

Year 7 pupils should be taught to:	Year 8 pupils should be taught to:	Year 9 pupils should be taught to:
<p>Specifying a problem, planning and collecting data</p> <ul style="list-style-type: none"> Given a problem that can be addressed by statistical methods, suggest possible answers. Decide which data would be relevant to an enquiry and possible sources. Plan how to collect and organise small sets of data; design a data collection sheet or questionnaire to use in a simple survey; construct frequency tables for discrete data, grouped where appropriate in equal class intervals. Collect small sets of data from surveys and experiments, as planned. <p>Processing and representing data, using ICT as appropriate</p> <ul style="list-style-type: none"> Calculate statistics for small sets of discrete data: <ul style="list-style-type: none"> find the mode, median and range, and the modal class for grouped data; calculate the mean, including from a simple frequency table, using a calculator for a larger number of items. Construct, on paper and using ICT, graphs and diagrams to represent data, including: <ul style="list-style-type: none"> bar-line graphs; frequency diagrams for grouped discrete data; use ICT to generate pie charts. <p>Interpreting and discussing results</p> <ul style="list-style-type: none"> Interpret diagrams and graphs (including pie charts), and draw simple conclusions based on the shape of graphs and simple statistics for a single distribution. Compare two simple distributions using the range and one of the mode, median or mean. Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented. 	<p>Specifying a problem, planning and collecting data</p> <ul style="list-style-type: none"> Discuss a problem that can be addressed by statistical methods and identify related questions to explore. Decide which data to collect to answer a question, and the degree of accuracy needed; identify possible sources. Plan how to collect the data, including sample size; construct frequency tables with given equal class intervals for sets of continuous data; design and use two-way tables for discrete data. Collect data using a suitable method, such as observation, controlled experiment, including data logging using ICT, or questionnaire. <p>Processing and representing data, using ICT as appropriate</p> <ul style="list-style-type: none"> Calculate statistics, including with a calculator; recognise when it is appropriate to use the range, mean, median and mode and, for grouped data, the modal class; calculate a mean using an assumed mean; construct and use stem-and-leaf diagrams. Construct, on paper and using ICT: <ul style="list-style-type: none"> pie charts for categorical data; bar charts and frequency diagrams for discrete and continuous data; simple line graphs for time series; simple scatter graphs; identify which are most useful in the context of the problem. <p>Interpreting and discussing results</p> <ul style="list-style-type: none"> Interpret tables, graphs and diagrams for both discrete and continuous data, and draw inferences that relate to the problem being discussed; relate summarised data to the questions being explored. Compare two distributions using the range and one or more of the mode, median and mean. Communicate orally and on paper the results of a statistical enquiry and the methods used, using ICT as appropriate; justify the choice of what is presented. 	<p>Specifying a problem, planning and collecting data</p> <ul style="list-style-type: none"> Suggest a problem to explore using statistical methods, frame questions and raise conjectures. Discuss how data relate to a problem; identify possible sources, including primary and secondary sources; <i>identify possible sources of bias and plan how to minimise it.</i> Design a survey or experiment to capture the necessary data from one or more sources; determine sample size and degree of accuracy needed; design, trial and if necessary refine data collection sheets; construct tables for large discrete and continuous sets of raw data, choosing suitable class intervals; design and use two-way tables. Gather data from specified secondary sources, including printed tables and lists from ICT-based sources; <i>identify what extra information may be required to pursue a further line of enquiry.</i> <p>Processing and representing data, using ICT as appropriate</p> <ul style="list-style-type: none"> Find summary values that represent the raw data, and select the statistics most appropriate to the problem; <i>find the median and quartiles for large data sets; estimate the mean, median and interquartile range of a large set of grouped data.</i> Select, construct and modify, on paper and using ICT, suitable graphical representation to progress an enquiry, including: <ul style="list-style-type: none"> frequency polygons; line graphs for time series; scatter graphs to develop further understanding of correlation; <i>lines of best fit by eye, understanding what they represent;</i> identify key features present in the data. <p>Interpreting and discussing results</p> <ul style="list-style-type: none"> Interpret graphs and diagrams and draw inferences to support or cast doubt on initial conjectures; have a basic understanding of correlation; <i>analyse data to find patterns and exceptions, look for cause and effect and try to explain anomalies.</i> Compare two or more distributions and make inferences, using the shape of the distributions, the range of data and appropriate statistics. Communicate interpretations and results of a statistical enquiry using selected tables, graphs and diagrams in support, using ICT as appropriate; <i>examine critically the results of a statistical enquiry, and justify choice of statistical representation in written presentations, recognising the limitations of any assumptions and their effect on conclusions drawn.</i>

Collated from *Framework for teaching mathematics: Years 7, 8 and 9*, section 3, pages 7, 9 and 11 (DfES ref: 0020/2001)
NOTE: Year 9 objectives in *italics* are extension objectives for able pupils