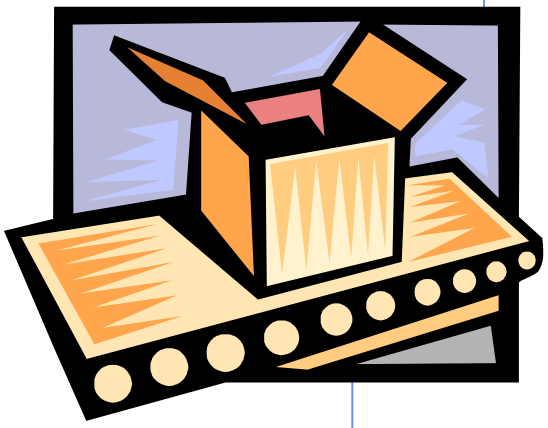
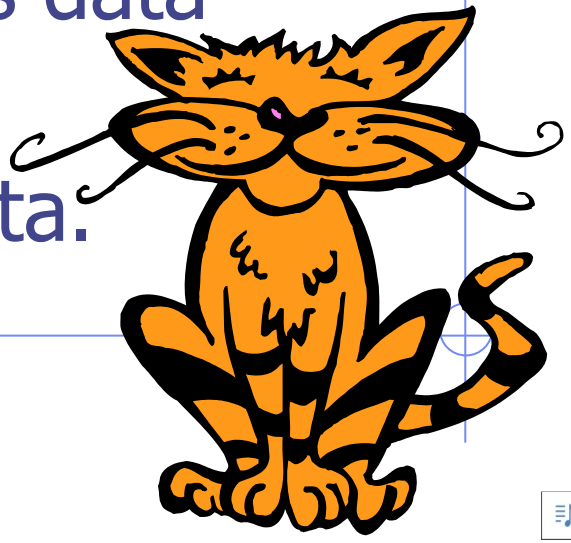
Box and Whisker Plots



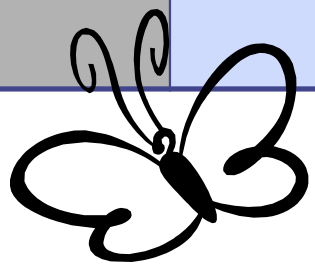
- A diagram that summarizes data by dividing it into five parts.
- It compares two sets of data.



Box and Whisker Plots

The five parts…

(M) Median The median of the entire data set	
(UQ) Upper Quartile Is the median of the upper half of the data	**(UE) Upper Extreme-** The greatest value
(LQ) Lower Quartile Is the median of the lower half of the data	**(LE) Lower Extreme-** The lowest value



When plotting on a Box and Whisker plot

FIRST

- Find median of given data
- Find the median of the upper half which is the upper quartile (UQ).

- Find the median of the lower half which is the lower quartile (LQ).

Ben received the following percentages on his tests:

80	95	65	75	77
105	89	86	68	85

Put the above data in order least to greatest.

Median -

Lower Extreme (LE)-

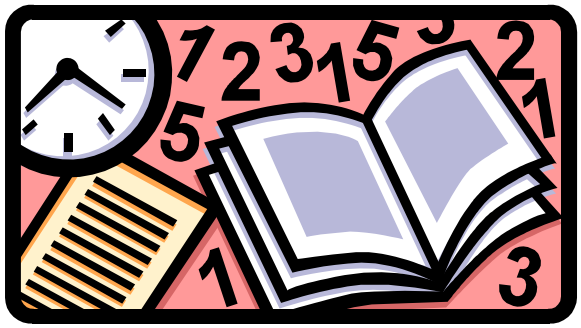
Upper Quartile (UQ)-

Lower Quartile (LQ)-

Upper extreme (UE) -

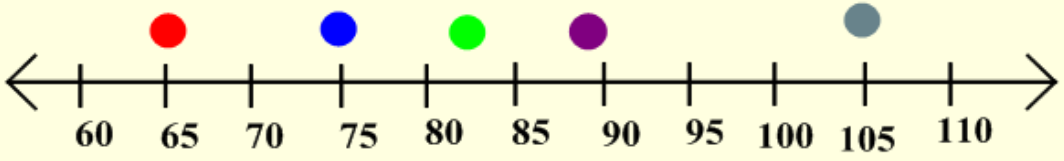
Second

- Graph the median on the number line.
- Graph the quartiles on the number line.
- Graph the lower and upper extreme.(biggest and smallest value.)



