Dear Sixth Grade Families,

In Unit 8, students will work on the following sixth grade Common Core standards in the Statistics and Probability (SP) domain:

6.SP.1	Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
6.SP4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
6.SP.5	Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Unit 8 Concepts:
- Recognize statistical questions
- Describe the shape of a line plot
- Measures of center vs. measures of variability
- Display data on histograms and box plots
- Summarize numerical data sets

Unit 8 Vocabulary:
- Statistics
- Statistical Questions
- Measures of Center: Mean, Median
- Measures of Variability: Range, Spread
- Dot Plot/Line Plot
- Histogram
- Box Plot (Box-and-Whisker Plot): Quartile, Interquartile Range (IQR)
- Mean Absolute Deviation (MAD)

Ask questions like these to help your child become a productive mathematical thinker:
- How do you know if a question is a statistical question?
- What are the different ways that the shape of a line plot can be described? What's the difference between data that's skewed to the right and data that's skewed to the left?
- How are measures of center different from measures of variability?
- Why do you think researchers find box plots (box-and-whisker plots) so useful?
- What's different about a histogram compared to a line plot? When would it be more useful?
- What does the interquartile range tell you? Why would you need to know that?
- What do Q1 and Q3 tell you on a box plot?

Need a review?
Have your student login to Swun Math to access lesson support videos.

We encourage you to talk with your child daily about what was learned in math class.
Thank you for your support!

Statistical Question: How many pieces of candy did each child collect from the piñata?

18	20	5	6	30	12	16	18	17	13
22	12	24	19	16	26	22	20	15	15
23	21	20	16	17	19	20	14	17	20

N = 30   median = 18   range = 22
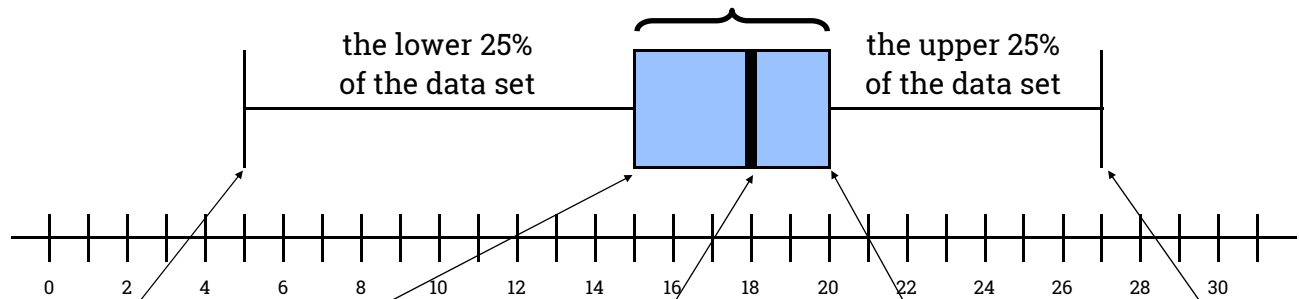
The data are skewed slightly to the left.

Interquartile Range (IQR)
the range of data that makes up the middle 50% of the data set

$$Q_3 - Q_1 = IQR$$

$$IQR = 5 \ (20 - 15 = 5)$$

Half of the children collected between 15 and 20 pieces of candy.

the lower 25% of the data set

the upper 25% of the data set

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

Minimum	**First Quartile (Q₁)**	**Median**	**Third Quartile (Q₃)**	**Maximum**
the lowest value in the data set	the lowest value in the 25% of data set immediately below the median	**(this is Second Quartile (Q₂), but is most often referred to as the median)** the middle value in the ordered list of data	the greatest value in the 25% of data set immediately above the median	the greatest value in the data set
The smallest number of candies collected was 5.	*Among the middle half of the children, the smallest number of candies collected was 15.*	*The middle number of candies collected was 18.*	*Among the middle half of the children, the greatest number of candies collected was 20.*	*The greatest number of candies collected was 27.*

Five Number Summary
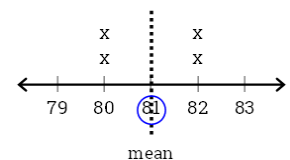
Mean Absolute Deviation (MAD)   Lisa's math test scores: 82, 80, 80, 82

1. Find the mean.

$$\frac{(82 + 80 + 80 + 82)}{4} = \frac{324}{4} = \boxed{81}$$

2. Find the distance between each data point and the mean.

(82 – 81) = 1
(81 – 80) = 1

(81 – 80) = 1
(82 – 81) = 1

79   80   81   82   83

mean

3. Add the distances and divide by the number of data points.

$$\frac{(1 + 1 + 1 + 1)}{4} = \frac{4}{4} = \boxed{1}$$

The MAD is 1. This shows that, in general, the scores are 1 point from the mean.