In these activities you will work together to use median and interquartile range to explore and interpret the distribution of data in a dot plot. After completing each activity, discuss and/or present your findings to the rest of the class.

Activity 1 [Page 1.5]

Review the scores on page 1.5.

1. a. What is the largest score? The smallest?

   b. Are any of the values clustered together?

   c. What value seems to be in the center of the data? Are most of the values close or not so close to the center you identified? Explain your thinking.

Activity 2 [Page 2.2]

1. a. Select **Mark.** What do the two numbers on either side of the vertical line represent?

Use the right/left arrows on the keyboard or select the **Right** or **Left** buttons to move the vertical line segment so that half of the scores are less than the value marked by the segment.

   b. What value marks this point? Describe why this is a “middle”.

   c. Select **New Data.** Estimate the median. Then check using the vertical line segment.

Activity 3 [Page 2.2]

Reset page 2.2. Find the median. Then select Mark again. Use the new vertical segment to find the median of the lower half of the scores. This value is called the lower quartile (LQ).

1. a. Explain how the points are distributed around the LQ.

Select Mark again and use that vertical segment to find the median of the upper half of the scores. This value is called the upper quartile (UQ).

b. Explain how the points are distributed around the UQ.

The difference between the upper quartile and the lower quartile is called the interquartile range (IQR).

c. Find the interquartile range (IQR).

Activity 4 [Page 2.4]

1. Identify the following as true or false and give a reason. Use the activity to help your thinking.

   a. The LQ is always one of the elements of the data set.

   b. The LQ is the midpoint between the smallest value in the data set and the median.

Activity 4 [Page 2.4] (Continued)

c. To increase the IQR, you can move values away from the median.

d. For a data set with more than 10 different values, if you delete the smallest and largest value, the median will not be changed.

Activity 5 [Page 3.2]

1. a. Describe each of the distributions of scores on page 3.2. Share your descriptions with a partner to see if you agree with each other.

b. Predict which of the distributions of scores will have the largest IQR and which will have a median approximately in the center of the interval between the LQ and UQ.

c. Select **IQR** and **Median** to check your answer to b.

d. How would you rank the classes in terms of having the lowest scores? Explain your reasoning.

Activity 6 [Page 3.3]

1. What would you say to each of the following students? Use any page from the activity to support your thinking.

   a. Patrice says that if you know the median and the IQR, you can make at least a broad sketch of the distribution.

   b. Saraje says that if two distributions have the same median but different IQRs, the one with the smaller IQR has the middle half of the values clustered closer together than the one with the larger IQR.

   c. Jay claims that the median is in the middle of the segment from the LQ to the UQ.