

Curriculum Map : Stats

Revision-
Past
papers
and
individual
topics.

Probability Distributions – Identify the binomial distribution $B(n, p)$ and when it should be use, calculate probabilities of binomial distribution, know the shape of a normal distribution $N(m, \sigma^2)$, use standardised scores to compare two sets of data, understand quality assurance and be able to calculate warning and action limits, know how they apply to manufacturing process.

Index Numbers – Use different index numbers in context including RPI, CPI and GDP, interpret data related to changes over time including births, deaths, house prices and unemployment. Calculate and interpret change over time from tables using formula.

Moving averages, seasonal and cyclic trends – Plot points as a time series, draw a trend line, interpret seasons and cyclic trends, calculate and use a 4-point moving average.

Pearson's Product Moment Correlation Coefficient – interpret PMCC in context and understand how it differs to SRCC

Describing Correlation and Spearman's Rank – Plot points and identify correlation, understand correlation and causality, use double mean for line of best fit, understand interpolation and extrapolation, interpret strength of correlation using Spearman's rank.

Measures of dispersion – range, quartiles, interquartile range and percentiles – Calculate the range, the five number summary, use interpolation to calculate the median, the interquartile range and the percentiles.

Measures of Central Tendency – Mode, Median and Mean – Calculate for a list of numbers, discrete data in a table continuous data in a table, understand the appropriateness, advantages and disadvantages of measures of central tendency.

Year 11
Processing, representing and analysing data; understanding all the ways to display data both correctly and misleadingly. Be able to justify choice of statistical diagrams, use sample averages to be able to estimate population level

Measures of Central Tendency and Dispersion – be able to use linear interpolation to calculate the median, calculate the geometric and weighted mean of a set of data, calculate the interpercentile and interdecile range, calculate the standard deviation.

Tabulation – be able to construct, draw, use and understand; two-way tables, tally charts and stem and leaf diagrams.

Understanding Variables – Multivariate and bivariate, independent and dependent variables.

Types of data – primary and secondary data, quantitative and qualitative, discrete and continuous, categorical, ordinal and rank.

Population and Sampling – The meaning of population and sample, 'census' for small and large scale populations.

Using Samples – Understanding the reason for sampling and sample data, understand how sample size impacts reliability, sampling frames

Peterson's Capture Recapture Formula – be able to use and interpret the Peterson Capture-Recapture formula.

Year 10
Learning the language of statistics and the tier 3 vocabulary, understanding the difference between a good sample and a bad sample, understanding how to select a sample of people.

Displaying Data – Understand the distinction between well-presented and poorly presented data, identify visual misuse by omission or misrepresentation, be able to select the appropriate representation for the data, be able to group data in class intervals and be aware of advantages and implications

Box Plots, Skewness and Representing Outliers – Construct and interpret box plots from data and cumulative frequency graphs, identify outliers and show on box plots, determine skewness and make interpretations in context, work out the five numbers, identify simple properties of the shape of distributions.

Simple and theoretical probability – calculate probabilities, understand language of probability, calculate expected frequency, determine relative and absolute risks, apply conditional probability and independent events.

Probability from two-way tables, sample space, tree diagram and Venn diagrams – Produce and understand sample space, use $P(A \text{ or } B) = P(A) + P(B)$ for mutually exclusive events

Qualitative and Discrete Data – be able to construct, draw, use and understand: Pictograms, bar charts (composite and compound), vertical line graphs, stem and leaf diagrams, Venn diagrams, box plots, pie charts, cumulative frequency diagrams.

Hypothesis Testing – understand what an hypothesis is and how to appropriately test is, be aware of factors involved including time, costs, ethical issues, confidentiality and convenience.

Planning and Collecting Data – understand different methods to collect primary data, identify appropriate sources of secondary data, cleaning data, accuracy reliability, relevance and bias of secondary data, identify issues of non-response and unexpected outcomes and overcome these.

Sampling Methods – understanding randomness, random, stratified, opportunity, systematic, quota and judgement sampling

SPRING TERM

SUMMER TERM

AUTUMN TERM

11

AUTUMN TERM

10

Language of statistics

Applying statistical methods

Applying higher statistical methods

Topics

GCSE
Qualification in
Statistics

SUMMER TERM

SPRING TERM

Advanced Skills

Moving averages, probability beyond the mathematics GCSE, understanding sample space, using, understanding and interpreting index numbers.