1.3 Displaying Quantitative Data: Dotplots Part 3

## How to Describe the Distribution of a Quantitative Variable

In any graph, look for the *overall pattern* and for clear *departures* from that pattern.

*You can describe the overall pattern of a distribution by its **shape** (skewed? symmetric? how many peaks?), **center** (where is the center located on the dotplot), and **variability** (what is the spread of data in each graph).

An important kind of departure is an **outlier, a value that falls outside the overall pattern.

When comparing distributions of quantitative data, it's not enough just to list values for the center and variability of each distribution. You have to explicitly *compare* these values, using expressions like "greater than", "less than", or "about the same as".

Example: Compare the distributions of the heights of 15 softball and basketball players.

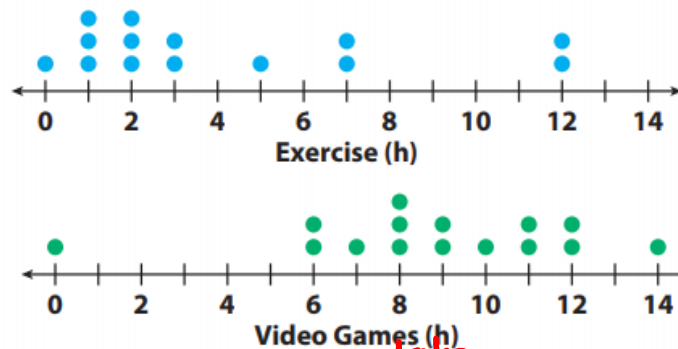**Softball Players' Heights**

Basketball Players' Heights
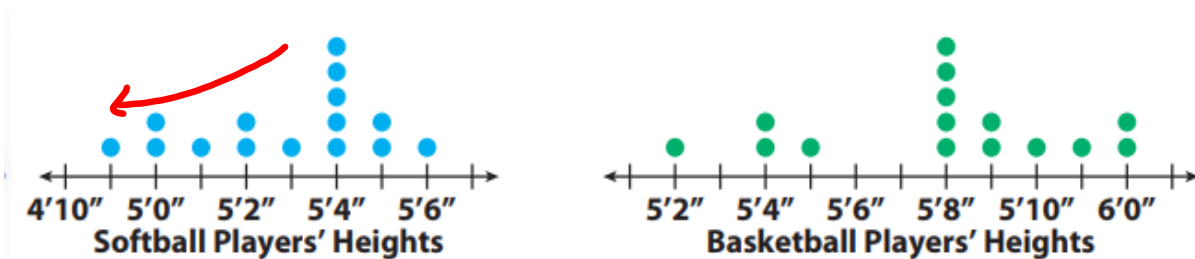
*Softball is more left skewed than basketball.

*Basketball is more symmetric than softball!

*Softball is centered at 5'4"
Basketball is centered at 5'8"

Example: Compare the distributions of the number of hours a class of students spend on exercise and video games.

Exercise (h)

Video Games (h)

* Most of the exercise ^data is to the left.
Most of the video games data is to the right.

* There is an outlier of 0 in video games.
There is an outlier of 12 in exercise.

Example: Compare the distributions of the shoe sizes of two different groups of people.

Group A Shoe Sizes   Group B Shoe Sizes
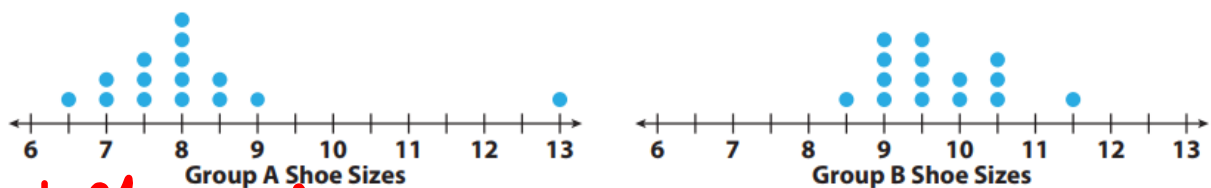
* Group A is more symmetric than Group B.
* Group B is more bimodal than Group A.
* There is an outlier of 13 in Group A.