In these activities you will work together to create a box plot and determine the interquartile range and the median of the set of data. After completing each activity, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 1.3]

1. Select **Summarize**. Approximately what fraction of the responses is located on the line segment at the left of the box? At the right of the box? Explain how you found your answers.

2. Select each of the four sections in the plot. Use the display to check your answers to the question above.

3. The plot on the upper half of the screen is called a box plot or sometimes a box-and-whisker plot.
   a. What values do you need to create a box plot?

   b. Why is the vertical line segment in the box not in the middle of the box?

4. Suppose some of the survey responses were entered incorrectly.
   a. All three numbers represented by the three dots just to the right of 60 should have been entered as 80. Move the dots to the correct position. Does the box plot change? Explain why or why not.

b. The number of text messages between 100 and 120 should have been between 0 and 20. Move the dots to the correct position. Does the box plot change? Explain why or why not.

c. Reset the page and recreate the box plot. One report indicated the median was 60. Identify two points that might have been incorrectly entered and what they should have been to have a median of 60.

Activity 2 [Page 2.2]

1. The box plot represents the responses of middle school students to a survey on the number of hours they spend online during a day.

   a. What can you see from the dot plot that you cannot see from the box plot?

   b. Select **5 Num. Summary** in the lower right of the screen. Identify the five-summary points that determine the box plot and the IQR.

   c. The width of the section from the median to the upper quartile is wider than the section from the lower quartile to the median. Does this mean there are more student responses in that section? Why or why not? Select sections of the box plot to verify your answer.

   d. What fraction of the student responses is contained in the interval determined by the box?

Activity 3 [Page 3.2]

1. For each of the following, sketch the plot and state the IQR.
   a. Move the sections to create a plot with the largest IQR you can.

   b. Create a plot that has the shortest possible segment on the left end.

   c. Create a plot that is skewed left.

   d. Density is the amount of a quantity per unit of area. Create a plot that has the maximum density between the LQ and the UQ.

Activity 4 [Page 4.2-4.3]

1. The two box plots show the girls' and boys' responses to the survey about the number of text messages sent or received per day.
   a. Describe the key differences between the responses of the boys and of the girls.

   b. What would you choose as the typical number of text messages that girls in the survey send or receive per day? Boys?

   c. Describe the difference in the distributions of the number of text messages boys and girls send or receive per day?