GCSE STATISTICS (Higher)

SCHEME OF WORK

Text: "Statistics GCSE for AQA" Oxford Publishing

Data Collection (3 hours)

Торіс	Content	Text reference
Types of Data	Primary and Secondary	Ex 1B
	Qualitative and Quantitative (Discrete and Continuous)	Ex 1A
Collecting Data	Population and Census v Sample and Sampling	Ex 1C
	Survey Methods	Ex 1B
	 Sampling Frame and Sampling Methods (Random, Stratified, Systematic, Cluster, Quota and 	Ex 1D
	Convenience)	
	Pilot Surveys and Questionnaires	Ex 1E
	Explanatory and Response Variables	Ex 1B
Quality Assurance	Quality Assurance	Ex 5J

Graphs (3 hours)

Торіс	Content	Text reference
Simple Graphs	Multiple and Composite Bar Charts	Ex 3C
	Choropleth Maps	Ex 3G
	Population Pyramids	Ex 3I
Pie Charts	comparative pie charts	Ex 3E
Cumulative Frequency	cumulative frequency step polygons	Ex 3F
Graphs		
Shapes of Distributions	 symmetrical, positively skewed and negatively skewed 	Ex 3N, Ex 4I, Ex 4J, Ex 4K

Measures of Location (6 hours)

Торіс	Content	Text reference
Mean	use of scaling to calculate mean	Ex 4E
	• geometric mean	Ex 4G
	weighted average	Ex 5A

Index Numbers	simple index numbers	Ex 5B
	chain base numbers	Ex 5C
	weighted index numbers	Ex 5D
Population Statistics	population averages	Ex 5F
	crude birth and death rates	Ex 5F, Ex 5G
Time Series	moving averages	Ex 5l
	trend lines	Ex 5l
	 seasonal fluctuation and long term trends 	Ex 5l
	average seasonal variation	Ex 5l

Measures of Spread (6 hours)

Торіс	Content	Text reference
Quartiles	• Q ₁ : ¼(n+1)th value, Q ₂ : ½(n+1)th value, Q ₃ : ¾(n+1)th value	Ex 4H
Outliers	• Outliers are Q_1 - 1.5 x IQR or Q_3 + 1.5 x IQR	Ex 4J
Deciles and Percentiles	• D _n and P _n notation	Ex 4L
	Calculating percentile range	
Variance and Standard	• of a set of discrete scores	Ex 4M
Deviation	of a discrete frequency distribution	Ex 4N
Standardized Scores	 using standardized scores to compare sets of data 	Ex 40
The Normal Distribution	• 95% of the distribution is within 2 standard deviations of the mean and 99% is within 3 standard	Ex 4P
	deviations	

Correlation and Regression (4 hours)

Торіс	Content	Text reference
Types of Correlation	Correlation, Causality and Spurious Correlation	Ex 6A, Ex 6B
Lines of Best Fit	Passing through mean of both variables	Ex 6C
	Interpolation and Extrapolation	Ex 6E
	Calculating the equation	Ex 6F
Non Linear Data	• y∞1/x, y∞x², y∞√x	Ex 6G
Spearman's Rank	Correlation Coefficient between -1 and +1	Ex 6H
Correlation Coefficient		

Probability (6 hours)

Торіс	Content	Text reference
Odds	Relationship between odds and probability	
Simulation	Modelling experiments to estimate probability e.g. generating random numbers, rolling dice	Ex 7L (ICT), Ex 9D (ICT)
Mutually Exclusive	Events which cannot occur at the same time	Ex 7D
Events	• $P(A \text{ or } B) = P(A \cup B) = P(A) + P(B)$	
	Exhaustive Events	
Independent Events	The outcome of one event does not affect the outcome of the other	Ex 7E
	• $P(A \text{ and } B) = P(A \cap B) = P(A) \times P(B)$	
	Extend to three events	
Tree Diagrams	Illustrate the outcomes and associated probabilities of up to three sequential events, both	Ex 7F, Ex 7G
	independent and dependent	
	Conditional probability	
Venn Diagrams	Construct Venn Diagrams with 2 or 3 regions	Ex 7H
	Use Venn Diagrams to calculate probabilities	
Probability Distributions	• Discrete uniform distribution: probability of every outcome is the same, estimated mean and median	Ex 7J
	• Binomial distribution: two mutually exclusive outcomes ("success" and "failure"), fixed number of	Ex 7K
	trials, fixed probability of "success", independent trials	Ex 4N
	• Normal distribution: symmetrical bell-shaped curve, symmetry about the mean, approximately 95% of	
	the distribution is within two standard deviations of the mean and 99% within three standard deviations	