Curriculum Scheme

Statistics

The Eastwood Academy

Believe, Succeed, Together

Curriculum Scheme

The fundamental aim of a curriculum scheme is to coherently plan and sequence the cumulative acquisition of subject content to facilitate retention, recall and application.

CREATE Curriculum

Curriculum schemes are underpinned by the CREATE Curriculum which brings together the key interrelated aspects of curriculum structure, design and delivery into a single coherent entity.

CREATE Element	Description
Challenge	Stretch and extend learning to foster a deeper understanding beyond the content of the National Curriculum and GCSE specifications.
Regulate	Plan, monitor and evaluate specific aspects of learning to foster greater responsibility and independence – DRAFT.
Enhance	Consolidate and develop transferable literacy and numeracy skills.
Adapt and Assess	Adapt teaching to take account of different pupils' needs and provide an opportunity for all pupils to achieve. Undertake regular in-class assessment to monitor strengths and highlight specific areas of improvement.
Target	Consolidate identified strengths and develop and overcome areas of improvement.
Enrich	Enhance physical and emotional wellbeing; develop social, spiritual, moral and cultural capital; and provide opportunities and experiences to successfully transition to the next stage from secondary education.

Curriculum Allocation

Year Group	7	8	9	10	11
Number of Lessons	1	1	1	3	3

Curriculum Intent

Key Stage 4

Statistics is a GCSE option subject - Statistics GCSE (1ST0)

Learning Intentions
• Use statistical techniques in a variety of authentic investigations, using real-world data in contexts such as, but not limited to, populations, climate, sales etc. • Identify trends through carrying out appropriate calculations and data visualisation techniques. • Understand 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 evaluate data, calculations and evaluations that would be commonly encountered in pupils' studies and in everyday life. • Understand 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 the ways that data can be organised, processed and presented, including statistical measures to compare data, understanding the advantages of using technology to automate processing. • Understand and apply appropriate mathematical and statistical formulae.

Curriculum Assessment

Key Stage 3 Indicative Competencies

Grade	Processing Data	Presenting Data	Probability
8+	Finding frequencies and frequency densities from a completed unequal histogram. Calculating Interquartile range using a grouped frequency table.	Completing boxplots from either stem and leaf or cumulative frequency diagrams.	Using set notation and finding probabilities from double/triple Venn diagrams.
7	Calculating group sizes using stratified sampling. Using grouped frequency tables for interpolation.	Using cumulative frequency graphs to find medians, and quartiles. Finding a median and IQR from a stem and leaf diagram.	Calculating conditional probabilities from complex tree diagrams. Applying the AND/OR rules to probability calculations.
6	Describing process of random sampling, including Simple and Stratified. Sampling populations and identifying benefits of random vs. non-random sampling.	Interpreting trend from time series graphs. Interpreting correlation from scatter graphs. Calculating frequencies from pie charts.	Calculating probabilities from a two-way table. Completing non-replacement probability tree diagrams.
5	Calculating averages from a grouped frequency table. Identifying discrete and continuous data.	Drawing time series graphs and describing trend Calculating angles for and drawing pie charts. Accurately plotting data on a scatter diagram and describing correlation.	Identifying mutually exclusive events. Completing simple probability tree diagrams. Find probability from a sample space.
4	Calculating averages from frequency tables. Knowing the meaning of random sampling.	Placing data inside a Venn diagram. Completing sample space diagrams.	Recording results for experimental probability.
3	Finding averages and range from a data list. Grouping data using inequalities (crocodiles).	Completing two-way tables. Understanding and drawing pictograms.	Calculating basic probabilities. Listing outcomes and writing basic probabilities as fractions e.g. dice rolls, counters.
1/2	Completing frequency tables and tally charts. Drawing bar charts and vertical line graphs (with pencil, ruler and appropriate labels). Ordering data in preparation for data organisation (smallest to biggest). Placing events on a Probability Scale (from impossible to certain and 0 to 1).		

