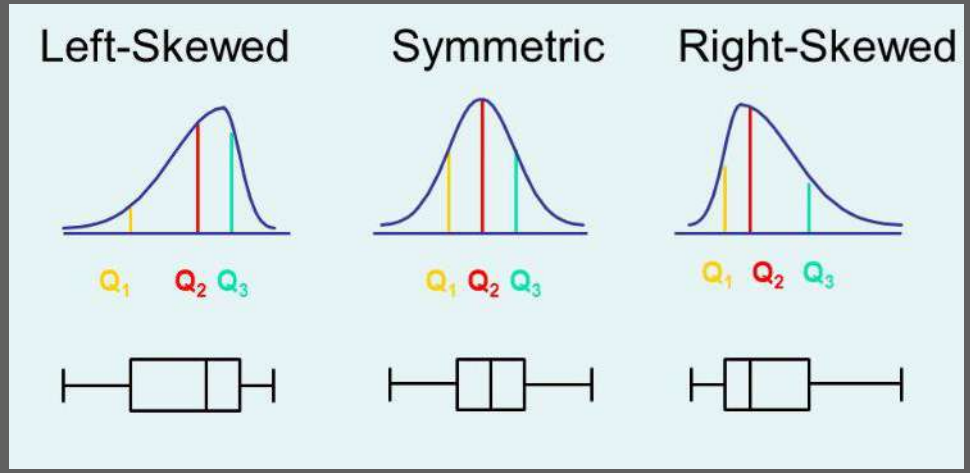
BOXPLOTS CONTINUED

Homework: Read pages 82-88 and Complete #5a, 8a-c, 15, 21, 22, 34a-b on pages 95-101

This assignment is due on Friday 9/21.

DESCRIBING BOXPLOTS

- SHAPE
  - If the median is roughly centered between the quartiles, then the middle of the data is roughly symmetric.
  - If the median is not centered, the distribution is skewed.
  - The whiskers show skewness as well if they are not roughly the same length.
  - Outliers also show skewness.

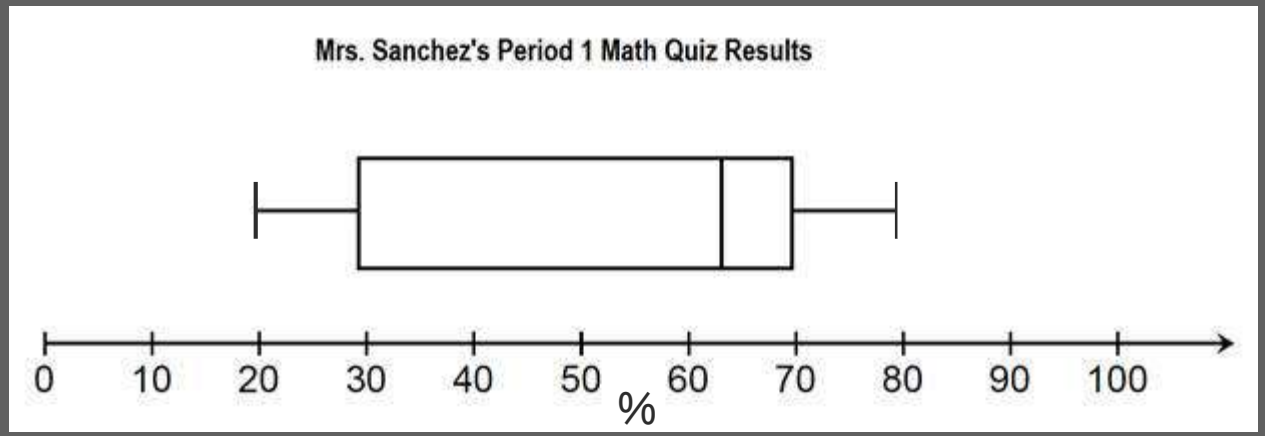


  - What feature of shape do box plots fail to show?

