Data Analysis

In grades 6 – 8 all should . . .

- Find, use, and interpret measures of center and spread, including mean and interquartile range.

The grade 6 *Common Core Standards* suggest that all students should be able to:

- Summarize numerical data sets in relation to their context, such as by: . . . Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing and overall pattern and striking deviations from the overall pattern with reference to the contest in which the data were gathered. (6.SP.5)

Statistics has emerged as a major component of the school mathematics curriculum. We will examine data by looking at graphs to display the overall distribution of values. We will also describe specific aspects of data by using a few carefully chosen numbers. These numbers will help in the analysis of data. Two important aspects of data are its *center* and its *spread*.

- The *mean, median,* and *mode* are three numbers that describe where data are centered, and these are called **measures of central tendency**. Each of these measures is a single number that describes the data but each does it in a slightly different way.
- The *range, interquartile range, variance, mean absolute deviation* and *standard deviation* describe the spread of the data and should be used with measures of central tendency. (The two most commonly used measures of dispersion are the variance and standard deviation. These measures are based on how far the scores are from the mean.)

Much of the work in helping students understand statistical reasoning involves conceptualizing data analysis as a process involving collection data, describing and presenting data using statistical methods, and drawing conclusion from data. There are three general standards related to the performance of middle-grades students in data analysis:

- Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them
- Select and use appropriate statistical methods to analyze data
- Develop and evaluate inferences and predictions that are based on data

Middle-grades students are expected to understand the four major components of statistics as a process: pose questions, gather data, analyze data, and interpret data.