GCSE Mathematics - Unit 7: Averages from Tables **Name:……..**

Topic/Skill	Definition/Tips	Example	Your Turn
Mean	**Add** up the values and **divide** by how many values there are.	The mean of 3, 4, 7, 6, 0, 4, 6 is $\frac{3+4+7+6+0+4+6}{7} = 5$	Find the mean of: 7, 8, 5, 12
Median Value	The **middle** value. Put the data in order and find the middle one. If there are **two middle values**, find the number half way between them by **adding them together and dividing by 2**.	Find the median of: 4, 5, 2, 3, 6, 7,6 Ordered: 2, 3, 4, **5**, 6, 6, 7 Median = 5	Find the median of: a) 12, 12, 11, 10, 14 b) 12, 12, 11, 10, 14, 10
Mode / Modal Value	**Most** frequent/common. There can be more than one mode (called bi-modal or multi-modal) or no mode (if all values appear once)	Find the mode: 4, 5, 2, 3, 6, 4, 7, 8, 4 Mode = 4	Find the mode: a) 1, 1, 2 Mode: b) 1, 1, 2, 2, 3 Mode: c) 1, 2, 3 Mode:
Range	**The difference between the highest and lowest vales** Range is a 'measure of spread'. The smaller the range the more <u>consistent</u> the data.	Find the range: 3, 31, 26, 102, 37, 97 Range = 102-3 = 99	Find the range: a) 1, 2, 3, 4 Range: b) 5, 6, 7, 8 Range:
Frequency Table	A record of **how often each value** in a set of data **occurs**. They can be made by using a tally.	4, 4, 5, 5, 6, 6, 6, 6, 7, 7, 7, 7, 7 becomes:	3, 3, 3, 3, 4, 4, 4, 5, 5 becomes Mark | Tally | Freq

Mark	Tally	Frequency
4	II	2
5	II	2
6	IIII	4
7	IIII	5

3		
4		
5		

Reading a Frequency Table

Number of marks	Tally marks	Frequency
1	IIII II	7
2	IIII	5
3	IIII I	6
4	IIII	5
5	III	3
Total		**26**

Remember there is a difference between the **values** and the **frequency** of each value.

In the table, how many people got 2 marks?

How many people got 5 marks?

How many got 6?

What was the range of marks?

Averages from Frequency Tables

You can use frequency tables to work out the Mead, Median, Mode and Range of a set of Data.

Pets	Frequency
0	12
1	7
2	11

Pets	Frequenc
0	1
1	3
2	11

Mode

The **mode** is the value with the **highest frequency.**

Mode: 0

Mode:

Median

The **median** is the middle value**. To find the middle value, divide the total frequency by 2.** Count up the frequency of each value until you get to the middle value.

Median:
Divide the total frequency by 2 to work out the middle value.
12+7+11=30, 30÷2=15
The first 12 values are 0. The next 7 values (so the 8th, 9th, 10th…) are 1.
So **the median is the 15th value, which is 1.**

Median:

Mean

To work out the Mean you **divide the total by the total frequency.**

Mean:
Total = 0x12 + 1x7 + 2x11 =29
Total Frequency = 30
Mean= 29 ÷ 30 = 0.96666…

Mean:

Grouped Data

Marks	Frequency
1-10	10

How many people got between 11 and 20 marks?

Averages from Grouped Data

If there are **lots of different values**, it can make it easier if you put them into **groups**.

Sometimes each group is called a **class.**

To represent the class of all the marks between 1 and 10, I can write this:

1-10

or this:

0<m≤10

This means the **m**arks are **more than 0**, and **less than or equal to 10**

Marks
0<m≤100
100<m≤200
200<m≤300

All the examples below are using this table

Marks	Frequency
0<m≤50	15
10<m≤20	17
20<m≤30	11

These two tables show the exact same data in different ways!

Marks	Frequency
0<m≤20	35
20<m≤40	15
40<m≤60	50

Try your own using this table

What was the modal class in the first table?

What is another way of writing the class 101-200 marks?

Mean (Estimate)	You can only **estimate** Take the midpoint of each group Then multiply the midpoint by the frequency and follow the same steps as you did with a frequency table.	Group / Mid 0<m≤100 — 50 100<m≤200 — 150 200<m≤300 — 250 Mid / Freq 50 — 15 150 — 17 250 — 11 50 x 15 = 750 150 x 17 = 2550 250 x 11=2750 $\frac{Total}{Total\ Frequency}$ $\frac{6050}{43} = 140.7$	
Median	You can find out which group the median would be in by following the same steps as you did from the frequency table	15+17+11=43 43÷2=21.5 The 22nd number is in the group: 100<m≤200	

Mode	You can only find the modal class - the group that had the highest frequency	$100<m\leq200$ Had the highest frequency	