Key Stage 4 GCSE Scheme of Assessment

Edexcel GCSE Statistics Scheme of Assessment

Curriculum Overview

Key Stage 3

Year Group	Autumn Term	Spring Term	Summer Term
7	data capture sheets two way tables pictograms bar charts vertical line graphs pie charts stem and leaf diagrams averages composite/multiple bar charts	Probability language and lines Single events. Sample space diagrams Experimental probability Averages recap Average from tables	Scatter graphs Line of best fit Correlation Interpolation and extrapolation Recap of charts
8	Tally and frequency charts Pictograms Composite/multiple bar charts Pie charts Databases and timetables Averages using stem and leaf diagrams Selecting an average or spread Data collection Questionnaires	Review of probability lines Writing probability of single events Sample space diagrams Replacement tree diagrams Non-replacement tree diagrams Averages from group tables Equal width histograms Frequency polygons	Scatter graphs and correlation Interpolation and extrapolation Time series graphs Trend lines Venn diagrams Venn diagrams for probability
9	Data types Two-way tables to Multiple/composite bars Stem and leaf averages Cumulative frequency diagrams Finding median and IQR from CF graphs Drawing boxplots Comparing distributions Experimental probability Relative frequency Tree diagrams Venn diagrams	Comparative boxplots Averages from tables Histograms and frequency polygons Unequal histograms Scatter diagrams and correlation Time series and trend lines	Recap of discrete graphs Simple random sampling Stratified sampling Capture recapture method Recap of averages and tables IQR from stem and leaf and CF graphs Probability review Comparing boxplots

Key Stage 4

Year Group	Autumn Term	Spring Term	Summer Term
10	Introduction to Statistics Data capture Two-way tables Pictograms Bar charts Pie charts Stem and Leaf diagrams Averages Cumulative frequency tables and graphs Standard deviation and frequency tables	Averages from tables Population pyramids Choropleth maps Equal width histograms and frequency polygons Unequal width histograms	Probability language, lines and single events Sample space diagrams Tree diagrams Venn diagrams Index numbers
11	Scatter diagrams and correlation Lines of best fit, interpolation and extrapolation Spearman's rank Time series graphs Trend lines Moving averages Seasonal variation	Calculating IQR Deciles Percentiles Estimating frequencies Step polygons Boxplots	Binominal distribution Normal distribution Quality assurance Control charts

Curriculum Content

Year 7

Topic	Graphs and diagrams	C	R	E	A	T	E
NC Learning Intention	Draw and interpret different types of diagram used to analyse discrete data						
Lesson Learning Intentions	Creating data capture sheets Completing and constructing two way tables Drawing bar charts and pictograms Fashioning stem and leaf diagram from data lists to order data Drawing comparative diagrams in order to analyse data Plot points on a scatter graph Interpolate/extrapolate predictions using LoBF				✓	✓	✓
Lesson Tasks	Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Tally, data, frequency, axis, comparative, multiple, composite, percentage, describe, interpret, interpolate, extrapolate			✓			
Numeracy	Calculations involved with scales			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Topic	Central Tendency and Variation	C	R	E	A	T	E
NC Learning Intention	Calculate averages as well as spreads and use summary statistics to analyse and interpret findings						
Lesson Learning Intentions	Calculate the mean, mode and median from data lists Determine the range from data lists Estimate the mean from frequency tables Find the modal and median classes from frequency tables				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Mean, mode, median, comparative, range, frequency, table, list, class, interval, modal			✓			
Numeracy	Calculations involved with data tables and lists			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Year 8

