

Year 11 Statistics Curriculum Map

Topic		Learning Objectives
1	Planning	1a.1 Hypotheses
		1a.2 Designing Investigations
		1a.3 Strategies to deal with potential problems
2	Types of Data	1b.1 Describing Data
		1b.2 Advantages and implications of merging/grouping data
		<u>1b.3 Know and apply the terms explanatory (independent) variables and response (independent) variables</u>
		1b.4 Primary/secondary data
3	Population and Sampling	Population, sample frame and sample
		Judgement, opportunity (convenience), quota sampling
		Random, systematic and quota sampling
		Stratified
4	Collecting Data	Experimental (laboratory, field and natural), simulation, questionnaires, observation, reference, census, population and sampling
		Reliability and validity
		Collecting sensitive content matter
		Random Response
		Questionnaires and interviews
		Problems with collected data
		Controlling extraneous variables

5	Estimation	Know that sample size has an impact on reliability and replication
		Use summary statistics to make estimates of population characteristics
		Use sample data to predict population proportions
		Apply Petersen Capture-Recapture to calculate an estimate of the size of a population
6	Tabulation	Tally, tabulation, two-way tables
		Frequency tables
7	Diagrams	Pictogram
		Pie charts
		Venn diagrams
		Stem and Leaf diagrams
		<u>Population pyramids</u>
		<u>Choropleth map</u>
		Comparative pie chart
		Comparative 2D representations/ comparative 3D representations
		Bar charts
		Line graphs
		Time series
		Scatter diagrams
		<u>Bar line (vertical line) charts</u>
		<u>Frequency polygons</u>
		<u>Cumulative frequency (discrete and grouped) charts</u>
		<u>Histograms (equal class widths)</u>
<u>Box plots</u>		
Histograms (unequal class widths)		

8	Representing Data	Justify appropriate format to represent data
		Graphical misrepresentation
		Determine skewness by inspection
		Comparing Data sets represented in different formats
9	Measures of Central Tendency	Averages from raw or grouped data
		Weighted mean
		Geometric mean
		Justify appropriate average to use in context
10	Measures of Dispersion	Range, quartiles, interquartile range (IQR), percentiles
		Interpercentile Range, Interdecile range
		Standard deviation
		Identifying outliers by inspection
		Identifying outliers by calculation
		Comment on outliers in context
		Compare data sets using appropriate measure of central tendency and measure of dispersion
11	Scatter Diagrams and Correlation	Explanatory (independent) variables and response (dependent) variables
		Correlation
		Line of best fit
		Calculate Spearman's Rank correlation coefficient
		Interpret Spearman's Rank in context
		Interpret Pearson's Product moment correlation coefficient (PMCC) in context
		Understand the distinction between Spearman's Rank and Pearson's PMCC

12	Time Series	Averages from raw or grouped data
		Identifying trends
		Identifying seasonal and cyclical trends in context
13	Experimental and Theoretical Probability	Experimental and Theoretical Probability
14	Index Numbers	Index numbers
		Interpret data related to rates of change over time when given in graphical form
15	Measures of Dispersion	Compare data sets using appropriate measure of central tendency and measure of dispersion
16	Probability Distribution	Binomial distribution
		Normal distribution
		Distribution
17	Quality Assurance	Know that a set of sample means are more closely distributed than individual values from the same population
		Control charts