Lesson 70

Objective

Students will recognize the difference between probability and statistics.

Students will define dependent and independent variables, central tendency, statistics and outliers.

Students will recognize factors that influence data collection.

Students will recognize a statistical question as one that anticipates variability in the data related to the question.

Students will create a scatter plot.

Preparation

For the entire class: Draw a graph on the board showing a grouping of values similar to that on the Lesson Sheet.

Lesson Plan

Statistics is an area of mathematics where we analyze groups of numbers. Students should be able to look at data and locate data points that diverge from an expected result. That data might be faulty, atypical or it could point to problems with the core data.

Any set of numerical data can be described by its center, spread, and overall shape. The data points that fall tightly around the center when plotted are called the *central tendency*. The numbers which fall far outside the norm are called *outliers*. A *scatter plot* like the one shown on the Lesson Sheet makes it easy to spot outliers and define the central tendency. The scatter plot also makes it easy to see the spread (from 1/2 hour to 12.5 hours of study time) and overall shape of the set of data.

Help students recognize that statistical questions anticipate variability in the numerical information (or data) and account for that variability in the answers. For example, "How much time on average did students of each age spend on homework?" is a statistical question because we anticipate variability in the students' age levels and in the time each spent on homework.

"How much time did Joel spend on homework today?" would not be a statistical question because there would be no variability in the person's age or the time spent on homework in one day. However, if we tracked Joel's homework time from ages 6 to 9 (or even from week to week), we would have a statistical question, "How much time on average did Joel spend on homework from ages 6 to 9?" or "How much time on average did Joel spend on homework over a 5-week period?"

Have students create statistical questions for the data given in Guided Practice E. For example, "How many people surveyed had sisters?"

Activities 9 – 11 in the back of the Teacher Edition involve statistics, plotting data and formulating questions when collecting data. You may want to do one of the activities to reinforce statistics concepts.

Stretch 70

Compute the product and show your answer in both Arabic and Roman numerals: DCCL x V =

Answer: 750 x 5 = 3,750 = MMMDCCL