Topic	Graphs and diagrams	C	R	E	A	T	E
NC Learning Intention	Draw and interpret different types of diagram used to analyse discrete data						
Lesson Learning Intentions	Creating data capture sheets Completing and constructing two way tables Drawing bar charts and pictograms Drawing pie charts and calculating angles Fashioning stem and leaf diagram from data lists to order data Drawing comparative diagrams for the purpose of analysing data Plot points on a scatter graph Interpolate/extrapolate predictions using a line of best fit Prepare and critique questionnaires Plot time series graphs and discuss patterns.				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Key, angle, misleading, trend, correlation, tally, data, frequency, axis, comparative, multiple, composite, percentage, describe, interpret, interpolate, extrapolate			✓			
Numeracy	Calculations involved with scales			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Topic	Central Tendency and Variation	C	R	E	A	T	E
NC Learning Intention	Calculate averages as well as spreads and use summary statistics to analyse and interpret findings						
Lesson Learning Intentions	Calculate the mean, mode and median from data lists Determine the range from data lists Estimate the mean from frequency tables Find the modal and median classes from frequency tables Analysising data from timetables and databases				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Mean, mode, median, comparative, range, frequency, table, list, class, interval, modal, database, error, interpret, analysis			✓			
Numeracy	Calculations involved with scales including cumulative frequency and frequency density			✓			
Challenge	Reverse engineering tables from given outcomes	✓					✓

Topic	Probability	C	R	E	A	T	E
NC Learning Intention	Find probabilities using a range of concepts, calculations and diagrams						
Lesson Learning Intentions	Understand the meaning of probability language List all possible outcomes for exhaustive events Represent probabilities on a probability line Construct and calculate probabilities using two-way tables Use experimental probability to calculate expected frequencies Complete basic tree diagrams and Venn diagrams				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks R:\Subjects\Statistics\SBR Stats\relative frequency.xlsx R:\Subjects\Statistics\SBR Stats\Tree_Diagrams.xls		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Describing concept of probability and worded chance. Vocabulary: outcome, event, even, unlikely, likely, definite, impossible, relative, exhaustive, experimental, expected, tree, venn			✓			
Numeracy	Listing all possible outcomes and completing missing value			✓			
Challenge	Identifying and generating appropriate diagram and/or calculation according to given situation	✓					✓

Year 9

Topic	Data collection	C	R	E	A	T	E
NC Learning Intention	Understand different data types, sources and sampling methods						
Lesson Learning Intentions	Identify qualitative and quantitative data Group discrete and continuous data Use terms sample, population, sampling frame and sampling unit Calculate stratified group sizes				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of sampling and situations Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Stratified sampling		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Use of correct terminology to describe best fit in given situations Higher tier vocabulary: Quantitative, qualitative, discrete, continuous, sample, census, population, sampling frame, sampling unit, simple, random, stratified			✓			
Numeracy	Calculations of sample group sizes and using random number generators			✓			
Challenge	Explain multi-step processes with sampling technique selection	✓					✓

Topic	Graphs and diagrams	C	R	E	A	T	E
NC Learning Intention	Draw and interpret different types of diagram used to analyse discrete and continuous data						
Lesson Learning Intentions	Creating data capture sheets Completing and constructing two way tables Drawing bar charts and pictograms Fashioning stem and leaf diagram from data lists to order data Drawing cumulative frequency diagrams Using cumulative frequency diagram to create boxplots Drawing and interpreting comparative diagrams Constructing Histograms with frequency polygons and using them to calculate frequencies Use class width and frequency density to accurately portray frequency in a histogram				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Cumulative, median, interquartile, range, predict, polygon, modal, class, interval, density, midpoint, key, angle, misleading, trend, correlation, tally, data, frequency, axis, comparative, multiple, composite, percentage, describe, interpret, interpolate, extrapolate			✓			
Numeracy	Calculations involved with scales including cumulative frequency and frequency density			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Topic	Central Tendency and Variation	C	R	E	A	T	E
NC Learning Intention	Calculate averages as well as spreads and use summary statistics to analyse and interpret findings						
Lesson Learning Intentions	Calculate the mean, mode and median from data lists Determine the range and Inter-quartile range from data lists Calculate the mean, mode and median from frequency tables Make comparisons between data sets using both averages and spread				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Mean, mode, median, comparative, range, frequency, table, list, class, interval, modal, database, error, interpret, analysis, interquartile			✓			
Numeracy	Calculations involved with data lists and tables			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Topic	Experiments and surveys	C	R	E	A	T	E
NC Learning Intention	Generate and assess different types of experiments and surveys suitable for real life situations						
Lesson Learning Intentions	Estimate populations using the capture – recapture method. Highlight assumptions made during this method and pertain this to its accuracy Discover the inaccuracies and misconceptions with previous formulated questionnaires Analyse the advantages and disadvantages of both interviews and questionnaires				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of sampling and situations Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch School login - MyMaths		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Analysis of reliability of survey methods and bias Higher tier vocabulary: Capture, recapture, migration, population consistency, random sample, equal chance, population, assumption, accuracy, misconception, bias, response rate, interviewer, interviewee, time frame, subjective, exhaustive, non-exhuastive, fraud, anonymity			✓			
Numeracy	Calculating estimating frequencies using Peterson's capture recapture method			✓			
Challenge	Critique survey methods and justify reasoning	✓					✓

