

Scheme of Learning: Year 8 Summer Term

Topic Sequence: Reasoning with Data

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The Data Handling Cycle

Measures of Location

Topic Overview: Measures of Location

Students have already met the median and the mean earlier in KS3. This block introduces the mode and also looks at when and why each average should be used. Students following the Higher strand will look at the mean from grouped and ungrouped frequency tables, and these steps may well also be accessible to the vast majority of students following the Core strand. The previous block is built on as students have the opportunity to compare distributions, use these averages and the range. We also consider outliers, considering what effect these have on all the measures studied, and whether they should be included or excluded in our calculations.

Lesson Sequence:

Understand and use the mean, median and mode

Students will be familiar with both the mean and the median from Year 7 content, but this is the first time they have met the mode at KS3. Terms 'modal value' and 'modal class' will be introduced.

Choose the most appropriate average

Although students may be familiar with the different types of averages, they sometimes lack confidence in deciding which to use when, and why. It is important to emphasise that the average is meant to be representative of the data set and should be compared with the set as a whole to see whether it is or isn't appropriate e.g. non-integer means may be more useful than the mode in some cases

Find the mean from an ungrouped frequency table (H)

This step explores tabulating data to more quickly find subtotals and so the overall total when calculating a mean of large amounts of data. Students need to be careful not to divide by the number of rows rather than the total frequency; estimating roughly what the mean will be can help here. As well as using tables, students will learn to find frequencies from bar/line charts and then find the mean.

Find the mean from a grouped frequency table (H)

To practise estimating the mean from a grouped frequency table, both discrete and continuous data will be looked at. Students may need reminding of the inequality notation and again take care to choose the correct values when dividing. Grouped frequency diagrams (if the classes are equal) studied in the Autumn term will be revised.

Identify outliers

Good discussion points include whether values are genuine outliers (e.g. just an unusually tall person) or errors in recording the data. Whether these values should be included in calculations is another interesting discussion. Students could also identify outliers graphically e.g. in a scatter diagram.

Compare distributions using averages and the range

In the last block, students compared distributions by looking at diagrams. We now extend this to compare distributions using an average or the range. The idea that the range represents consistency is sometimes difficult to grasp and will be reinforced. The choice of an appropriate average will be considered, as could whether the range is reliable given the presence of any outliers.

Sequence of Lessons:		Topic Resources:	
1	Understand and use the mean, median and mode	Knowledge Map:	Statistics – grouped data Statistics – ungrouped data
		Assessment:	
2	Choose the most appropriate average	Knowledge:	End of Topic test
		Application of Knowledge:	Termly mixed topic assessment
3	Find the mean from an ungrouped frequency table (H)	Supportive Reading:	
		Any supported reading listed here	Sparx Maths www.sparxmaths.co.uk
4	Find the mean from a grouped frequency table (H)		Corbett Maths : www.corbettmaths.com
			AQA Revision Guide
5	Identify outliers		
6	Compare distributions using averages and the range		