**Statistics – Describing the Data**

**Measures of Center:** A single number that summarizes all of the responses given to a statistical question in a data set. It is in the range of the data set nearer to the middle. It describes the typical response of the set. Examples are **Mean, Median** & **Mode**.

**6, 6, 15, 8, 10**

**Mean**: (*The average*)

1. Add all of the numbers in the data set: 6 + 6 + 15 + 8 + 10 = 45

1. Divide the sum by the amount of

numbers in the data set: 45 ÷ 5 = **9**

**Median**: (*The* *middle*)

1. Order the numbers from least to greatest: 6, 6, 8, 10, 15
2. Find the middle number: **8** is in the middle.

***\*If two numbers are in the middle, then add the two middle numbers & divide by 2.***

**6, 6, 8, 15**

6 AND 8 are in the middle. 6 + 8 = 14 14 ÷ 2 = 7.

Though 7 is not in the data set, it’s the middle of the two middle numbers, so it’s the median.

**Mode**: (*The most*)

1. Order the numbers from least to greatest may be helpful. 6, 6, 8, 10, 15
2. Choose the number that repeats the most. **6** is repeated the most.

**Outliers:** (Outsiders) **6, 6, 25, 8, 10**

1. Is noticeably bigger or smaller than the other data.
2. It can make the mean bigger or smaller and less accurate.

**Measures of Variance:** A single number that summarizes all of the responses to a statistical question, so that we can understand how the responses are different from each other.

Examples are **Mean Absolute Deviation** (MAD) & **Inner Quartile Range** (IQR).

**6, 6, 15, 8, 10**

**Mean Absolute Deviation**: (The average of the differences)

1. Find the mean of the data set. 6 + 6 + 15 + 8 + 10 = 9 5
2. Find the absolute value of the difference between |9 – 6| = 3

the mean and EACH of the numbers in the data set. |9 – 6| = 3

 |9 – 15| = 6

 |9 – 8| = 1

 |9 – 10| = 1

1. Find the mean of the differences. 3 + 3 + 6 + 1 + 1 = **2.8**

5

**Inner Quartile Range**: (The spread of the middle 50% of the data.)

1. Order the numbers from least to greatest. 6, 6, 8, 10, 15
2. Find the median of the data set. 8
3. Find the median of the data in front of the median. 6 + 6 = 6

 2

1. Find the median of the data after the median. 10 + 15 = 12.5

 2

1. Subtract the smallest median from the largest median. 12.5 – 6 = **6.5**