GCSE Statistic Curriculum Intent:

The Northampton Academy curriculum enables all our students to thrive and to enjoy learning GCSE statistics. Students choose to study GCSE statistics as a Key stage 4 option choice. Students in year 9 will have been given a taster experience of statistics to help guide choices.

 In GCSE statistics we aim to develop the analytical and enquiring minds of our students as well as providing an insight into the crucial role of statistics in the modern world.

Students will learn about the data handling cycle of collecting data, processing, and representing data, summarising data. Students will become familiar with key economic indicators such as Retail Price Index and Consumer Price Index and how these impact on their everyday lives.

Students will study 8 units in their two-year course that will broaden, deepen and support students' statistical knowledge compulsory in their GCSE Mathematics course.

This also includes probability and probability distributions,

They will be required to examine the role of statistics in industry and economics to gain skills they can transfer to a wide range of disciplines and careers.

'Why This, Why Now?'

In our planning, we have asked ourselves 'why this, why now?' Here we provide some examples of the curriculum choices we have made, and why the units have been placed in the order we have chosen:

We follow the data handling cycle starting with hypothesis and plannning, collceting and describing data, processing and representing the data, interpreting the data and evaluating the data. Each stage of the process builds on the prevous stage , which enables teachers to interweave the curriculum. Teachers give students the knowledge before learning to apply and then critically evaluate the approach taken. Foundation knowledge of the previous stage should be secured before moving on to the next stage of the cycle.
The order we have choosen is
Collection of Data
Processing and representing data
Summarising the data
Scatter diagrams and correlations
Index Numbers

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Medium Term Planning Document: Statistics Year 10/11

The Medium Term Planning document below is designed to show the journey that every student takes through our curriculum. Some elements of the curriculum may be taught over several lessons, others in a single lesson.

Statistics	Year 10- Half Term 1		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Collection of data	Describing Data	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Curriculum?r=80949
			https://classroom.thenational.academy/lessons/univariate-and-bivariate-data-6nj6ct
	Grouping Data		https://www.youtube.com/playlist?list=PLxHVbxhSvleSKexSUhyLS9Cn55g0C2gwb
	Primary and Secondary data		
	Populations		
	Key Words: quantitative, qualitative, continuous, discrete, bivariate, univariate		
	Capture / recapture	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Curriculum?r=80872
			https://classroom.thenational.academy/lessons/capture-recapture-cguk8t
	Random Sampling		https://curriculum.unitedlearning.org.uk/Curriculum?r=80950
			https://curriculum.unitedlearning.org.uk/Curriculum?r=80973
	Non random sampling		https://classroom.thenational.academy/lessons/sampling-methods-chj6cr
	Key Words: unbiased, biased, judgement sampling, opportunity sampling , Cluster sampling , quota sampling		

	Stratified sampling	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://classroom.thenational.academy/lessons/stratified-sampling-75h6cd
	Collection of data		
	Questionnaires and Interviews		https://classroom.thenational.academy/lessons/design-questionnaires-avoiding-bias-6wv38d
	Problems with collecting data		
	Key Words: respondent, open , closed, matched pairs, pilot study		
	Controlling extraneous variables	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Hypotheses		
	Designing Investigations		
	Key Words: outlier, anomalous , cleaned, control group		

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Statistics	Year 10– Half Term 2		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Processing Data	Tables	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Two-way Tables		https://classroom.thenational.academy/lessons/design-and-interpret-two-way-tables-crwp8r
	Pictograms		
	Bar Charts		
	Key Words: Frequency		
	Stem & Leaf diagrams	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Pie Charts		https://classroom.thenational.academy/lessons/draw-and-interpret-pie-charts-cmt36t
	Key Words: Proportion		
	Comparative Pie Charts	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Population Pyramids		
	Choropleth Maps		
	Key Words: Density		
	Frequency polygons	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Pupil?r=98504 https://curriculum.unitedlearning.org.uk/Pupil?r=98505
	Cumulative Frequency		
	The shape of a distribution		
	Key Words: Skewness		
	Histograms	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Pupil?r=98506 https://curriculum.unitedlearning.org.uk/Pupil?r=98507 https://classroom.thenational.academy/lessons/plot-a-histogram-60vk8e
	Misleading diagrams		
	Choosing the right format		

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	Key Words: Frequency density

Summative Assessment:

Pupil Mid-Year Assessments will take place at the end of half term 2. These will cover all content taught in the first 2 half terms. This assessment will inform pupil Rank Order in the subject.

