Edward Peake Church of England Middle School

Topic: Measures of location	Year: 8	NC Strand: Statistics

What should I already know?

- How to solve problems using the mean, median and mode
- How to solve problems using the range

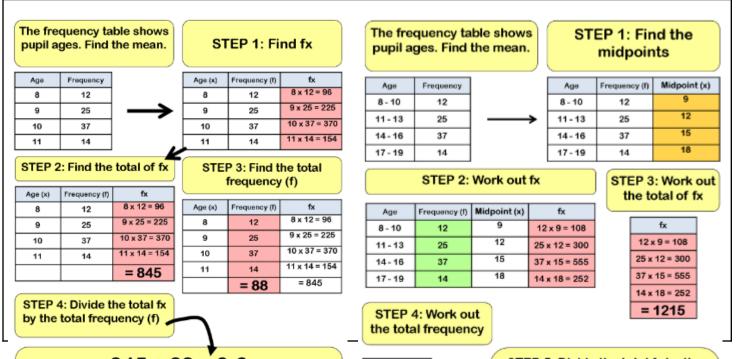## What will I know by the end of the unit?

- How to understand and use the mean, median and mode
- How to choose the most appropriate average
- How to find the mean from an ungrouped frequency table
- How to find the mean from a grouped frequency table
- How to identify outliers
- How to compare distributions using averages and the range

Vocabulary

Average	Modal value	Subtotal	Outlier
Mean	Total	Estimate	Range
Median	Frequency	Midpoint	Consistent
Mode	Represent		

Investigate/Homework tasks

- Homework will be set by your teacher using google classroom
- You should complete at least 30 minutes of maths tasks using the website and log in provided by your teacher. Please attend help sessions if you do not have access to the internet at home
- Additional work you could complete:
  - Find out more about the meaning of the vocabulary list using http://www.amathsdictionaryforkids.com/
- To challenge yourself: Answer the key questions to deepen your knowledge

Key Information/Diagrams

The frequency table shows pupil ages. Find the mean.

Age	Frequency
8	12
9	25
10	37
11	14

STEP 1: Find fx

Age (x)	Frequency (f)	fx
8	12	8 x 12 = 96
9	25	9 x 25 = 225
10	37	10 x 37 = 370
11	14	11 x 14 = 154

STEP 2: Find the total of fx

Age (x)	Frequency (f)	fx
8	12	8 x 12 = 96
9	25	9 x 25 = 225
10	37	10 x 37 = 370
11	14	11 x 14 = 154
		= 845

STEP 3: Find the total frequency (f)

Age (x)	Frequency (f)	fx
8	12	8 x 12 = 96
9	25	9 x 25 = 225
10	37	10 x 37 = 370
11	14	11 x 14 = 154
	= 88	= 845

STEP 4: Divide the total fx by the total frequency (f)

The frequency table shows pupil ages. Find the mean.

Age	Frequency
8 - 10	12
11 - 13	25
14 - 16	37
17 - 19	14

STEP 1: Find the midpoints

Age	Frequency (f)	Midpoint (x)
8 - 10	12	9
11 - 13	25	12
14 - 16	37	15
17 - 19	14	18

STEP 2: Work out fx

Age	Frequency (f)	Midpoint (x)	fx
8 - 10	12	9	12 x 9 = 108
11 - 13	25	12	25 x 12 = 300
14 - 16	37	15	37 x 15 = 555
17 - 19	14	18	14 x 18 = 252

STEP 3: Work out the total of fx

fx
12 x 9 = 108
25 x 12 = 300
37 x 15 = 555
14 x 18 = 252
= 1215

STEP 4: Work out the total frequency

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Key Questions

What's the same and what's different about finding the median of four numbers and the median of five numbers?

Why is it helpful to order data when finding averages? Which one is it most helpful for?

If you know the mean of a set of numbers, how can you find the total?

Is it possible (e.g.) to have 3.9 people in family? What would be a better average to use?

How does the ____ compare to the actual numbers in the data set? It is roughly the same as all, some, or none of them?

How could you estimate the mean from a table before doing any calculations?

How do you decide if the answer is reasonable?

What other average can you see immediately from a table?

How do we find the midpoint of a class interval?

Why is our value an estimate of the mean rather than the exact mean?

Would the estimate be more or less accurate if you had more/fewer classes?

How do you decide which values are outliers?

Are any of the values impossible/unreasonable? Should these values be included in any calculations we might do?

Which averages are most affected by outliers?

Will outliers always affect the range? Why or why not?

Is it better to have a low or high range?

Why does a high range mean the (e.g.) scores are less consistent?

Which averages are affected by outliers?

Which average is most useful for comparing these groups of data?