Topic	Probability	C	R	E	A	T	E
NC Learning Intention	Find probabilities using a range of concepts, calculations and diagrams						
Lesson Learning Intentions	Identify the meanings of probability notation List all possible outcomes for exhaustive events Construct and calculate probabilities using two-way tables Use experimental probability to calculate expected frequencies				✓	✓	✓

	Select appropriate diagrams for non-mutually exclusive events Create tree diagrams and calculate probabilities Complete double and triple Venn diagrams Where necessary apply the conditional probability rules in all probability diagrams learned						
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks R:\Subjects\Statistics\SBR Stats\relative frequency.xlsx R:\Subjects\Statistics\SBR Stats\Tree_Diagrams.xls		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Written assessment identifying bias and methods to combat this Describing concept of probability and worded chance. Vocabulary: outcome, event, even, unlikely, likely, definite, impossible, relative, exhaustive, experimental, expected, tree, venn, notation, mutually exclusive, conditional, independent, dependent			✓			
Numeracy	Application of probability laws and rules			✓			
Challenge	Identifying and generating appropriate diagram and/or calculation according to given situation	✓					✓

Year 10

Topic	Data collection	C	R	E	A	T	E
NC Learning Intention	Understand different data types, sources and sampling methods						
Lesson Learning Intentions	Identify qualitative and quantitative data Group discrete and continuous data Use terms sample, population, sampling frame and sampling unit Categorise ranked, bivariate, multi-variate, categorical and ordinal data Describe benefits of primary and secondary data sources List all types of random and non-random sampling Critique sampling method in situational scenarios Use stratification of calculate representative group sizes				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of sampling and situations Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Stratified sampling		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Coursework based exam questions critiquing sampling methods and data collection types Use of correct terminology to describe best fit in given situations Higher tier vocabulary: Quantitative, qualitative, discrete, continuous, sample, census, population, sampling frame, sampling unit, simple, random, stratified, source, representative, reliable, ranked, ordinal, bi-variate, multi-variate, categorical, non-random, quota, opportunity, convenience, systematic, cluster, primary, secondary			✓			
Numeracy	Calculations of sample group sizes and using random number generators			✓			
Challenge	Use data and sampling techniques to formulate and plan an investigation based on a hypothesis	✓					✓