Third

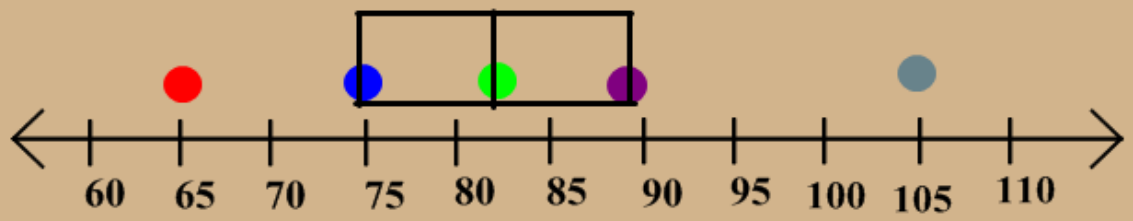
- Draw a box around the quartiles
- Draw a vertical line at the median.



Lower Extreme- 65
Lower Quartile- 75
Median- 82.5
Upper Quartile- 89
Upper Extreme- 105

Fourth

- Draw a line from the quartiles to the extremes



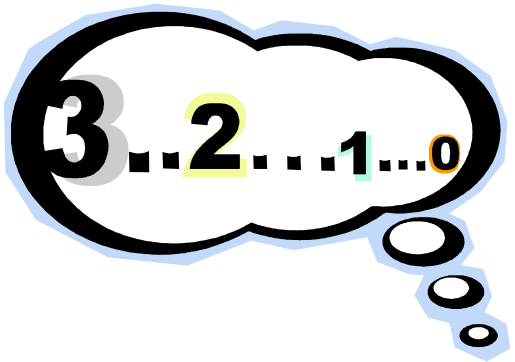
Lower Extreme- 65
Lower Quartile- 75
Median- 82.5
Upper Quartile- 89
Upper Extreme- 105

Interquartile range

Another way to describe how the data are spread out

Difference between the upper quartile and the lower quartile.

89 - 75 = 14 = IR



Just a note…**QUARTILES** – can refer to any of the four parts Of a Box-and-Whisker Plot; each quartile contains one-fourth, Or 25%, of the data.

Outliers

Data that is ***more than 1.5 times the interquartile range*** from the quartiles...

Example: Upper Quartile =89
Lower Quartile =75
Inter quartile range is 14 (because 89 - 75 = 14)

14*1.5=21

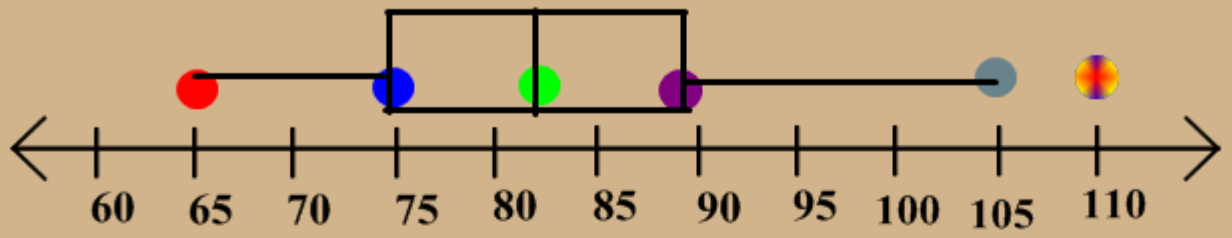
UQ+21= 89+21= 110

LQ-21= 75-21=54

Outliers will be below 54 and above 110.

Plot the outlier using a dot.

Ben's Test Scores



Lower Extreme- 65
Lower Quartile- 75
Median- 82.5
Upper Quartile- 89
Upper Extreme- 105
Outlier- 110

Describe the data in a sentence or two.