<u>1.8 Summarizing Quantitative Data: Boxplots & Outliers (Part 2)</u>

You can use a dotplot, stemplot, or histogram to display the distribution of a quantitative variable. Another graphical option for quantitative data is a **boxplot** (sometimes called a box-and-whisker plot).

A boxplot summarizes a distribution by displaying the location of 5 important values within the distribution, known as the **five-number summary**.

The **five-number summary** of a distribution of quantitative data consists of the minimum, the first quartile Q1, the median, the third quartile Q3, and the maximum.

A **boxplot** is a visual representation of the five-number summary.

<u>How to Make a Boxplot:</u>

1. **Find the five-number summary** for the distribution.
2. **Draw and label the horizontal axis**.
3. **Scale the axis**. Look at the smallest & largest values in a data set. Start the horizontal axis at a number equal to or below the smallest value & place tick marks at equal intervals until you equal or exceed the largest value.
4. **Draw a box** that spans from the first quartile (Q1) to the third quartile (Q3).
5. **Mark the median** with a vertical line segment that's the same height as the box.
6. **Identify outliers** using the 1.5xIQR rule.
7. **Draw whiskers** - lines that extend from the ends of the box to the smallest and largest data values that are not outliers. Mark any outliers with a special symbol such as an asterisk (*).

Example: Make a boxplot to display the data.

{23, 10, 13, 30, 26, 8, 25, 18}
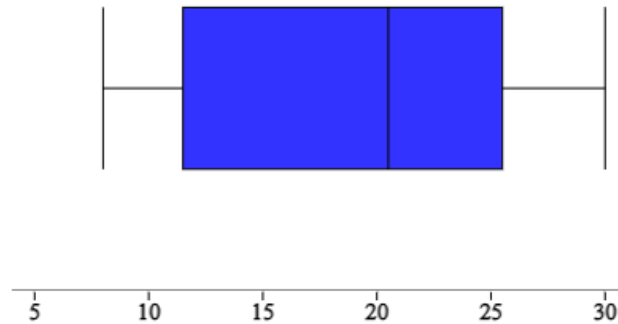
USE THE WEB SITE TO GET THE BOXPLOT!!

Example: Make a boxplot to display the data.

{45, 18, 9, 25, 14, 7, 12, 9, 4}