Topic	Presentation of data	C	R	E	A	T	E
NC Learning Intention	Draw and interpret different types of diagram used to analyse discrete and continuous data						
Lesson Learning Intentions	Creating data capture sheets Completing and constructing two way tables Drawing bar charts and pictograms Analysing and completing population pyramids and choropleth maps Fashioning stem and leaf diagram from data lists to order data Drawing cumulative frequency diagrams Using cumulative frequency diagram to create boxplots Drawing comparative diagrams in order to analyse data Constructing Histograms with frequency polygons and using them to calculate frequencies				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Coursework based exam questions critiquing sampling methods and data collection types. Terms: Cumulative, median, interquartile, range, predict, polygon, modal, class, interval, density, midpoint, key, angle, misleading, trend, correlation, tally, data, frequency, axis, comparative, multiple, composite, percentage, describe, interpret, interpolate, extrapolate, population, pyramid, choropleth, intensity, whisker.			✓			
Numeracy	Calculations involved with scales including cumulative frequency and frequency density			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Topic	Process and summarise data	C	R	E	A	T	E
NC Learning Intention	Calculate averages as well as spreads and use summary statistics to analyse and interpret findings						
Lesson Learning Intentions	Calculate the mean, mode and median from data lists Determine the range and Inter-quartile range from data lists Calculate the mean, mode and median from frequency tables Determine the range and Inter-quartile range from frequency tables Estimate the median by interpolation using grouped data Understand the advantages an disadvantages of each average, spread and method Effectively transform the mean, mode and median when adapting data Identify and interpret outliers in data and on graphs Make comparisons between data sets using both averages and spread Calculate the standard deviation both from data lists and tables Formally calculate skew and explain its meaning Calculate simple index numbers Use chain base index numbers to comment on percentage change of RPI Calculate weighted index using relative proportion of source elements Use standardised scores to assess performance across non related subjects.				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Coursework based exam questions critiquing sampling methods and data collection types			✓			

	Terms: Mean, mode, median, comparative, range, frequency, table, list, class, interval, modal, database, error, interpret, analysis, interquartile, grouped, continuous, interpolation, outliers, transformation, deviation, skew, formal, index, chain, weighting, relative, standardise						
Numeracy	Calculations involved with scales including cumulative frequency and frequency density			✓			
Challenge	Reverse engineering tables from given graphs Calculate original values given weighted index	✓					✓

Topic	Index numbers	C	R	E	A	T	E
NC Learning Intention	Use Index numbers to assess how data is changing over a period of time						
Lesson Learning Intentions	Calculate simple, chain and weighted base index numbers. Understand and describe how index numbers relate to percentage change Calculate and interpret geometric means Interpret indexes including retail price index (RPI) and consumer price index (CPI) Calculate rates of change over time including crude birth and death rates Compare crude rates and interpret their meaning Calculate and compare standardised birth and death rates				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Describe, interpret and compare index			✓			
Numeracy	Calculations associated with indexes and percentage change			✓			
Challenge	Combine multiple types of index to form complex analysis of change	✓					✓

Topic	Experiments and surveys	C	R	E	A	T	E
NC Learning Intention	Generate and assess different types of experiments and surveys suitable for real life situations						
Lesson Learning Intentions	Understand and describe the different types of variables collected from experiments Identify the 3 different types of experiment, citing reasons for your conclusion Define what a control group is and explain its purpose				✓	✓	✓

	Identify the usefulness of matched pairs within studies Account for the need of pilot studies Estimate populations using the capture – recapture method. Highlight assumptions made during this method and pertain this to its accuracy Discover the inaccuracies and misconceptions with previous formulated questionnaires Analyse the advantages and disadvantages of both interviews and questionnaires in a comparative format, and advise which is preferred in a given circumstance Evaluate the accuracy of responses by using random response questioning						
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of sampling and situations Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch School login - MyMaths		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Coursework based exam questions critiquing experimental methods and survey types Analysis of reliability of survey methods and bias Higher tier vocabulary: Capture, recapture, migration, population consistency, random sample, equal chance, population, assumption, accuracy, misconception, bias, response rate, interviewer, interviewee, time frame, subjective, exhaustive, non-exhaustive, fraud, anonymity, variable, dependent, independent, response, explanatory, natural, field, laboratory, random response event, control group, placebo, stimulus, outcome, effect, pilot, matched pairs, psychological			✓			
Numeracy	Calculating estimating frequencies using Peterson's capture recapture method Finding proportion of reliability using random response questions			✓			
Challenge	Advising local council about potential projects and how to survey their population as well as analyse their findings	✓					✓