DESCRIBING BOXPLOTS

- CENTER
  - Report the median as the center of the distribution
- SPREAD
  - Discuss the spread of the data (minimum to maximum)
  - Discuss the spread of the middle 50% of the data (Q1 to Q3)
  - Discuss the lower 25% of the data and the upper 25% of the data
- OUTLIERS
  - Note any outliers

EXAMPLE



The distribution of quiz scores from Mrs. Sanchez's first period class is strongly skewed left. The center of the distribution is approximately 63% and the data is spread from 20% to 80%. The middle 50% of the data is spread from 30% to 70%, 25% of the scores were lower than 30% and 25% of the scores were over 70%. There are no outliers.

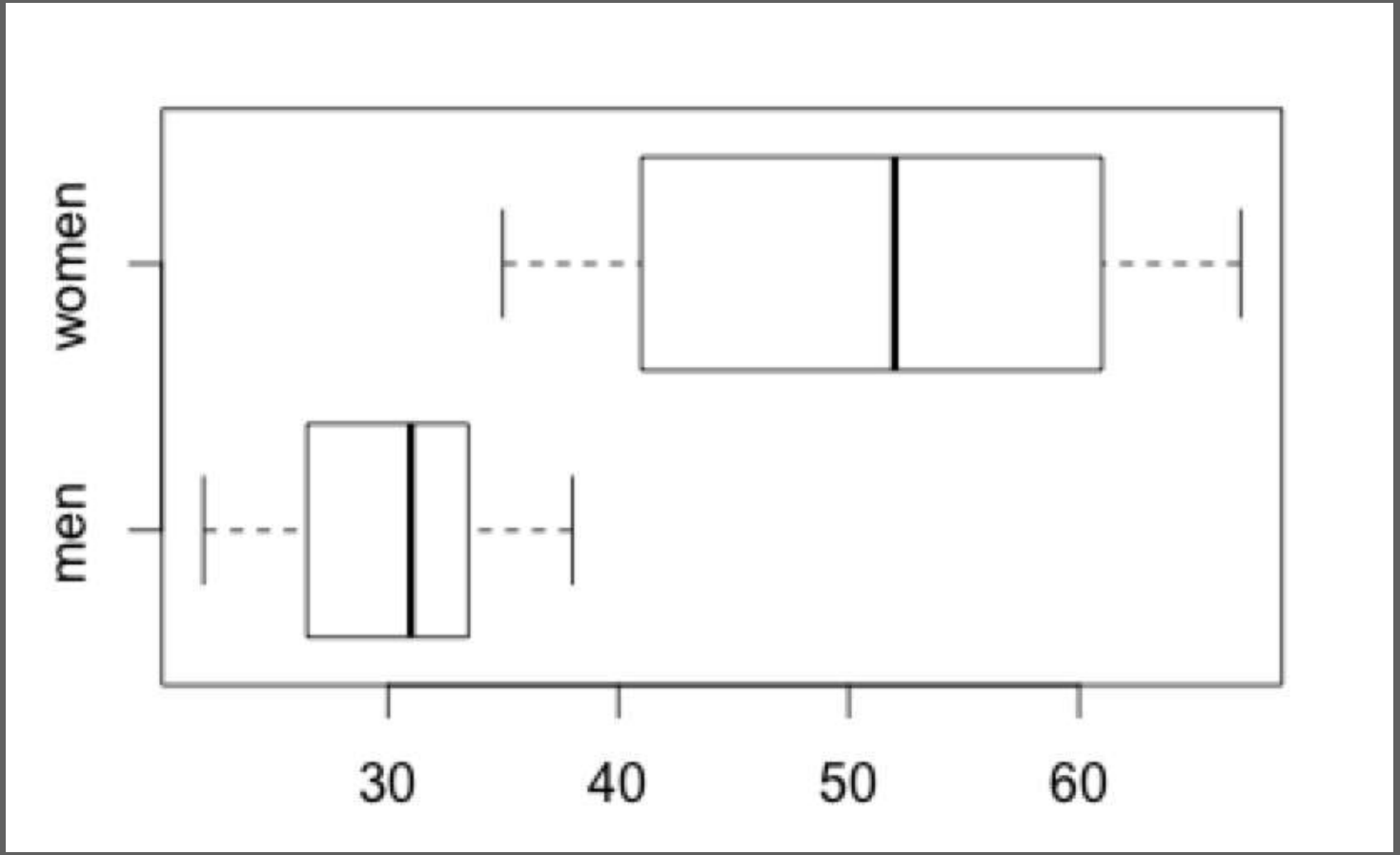
https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Mean-and-Median/

