

## 1. Statistical sampling

- □ 1 The terms 'population' and 'sample'
- **2** Advantages and disadvantages associated with a census and a sample
- □ 3 Samples to make informal inferences about the population
- 4 Sampling techniques, including simple random sampling, stratified sampling, systematic sampling, quota sampling and opportunity (or convenience) sampling
- □ 5 Select or critique sampling techniques in the context of solving a statistical problem

# 2. Data presentation and interpretation

- □ 1 Single-variable data histograms, frequency polygons, box and whisker plots (including outliers) and cumulative frequency diagrams
- □ 2 Scatter diagrams and regression lines for bivariate data
- □ 3 Informal interpretation of correlation
- **4** Understanding and use of coding
- □ 5 Measures of central tendency: mean, median, mode
- ☐ 6 Measures of variation: variance, standard deviation, range and interpercentile ranges
- ☐ 7 Use of linear interpolation to calculate percentiles from grouped data
- □ 8 Calculate standard deviation
- 9 Recognise and interpret possible outliers in data sets and statistical diagrams
- □ 10 Clean data, including dealing with missing data, errors and outliers

## 3. Probability

- □ 1 Mutually exclusive and independent events, Venn diagrams or tree diagrams
- □ 2 Set notation to describe events
- **3** Discrete and continuous distributions
- ☐ 4 Conditional probability, including the use of tree diagrams, Venn diagrams, two-way tables
- 5 Understand and use the conditional probability formula
- ☐ 6 Modelling with probability

## 4. Statistical distributions

- **1** Discrete probability distributions
- **2** Discrete uniform distribution
- □ 3 The binomial distribution, calculate probabilities using the binomial distribution
- □ 4 Probabilities using the Normal distribution

- 5 Link to histograms, mean, standard deviation, points of inflection
- ☐ 6 Approximation of binominal to normal
- □ 7 The application of a continuity correction
- 8 Select an appropriate probability distribution for a context

#### 5. Statistical hypothesis testing

- Statistical hypothesis testing, through a binomial model: null hypothesis, alternative hypothesis, significance level, test statistic, 1-tail test, 2-tail test, critical value, critical region, acceptance region, p-value
- **2** Expected value of a binomial distribution
- 3 Correlation coefficients as measures of how close data points lie to a straight line
- ☐ 4 Interpret a given correlation coefficient using a given p-value or critical value
- 5 Statistical hypothesis test for the proportion in the binomial distribution and interpret the results in context
- 6 Conduct a statistical hypothesis test for the mean of a Normal distribution with known, given or assumed variance and interpret the results in context