Topic	Probability	C	R	E	A	T	E
NC Learning Intention	Find probabilities using a range of concepts, calculations and diagrams						
Lesson Learning Intentions	Understand the meaning of probability language Identify the meanings of probability notation List all possible outcomes for exhaustive events Represent probabilities on a probability line Construct and calculate probabilities using two-way tables Use experimental probability to calculate expected frequencies Compare expected frequency with actual frequency to analyse bias and experiment short fallings Identify mutually exclusive and non-mutually exclusive events Select appropriate diagrams for non-mutually exclusive events such as venn diagrams and sample space diagrams Complete double and triple venn diagrams Formulate and solve probability situations using tree diagrams Use both and/or rules for calculating probability Understand independent events and apply the multiplication law Where necessary apply the conditional probability formula in all probability diagrams learned				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks R:\Subjects\Statistics\SBR Stats\relative frequency.xlsx R:\Subjects\Statistics\SBR Stats\Tree_Diagrams.xls		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				

Literacy	Written assessment identifying bias and methods to combat this Describing concept of probability and worded chance. Vocabulary: Theoretical, outcome, event, even, unlikely, likely, definite, impossible, relative, exhaustive, experimental, expected, tree, venn, notation, mutually exclusive, conditional, independent, dependent, bias, sample space.			✓			
Numeracy	Application of probability laws and rules			✓			
Challenge	Identifying and generating appropriate diagram and/or calculation according to given situation	✓					✓

Year 11

Topic	Data collection	C	R	E	A	T	E
NC Learning Intention	Understand different data types, sources and sampling methods						
Lesson Learning Intentions	Identify qualitative and quantitative data Group discrete and continuous data Use terms sample, population, sampling frame and sampling unit Categorise ranked, bivariate, multi-variate, categorical and ordinal data Describe benefits of primary and secondary data sources List all types of random and non-random sampling Critique sampling method in situational scenarios Use stratification of calculate representative group sizes				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of sampling and situations Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Stratified sampling		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Coursework based exam questions critiquing sampling methods and data collection types Use of correct terminology to describe best fit in given situations Higher tier vocabulary: Quantitative, qualitative, discrete, continuous, sample, census, population, sampling frame, sampling unit, simple, random, stratified, source, representative, reliable, ranked, ordinal, bi-variate, multi-variate, categorical, non-random, quota, opportunity, convenience, systematic, cluster, primary, secondary			✓			
Numeracy	Calculations of sample group sizes and using random number generators			✓			
Challenge	Use data and sampling techniques to formulate and plan an investigation based on a hypothesis	✓					✓

Topic	Trends and Correlation	C	R	E	A	T	E
NC Learning Intention	Describe and interpret trends/correlations using both diagrams and data calculations						
Lesson Learning Intentions	Plot points on a scatter graph Calculate mean points to more accurately draw lines of best fit Interpolate/extrapolate predictions using LoBF Discuss validity of estimations from scatter graphs Describe and interpret types of correlation from scatter graphs Calculate gradients from lines of best fit, and interpret their meaning Formulate equations for the Lines of Best fit and explain their meaning Complete spearman's rank tables, by ordering data Share ranks between data of equal standing Apply spearman rank formula and calculate correlation Describe and interpret correlation from calculation applying to variables in question Discuss differences and usefulness of each correlation rank type Explain when better to use SRCC compared to PPMC (Pearson's Product Moment Correlation Coefficient) Highlight differences between scatter and time series graphs Plot points on time series graphs Describe and interpret trend lines once drawn onto time series graphs Calculate moving averages from tables Explain the different types of moving average and situations they are likely to be used Plot moving averages on time series graphs to more accurately construct trend lines Use trend lines to calculate seasonal variation Apply seasonal variation to predict future data results Consider the accuracy of these predictions and what affects them				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples				✓		

	Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving						
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Interpret meanings of correlations and trends linked to the data from graphs			✓			
Numeracy	Calculate correlation coefficients by ordering data fairly and applying formulae			✓			
Challenge	Discuss appropriate lines of regression suited to a graph and explain the relation of every graph to each other	✓					✓