COMPARING BOXPLOTS

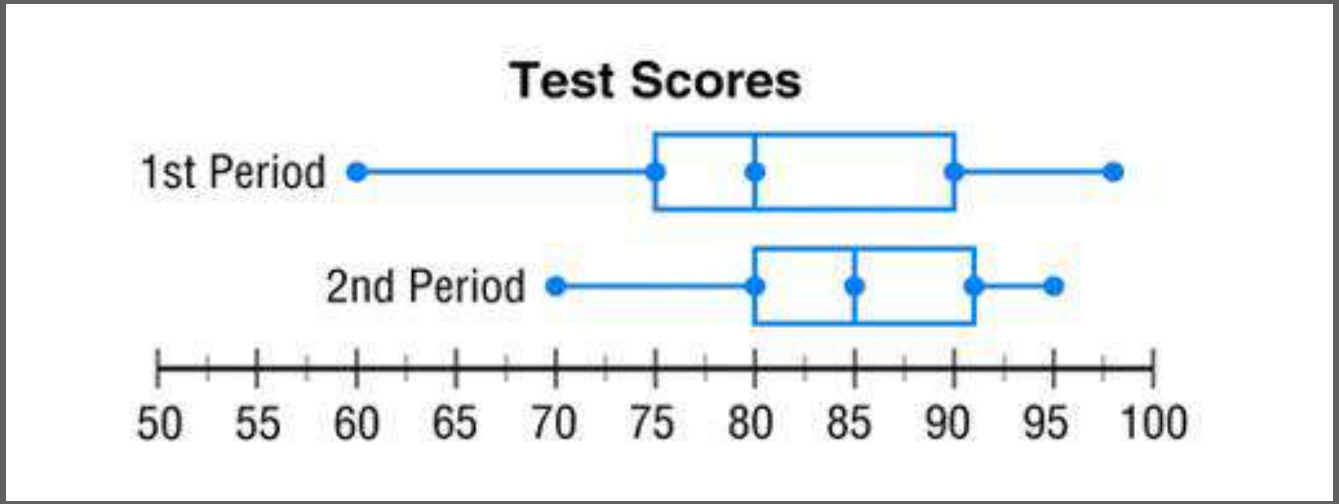
When comparing two or more boxplots:

1. Compare the shapes.
2. Compare the centers.
3. Note an observation about a "typical" value of one distribution compared to values of the other.
4. Compare the spreads.
5. Note any outliers.

VARIABLE AND CONSISTENT BOXPLOTS



EXAMPLE:



Both of the distributions of test scores for 1st and 2nd period are slightly skewed left. The center for 1st period is 80% while the center for 2nd period is 85%. First period scores are spread from 60% to 99% while second period scores are spread from 70% to 95%. The scores from 1st period are more variable than the scores from 2nd period. A typical score from 1st period is less than about 75% of the 2nd period scores. There are no outliers from either period.

MATCHING BOXPLOTS TO HISTOGRAMS

When matching histograms and boxplots:

1. Check the spread- pay close attention to outliers and skewness
2. Check the medians.
3. Find the quartiles.

EXAMPLE

Match each histogram with its boxplot.