

Dear Family,

The next unit in your child's mathematics class this year is ***Data About Us: Statistics***. Its focus is data investigation, and it teaches students to organize, display, analyze, and interpret data. Your child will learn to make and interpret many different types of data displays and to compute statistics to help describe data.

UNIT GOALS

The unit provides opportunities for students to ask questions about themselves, and then to collect data to help answer these questions. Students explore the lengths of their names, the distances they live from school, the numbers of times they can jump rope, the numbers of pets they have, their heights, and the lengths of their left feet.

Your child will learn to make line plots, bar graphs, coordinate graphs, and stem-and-leaf plots and to interpret patterns shown in these displays. Your child will also learn to compute the mode, median, mean, and range of a data set and to use these statistics to describe data and to make predictions.

HELPING WITH HOMEWORK

You can help with homework and encourage sound mathematical habits as your child studies this unit by asking questions such as:

- What is the question being asked?
- How do you want to organize the data?
- Which representation is best to use to analyze the distribution of the data?
- How can you use graphs and statistics to describe a data distribution or to compare two data distributions in order to answer the original question?
- How do you think the data were collected?
- Why are these data represented using this kind of graph?

In your child's notebook, you can find worked-out examples from problems done in class, notes on the mathematics of the unit, and descriptions of the vocabulary words.

HAVING CONVERSATIONS ABOUT THE MATHEMATICS IN *DATA ABOUT US*

You can help your child with his or her work for this unit in several ways:

- Look with your child for uses of data in magazines, newspapers, and on TV.
- Point out examples of graphical displays and ask your child questions about the information shown.
- Ask your child about the data studied in class. What were the typical values (mode, median, or mean) for these data?
- Look over your child's homework and make sure all questions are answered and that explanations are clear.

A few important mathematical ideas that your child will learn in *Data About Us* are given on the back. As always, if you have any questions or concerns about this unit or your child's progress in class, please feel free to call.

Sincerely,

Important Concepts and Examples

Representing Data Distributions and Reading Data Representations

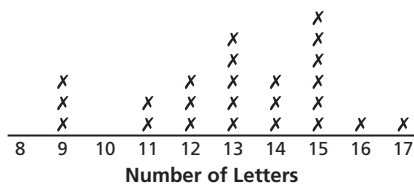
Statisticians use data representations such as line plots, bar graphs, stem-and-leaf plots, and coordinate graphs to describe and analyze their data.

READING STANDARD DATA REPRESENTATIONS

- *Reading the data* involves “lifting” information from a graph to answer explicit questions.
- *Reading between the data* includes the interpretation and integration of information presented in a graph.
- *Reading beyond the data* involves extending, predicting, or inferring from data to answer implicit questions.

LINE PLOT Each case is represented as an “X” positioned over a labeled number line.

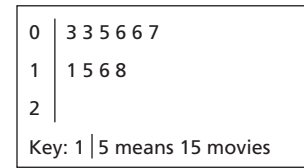
Name Lengths of Ms. Jee’s Students



STEM-AND-LEAF PLOT

A plot that permits students to group data in intervals (usually by 10s).

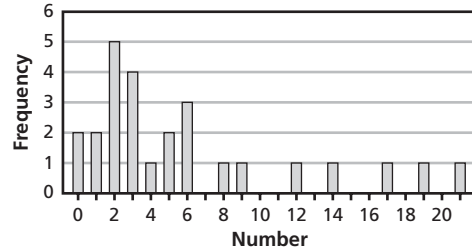
Movies Watched



FREQUENCY BAR GRAPH

A bar’s height is not the value of an individual case but rather the number (frequency) of cases that all have that value.

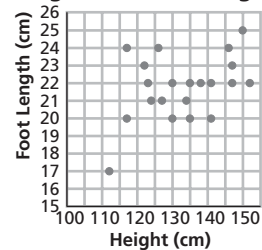
Number of Pets



SCATTERPLOT

The relationship between two variables is explored by plotting data values on a Cartesian coordinate system.

Heights and Foot Lengths



Using Measures of Center (Mode, Median, Mean)

MODE The mode is the value that occurs with greatest frequency in a set of data.

MEDIAN The median value marks the location that separates an ordered set of data in half.

MEAN We emphasize the fair share (or evening out) interpretation of mean (average).

14 students said that they had the following number of siblings: 0, 0, 0, 1, 1, 1, 2, 2, 2, 2, 2, 3, 5, 6. The mode is 2.

The median for the data set 3, 4, 4, 7, 8, 9 is 5, the number halfway between 4 and 7. For 4, 5, 5, and 7, the median is 5.

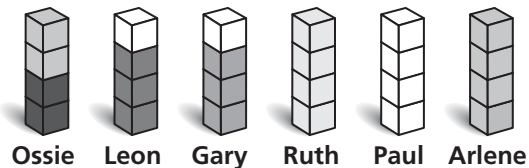
The mean (average) number of people in these households is 4. There are 24 people shared among 6 households.

BEFORE

Ossie	2 people
Leon	3 people
Gary	3 people
Ruth	4 people
Paul	6 people
Arlene	6 people
Total	24 people

AFTER

Ossie	4
Leon	4
Gary	4
Ruth	4
Paul	4
Arlene	4
Total	24 people



Using Measures of Variability

Measures of variability are used to describe how widely spread or closely clustered the individual data values are.

RANGE The range depends on only two values, the greatest and the smallest.

Distinguishing Different Types of Data

NUMERICAL DATA are values that are counts or measures (pulse, height). We can use mean, median, mode, and range as summary statistics.

CATEGORICAL DATA are data sets that are responses representing categories (favorite color, month of birth, etc.). We can use only the mode as the summary statistic.

On the **CMP Parent Web Site**, you can learn more about the mathematical goals of each unit, see an illustrated vocabulary list, and examine solutions of selected ACE problems. <http://PHSchool.com/cmp2parents>