Topic	Analysis of Diagrams for summary statistics	C	R	E	A	T	E
NC Learning Intention	Draw and interpret different types of diagram used to analyse discrete and continuous data						
Lesson Learning Intentions	Fashioning stem and leaf diagram from data lists to order data Drawing cumulative frequency diagrams Using cumulative frequency diagram to create boxplots Calculation of percentiles and deciles quantities Finding percentile and decile ranges from cumulative frequency graphs Use of cumulative frequency step polygons for discrete data Comparison of central tendency and variation from cumulative frequency diagrams Drawing comparative diagrams in order to analyse data Constructing Histograms with frequency polygons and using them to calculate frequencies				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Comparative language to analyse data groups and coursework based exam questions critiquing sampling methods and data collection types. Terms: Cumulative, median, interquartile, range, predict, polygon, modal, class, interval, density, midpoint, key, angle, misleading, trend, correlation, tally, data, frequency, axis, comparative, multiple, composite, percentage, describe, interpret, interpolate, extrapolate, population, pyramid, choropleth, intensity, whisker, percentile, decile, step polygon.			✓			
Numeracy	Calculations involved with scales including cumulative frequency and frequency density			✓			
Challenge	Reverse engineering tables from given graphs	✓					✓

Topic	Experiments and surveys	C	R	E	A	T	E
NC Learning Intention	Generate and assess different types of experiments and surveys suitable for real life situations						
Lesson Learning Intentions	Understand and describe the different types of variables collected from experiments Identify the 3 different types of experiment, citing reasons for your conclusion Define what a control group is and explain its purpose Identify the usefulness of matched pairs within studies Account for the need of pilot studies Estimate populations using the capture – recapture method. Highlight assumptions made during this method and pertain this to its accuracy Discover the inaccuracies and misconceptions with previous formulated questionnaires Analyse the advantages and disadvantages of both interviews and questionnaires in a comparative format, and advise which is preferred in a given circumstance Evaluate the accuracy of responses by using random response questioning				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of sampling and situations Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch School login - MyMaths		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Coursework based exam questions critiquing experimental methods and survey types Analysis of reliability of survey methods and bias Higher tier vocabulary: Capture, recapture, migration, population consistency, random sample, equal chance, population, assumption, accuracy, misconception, bias, response rate, interviewer, interviewee, time frame, subjective, exhaustive, non-exhaustive, fraud, anonymity, variable, dependent, independent, response, explanatory, natural, field, laboratory, random response event, control group, placebo, stimulus, outcome, effect, pilot, matched pairs, psychological			✓			

Numeracy	Calculating estimating frequencies using Peterson's capture recapture method Finding proportion of reliability using random response questions			✓			
Challenge	Advising local council about potential projects and how to survey their population as well as analyse their findings	✓					✓

Topic	Distributions	C	R	E	A	T	E
NC Learning Intention	Understand, model and adapt various distribution types						
Lesson Learning Intentions	Describe the conditions of binomial distributions Use binomial expansion to create distribution equations. Calculate probabilities from Binomial equations Understand and use binomial notation Model normal distribution patterns using appropriate notation. Learn associated percentages for appropriate standard deviation from the mean Sketch comparative normal distribution curves Relate standardised scores to position in a normal distribution curve Understand and describe the concept of quality assurance Use different controls charts to assess appropriate responses Calculate warning and action limits and describe their purpose. Perform sample calculations and use appropriate control charts to assess required actions.				✓	✓	✓
Lesson Tasks	Weekly introduction to new definitions and material Definition and advantages identification Low stakes mini tests on new weekly material Discussion of different types of graphs and their purposes/uses Low stakes knowledge retrieval exercise (LSKRE) to advise or inform adaptive teaching. Observe and discuss examples Use mini whiteboards to attempt questions Complete exercises to consolidate learning Attempt exam questions with problem-solving				✓		
Resources	Starters and mini tests MathsWatch Videos and Worksheets – Corbettmaths 10 Ticks		✓		✓		✓
DRAFT	Peer assessment and analysis feedback		✓				
Literacy	Describe reasons behind why distribution is the correct model to use			✓			
Numeracy	Calculations associated with distributions			✓			
Challenge	Use binomial notation to interpret questions, formulate and answer questions Estimate frequencies expected between different variance clusters	✓					✓