http://corbettmaths.com/2013/05/15/comparing-box-plots/>

Construct, interpret and use box plots from cumulative frequency graphs

5. Calculating outliers

Identify outliers by inspection;

Show outliers on box plots and to be able to correctly interpret these;

		<p>Determine skewness by inspection and to make interpretations in context</p>				
	<p>6. Comparing 2 or more distributions</p>	<p>Use box plots as a method to compare two (or more) sets of data for dispersion, measure of central tendency and skewness;</p> <p>Given the median and interquartile range, make comparisons between different data samples of to compare the sample and population data;</p> <p>Identify simple properties of the shape of distributions of data including symmetry, positive and negative skew</p>	<p>http://corbettmaths.com/2013/05/15/drawing-and-reading-box-plots/ http://corbettmaths.com/2013/05/15/comparing-box-plots/</p>			

Scheme of Work

Subject: STATISTICS

Unit: 9 - Time Series

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT 9 PIXL - HIGHER UNIT 7			
	1. Calculating moving averages	Calculate a 4 point moving average or other specified appropriate moving average	MathsWatch 153 https://vle.mathswatch.co.uk/vle/browse/319	End of unit diagnostic test		
	2. Plotting moving averages on a graph	Plot a 4 point moving average or other specified appropriate moving average				
	3. Drawing and using trend lines	Draw a trend line by eye and use it to make a prediction				

	4. Seasonal variation	Interpret seasonal and cyclic trends in context				
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Scheme of Work
Subject: STATISTICS
Unit: 10 - Normal Distribution (HIGHER ONLY)

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT N/A PIXL - HIGHER UNIT 8			
	1. Calculating standard deviation	Know the shape of a normal distribution curve and how this occurs; Understand the notation $N(\mu, \delta^2)$		End of unit diagnostic test		

		<p>Know the conditions that make the normal distribution model suitable;</p> <p>Know that 68% of data lies within one standard deviations of the mean, 95% of data lies within two standard deviations of the mean</p>				
	2. Standardised scores	Use standardised scores to compare two samples of data				
	3. Control Charts	<p>Understand the process of quality assurance and see why this is necessary in the real world;</p> <p>Know how to calculate both warning limits and action limits;</p> <p>Know how to draw warning limits and action limits on a sample mean, median or range versus sample number graph;</p> <p>Understand how action and warning limits are used in the manufacturing process</p>				

	3. Chain based index numbers	Calculate and interpret chain based index numbers				
	4. Averages	<p>Calculate the mean, mode and median</p> <p>Calculate and interpret rates of change over time including, but not limited to, births, deaths, house prices, unemployment and percentage change</p>	<p>MathsWatch 62 https://vle.mathswatch.co.uk/vle/browse/218 http://corbettmaths.com/2012/08/02/the-median/ http://corbettmaths.com/2012/08/02/the-mean/ http://corbettmaths.com/2013/12/21/the-mode-video56/ http://corbettmaths.com/2012/08/02/the-range-video/</p>			
	5. Geometric mean	Calculate the geometric mean and weighted mean				

Scheme of Work

Subject: STATISTICS

Unit: 12 - The Binomial Distribution (HIGHER ONLY)

Year Group: 11

Specification: AQA

Lesson No	Topic & Objectives	Big Question – What will students learn?	Key Activities & Specialist Terminology (Do Now Task / Starter/Tasks/Plenary)	Planned Assessment	Homework or flipped learning resources DODDLE resources	Lit Num SMSC Codes
6 HOURS (OUT OF 80)			PIXL - FOUNDATION UNIT N/A PIXL - HIGHER UNIT 10			
	1. Data from a table	Produce, understand and use a sample space				
	2. The Binomial Distribution	Understand the notation $B(n, p)$;		End of unit diagnostic test		

Identify when a binomial distribution should be used and the conditions needed;

Calculate probabilities using any standard method including use of calculator;

Know the calculation for the mean of a binomial distribution is np ;

Know the properties for the binomial distribution