Bell Work

1) Construct a box and whisker plot for the data below that represents the goals in a soccer game. (USE APPROPRIATE SCALE)

7, 0, 2, 5, 4, 9, 5, 0

2) Calculate the mean, mode, IQR and range

3) Identify the symbols for mean, sum, variance and standard deviation

Bell Work

1) Construct a box and whisker plot for the data below that represents the goals in a soccer game. (USE APPROPRIATE SCALE)

7, 0, 2, 5, 4, 9, 5, 0

2) Calculate the mean, mode, IQR and range

3) Identify the symbols for mean, sum, variance and standard deviation

Unit 1: Inference and Conclusions from Data

MCC9-12.S.ID.2 – ***Use statistics appropriate to the shape of the data distribution to compare center (mean, median), and spread (IQR, range, standard deviation) of two or more different data sets.***

Measures of Center

Mean: add all the values and divide by the number of data values – BALANCING POINT

Median: middle value of an ordered set of data – SPLITS AREA IN HALF

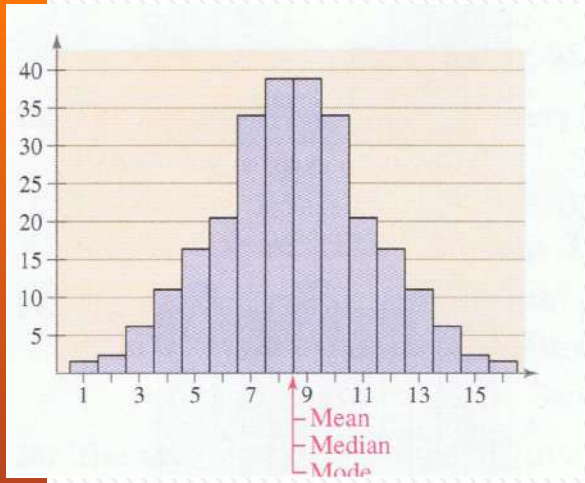
Mode- Peaks

When looking at the distribution of a set of data, you want to focus on the center and 2 other key characteristics:

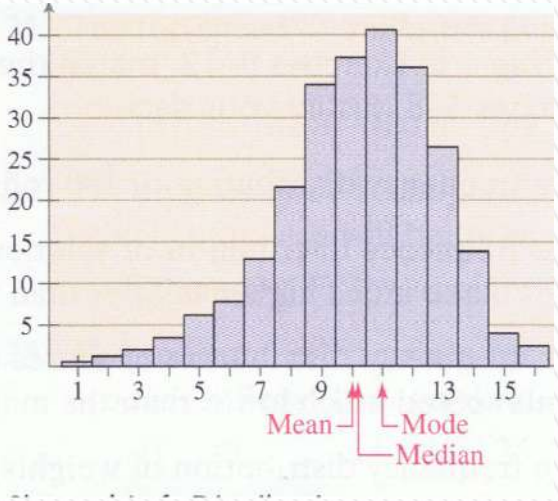
1) **Shape**
2) **Spread**

<u>Shape</u> – look at a histogram, dotplot, or boxplot of the data

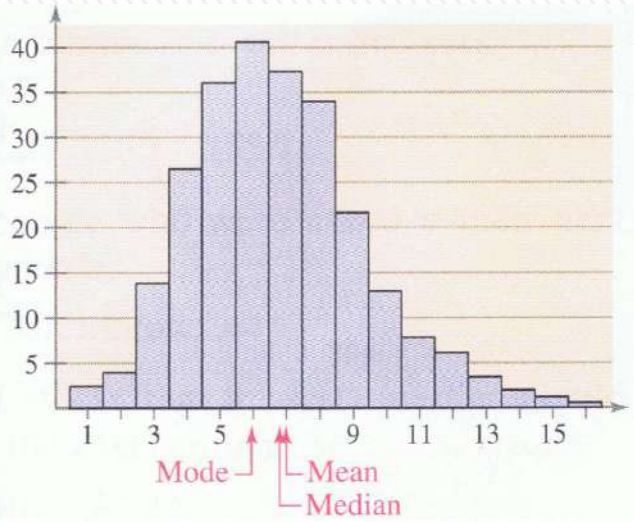
Symmetric



Skewed Left

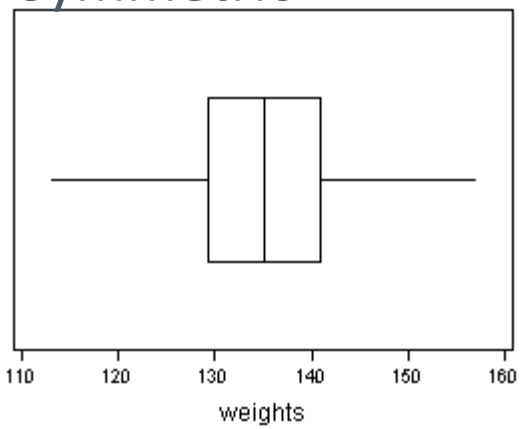


Skewed Right

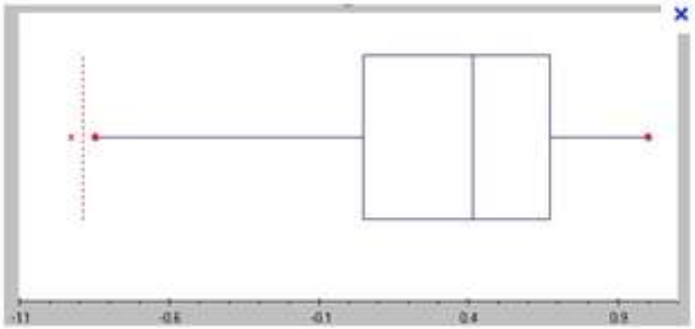


Boxplots – focus on "whiskers"

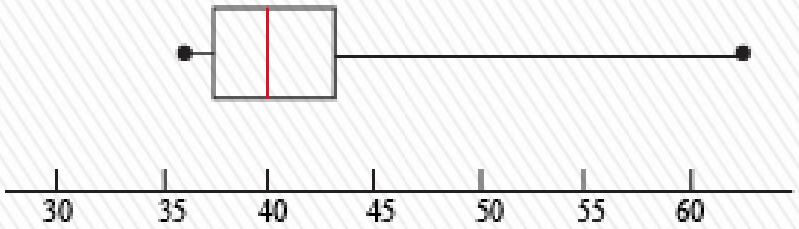
Symmetric



Skewed Left



Skewed Right



* Start soccer activity *

- 1. Find the mean
- 2. Find the difference between the mean and each value.
- 3. Find the mean of the differences

Mean Absolute Deviation

Spread – this measures how much your data varies from the center of its distribution

1) Mean Absolute Deviation

$$\text{MAD} = \frac{\sum_{i=1}^{n} \left| X_i - \overline{X} \right|}{n}$$

2) Variance

$$\sigma^2 = \frac{\sum (x_r - \overline{x})^2}{n}$$

3) Standard Deviation

$$\sigma = \sqrt{\frac{\sum (x - \overline{x})^2}{N}}$$

*complete soccer activity *

When you compare the distribution of two or more sets of data, you want to compare all 3 of these characteristics.

1) Center
2) Shape
3) Spread

Be sure to use comparison words…greater, less, approximately equal, etc.

Mean Absolute Deviation, variance and standard deviation consider each data value in relation to the mean. Large numbers determine data is spread out(probably has OUTLIERS – small numbers determine data is close together

* Work on Math Award Task *