

Scheme of Learning: Year 8 Summer Term

Topic Sequence: Reasoning with Data

16	17
The Data Handling Cycle	Measures of Location

Topic Overview: The data handling cycle

Much of the statistics content in Key Stage 3 is a continuation of that studied at primary school, and many of the charts and graphs in this block have been used in Year 7 and earlier in Year 8. A particular focus is using charts to compare different distributions. We also explore when graphs may be misleading, an important real-life consideration. Collection of data is also covered, including designing and criticising questionnaires.

Lesson Sequence:

Set up a statistical enquiry

Students will consider how to write a suitable hypothesis and design an appropriate data collection sheet. Students should also discuss the pros and cons of sampling, and the advantages and disadvantages of using primary and secondary data.

Design and criticise questionnaires

Real life examples of questionnaires will be used when exploring this step. Students will discuss the language used in questions – leading language or judgemental language may influence a reader's answers or make them less likely to be honest in their response. Students should also be able to identify issues with e.g. missing/overlapping response boxes, missing time frames. They should also consider when/whether open questions are appropriate.

Draw and interpret pictograms, bar charts and vertical line charts

Students will be very familiar with these basic charts from KS2 and Year 7, so the focus here will be on interpreting and criticising charts more than drawing them. They will consider issues around scale, readability and consistency of the symbols used in pictograms.

Draw and interpret multiple bar charts

Students will be introduced to multiple bar charts, and will construct as well as interpret here. Students should be aware of the need for a clear key. They may need support in choosing suitable scales and deciding where gaps should be placed to support reading of the charts.

Draw and interpret pie charts

Revision of year 7 work on pie charts. Students should also be encouraged to think about more efficient methods when the total number is a factor of 360

Draw and interpret line graphs

Line graphs are most commonly used to show change over time for one or more sets of data. Researching real-life examples is again useful. Many line graphs show the points joined with solid lines which can imply it is possible to 'read off' information from between data points. It is useful to discuss with students whether this is meaningful

Choose the most appropriate diagram for given set of data

Students will discuss what they can/cannot ascertain from diagrams and then they can then draw generalisations as to what advantages/disadvantages each of the diagrams have e.g. proportions are more easily seen from a pie chart, but the actual values cannot be seen. It is also a good opportunity to revisit the idea of scatter graphs for bivariate data.

Represent and interpret grouped quantitative data

students will practise tabulating data into tables, interpreting tables with both discrete and continuous data, and drawing/interpreting grouped frequency diagrams (equal class width only).

Find and interpret the range

Students have met the concept of the range in Year 7 and this step extends their learning to consider interpreting the range as a measure of spread as well as finding the range from the a diagram and a list.

Compare distributions using charts

Students will compare distributions using two or more charts. They could consider the range, the totals and whether the data is spread evenly or more towards one end of a distribution. Real-life charts will be looked at.

Identify misleading graphs

Students will be shown how graphs can be used to mislead an audience; they may have already come across this in earlier steps. There are many useful examples online of how graphs have been used by advertisers, media, politicians etc. to represent information to try to support dubious claims.

Sequence of Lessons:		Topic Resources:	
1	Set up a statistical enquiry	Knowledge Map:	Statistics – ungrouped Data Statistics – grouped Data
2	Design and criticise questionnaires		
3	Draw and interpret pictograms, bar charts and vertical line charts	Assessment:	
4	Draw and interpret multiple bar charts	Knowledge:	End of Topic test
5	Draw and interpret pie charts	Application of Knowledge:	Termly mixed topic assessment
6	Draw and interpret line graphs	Supportive Reading:	
7	Choose the most appropriate diagram for given set of data	Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
8	Represent and interpret grouped quantitative data		Corbett Maths : www.corbettmaths.com
9	Find and interpret the range		AQA Revision Guide
10	Compare distributions using charts		
11	Identify misleading graphs		