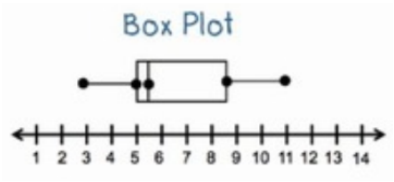
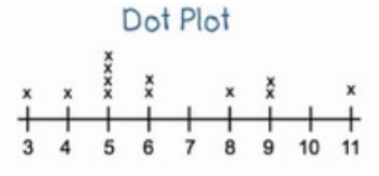
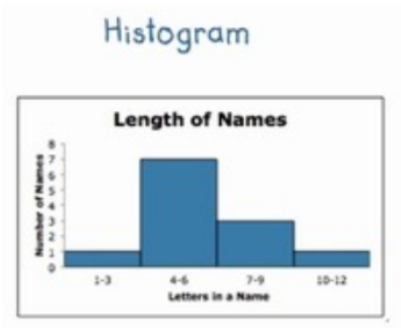
1.8 Summarizing Quantitative Data: Boxplots & Outliers (Part 3)

Boxplots provide a quick summary of the center & variability of a distribution. The median is displayed as a vertical line in the central box, the interquartile range is the length of the box, and the range is the length of the entire plot, including outliers.

Boxplots do not display each individual value in a distribution. And boxplots don't show gaps, clusters, or peaks.

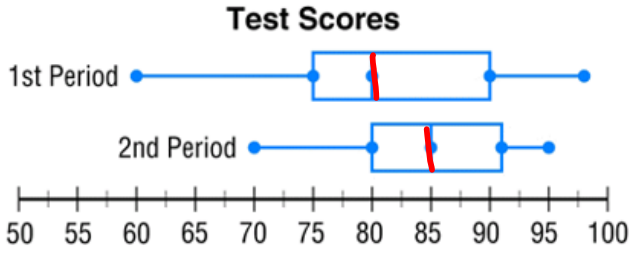






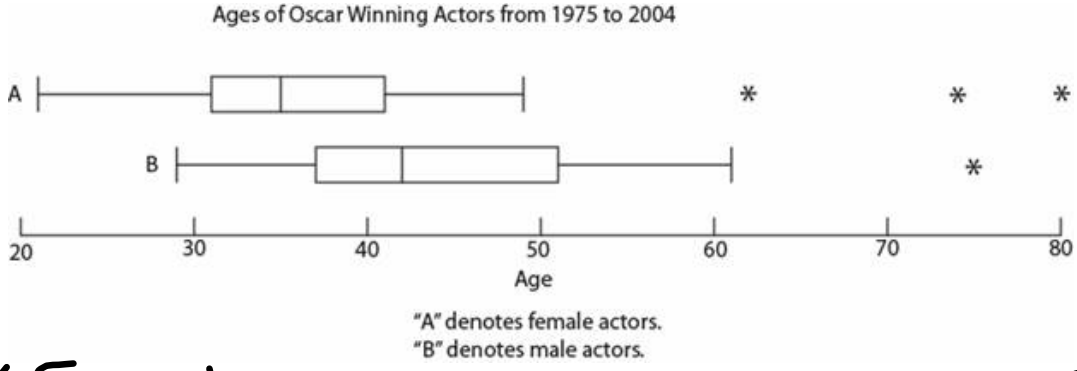
Boxplots are especially effective for comparing the distribution of a quantitative variable in two or more groups.

Example: Compare the distributions of the two boxplots.



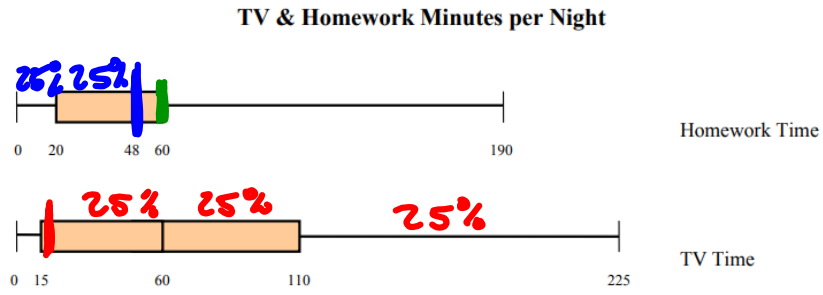
* Range is higher in 1st Period
* Higher Median in 2nd Period.
* IQR is bigger in 1st period

Example: Compare the distributions of the two boxplots.



* Females won Oscars at a younger age. (the boxplot is more toward the young side.)
* More outliers for females.
* IQR is higher for males

Example: Refer to the boxplots below to answer the questions comparing the number of minutes sophomores spend on TV and homework per night.



a.) What percent of sophomores watch TV for at least 15 minutes per night? 75%

b.) What is the third quartile for the homework time data? 60

c.) What percent spend at most 48 minutes on homework? 50%