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Statistics	Year 10 – Half Term 3		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Summarising Data	Averages	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Curriculum?r=79059 https://curriculum.unitedlearning.org.uk/Curriculum?r=79060 https://curriculum.unitedlearning.org.uk/Curriculum?r=79061 https://curriculum.unitedlearning.org.uk/Curriculum?r=79635 https://curriculum.unitedlearning.org.uk/Curriculum?r=79636
	Averages from frequency tables		https://curriculum.unitedlearning.org.uk/Curriculum?r=80976
	Averages from grouped data		
	Transforming data		
	Geometric mean and weighted data		
	Key Words: mode median mean modal class		
	Transforming data	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Geometric mean and weighted data		
	Key Words: arithmetic geometric		
	Measures of dispersion for discrete data	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Curriculum?r=84464
	Measures of dispersion for grouped data		

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	Key Words interpercential range, interdecial range		
	Standard deviation	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://www.youtube.com/watch?v=xIr6h_o30xs

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Statistics	Year 10 – Half Term 4		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Summarising data	Box Plots and Outlier	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Pupil?r=98501 https://curriculum.unitedlearning.org.uk/Pupil?r=98502 https://curriculum.unitedlearning.org.uk/Pupil?r=98503
	Key Words: lower quartile inter quartile range upper quartile		
	Skewness	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Key Words: distributions symmetrical positive skew negative skew, measure of central tendency		
	Deciding what average to use	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://curriculum.unitedlearning.org.uk/Curriculum?r=80975 https://curriculum.unitedlearning.org.uk/Curriculum?r=80975
	Comparing data sets		
	Key Words:		
	Making estimates	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	

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	Key Words: population, representitive		

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Statistics	Year 10 – Half Term 5		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Scatter Diagrams & Correlation	Drawing scatter diagrams	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://classroom.thenational.academy/lessons/plot-a-scatter-graph-and-describe-correlation-6nh6ce
	Interpreting scatter diagrams – basic correlation		
	Drawing and using a line of best fit		
	The equation of a line of best fit		
	Interpolation and Extrapolation		
	Spearman's Rank Correlation Coefficient		
	Pearson's Product Moment Correlation Coefficient		
	Key Words: Correlation, variable, bivariate data, causation, causal relationship, explanatory variable, response variable, negative correlation, positive correlation, non-linear correlation (H), line of best fit, mean point, interpolation, extrapolation, gradient, intercept, regression line (H), Spearman's Rank Correlation Coefficient (H), Pearson's Product Moment Correlation Coefficient (H)		

Summative Assessment:

Pupil End of Year Assessments will take place at the start of half term 6. These will cover all content taught in the first 5 half terms. This assessment will inform pupil Rank Order in the subject. As well as the content listed below, there is an expectation that staff will work with pupils to improve knowledge in areas of weakness identified in the summative assessments. This may include in school and out of school intervention, and collaborative and independent study.

Statistics	Year 10 – Half Term 6		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Index Numbers	Index numbers	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	https://classroom.thenational.academy/lessons/increase-by-a-percentage-69h68c https://classroom.thenational.academy/lessons/decrease-by-a-percentage-70ukjd
	RPI, CPI		
	Weighted index numbers		
	Key Words: Price index, Weighting		
	Chain base index numbers		

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	Geometric mean	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	GDP		
	Key Words:		
	Crude Birth/Death rates	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Standardised Population		
	Standardised Rates		
	Key Words: Crude, Standardised		

Statistics	Year 11 – Term 1		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
Probability	Expected outcome	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Sample space diagrams		
	Venn diagrams		
	Independent event	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Conditional probability		
		Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Risk absolute/ relative		

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Statistics	Year 11 – Term 2		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
	Higher Probability Distributions – Foundation Probability continued from term 1	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Binomial		
	Normal	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Skew	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	

Statistics	Year 11 – Term 3		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
	Comparative Statements	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Standardised scores	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Quality assurance/control charts	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	

Statistics	Year 11 – Term 4		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
	Revision - scatter graphs	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Revision - Pie Charts		
	Revision - Cumulative Frequency		
	Revision - Box plots	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Quartiles and Median in other contexts - eg listed data.		
	Skew of data: Frequency polygons, Histograms, stem and leaf		
	Misleading diagrams	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Revision - definitions of key terms		

Statistics	Year 11 – Term 5

Topic	Content	Formative Assessments?	Link(s) to an example lesson
	Revision - Time series and moving averages	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Revision - Index numbers		
	Revision - Averages		
	Revision - the data handling cycle	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Revision - sampling		
	Revision - definitions of key terms		
	Revision - probability	Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
	Exam practise		

Statistics	Year 11 – Term 5		
Topic	**Content**	**Formative Assessments?**	**Link(s) to an example lesson**
		Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
		Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	
		Mini WB formative assessment in lessons Bell Work (starter booklet) Exam style questions	