



"Data About Us" Math Newsletter

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.

Descriptive Glossary,

bar graph (bar chart) - A graphical representation of a table of data in which the height or length of each bar indicates its frequency.

categorical data - Data that are "words" that represent possible responses within a given category.

coordinate graph - A graphical representation in which points are used to denote pairs of related numerical values.

data - Values such as counts, ratings, measurements, or opinions that are gathered to answer questions.

line plot - A quick, simple way to organize data along a number line where the Xs (or other symbols) above a number represent how often each value is mentioned.

mean - The value you would get if all the data are combined and then redistributed evenly.

median - The number that marks the middle of an ordered set of data.

mode - The category or numerical value that occurs most often.

numerical data - Values that are numbers such as counts, measurements, and ratings.

outlier - A value that lies far from the "center" of a distribution.

range - The difference between the least value and the greatest value in a distribution.

scale - The size of the units on an axis of a graph or number line.

stem-and-leaf plot (stem plot) - A quick way to picture the shape of a distribution while including the actual numerical values in the graph.

survey - A method for collecting data that uses interviews.

table - A tool for organizing information in rows and columns.

x-axis - The horizontal number line used to make a graph.

y-axis - The vertical number line used to make a graph.

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Unit 1 - Goals

- Describe data distributions
- Use tables, line plots, and bar graphs to display data distributions
- Use mode, median, how the data vary from the least to the greatest values, and range to describe what is typical about a data distribution
- Recognize how the median, as a measure of center, responds to changes in the number and magnitude of data values
- Identify whether data are categorical or numerical
- Understand how mode, median, and range relate to numerical and categorical data
- Distinguish between and answer questions using vertical and horizontal bar graphs

Unit 2 - Goals

- Group numerical data in equal intervals and display their distribution using a stem-and-leaf plot
- Find measures of center and variation, including range and how data vary from the least to the greatest values, when a distribution is displayed using a stem-and-leaf plot
- Compare two distributions displayed using back-to-back stem-and-leaf plots
- Compare two distributions using statistics, such as median, range, and how the data vary from least to greatest values
- Identify outliers in a distribution
- Display distributions of paired-data values on coordinate graphs
- Explore relationships between paired-data values whose distributions are displayed using coordinate graphs
- Explore intervals for scaling the vertical axis (y -axis) and the horizontal axis (x -axis)

Unit 3 - Goals

- Understand the mean as a number that "evens out" or "balances" a distribution
- Create distributions with designated means
- Recognize that data with the same mean may have different distributions
- Reason with a model that clarifies the development of the algorithm for finding the mean
- Experiment with how the mean, as a measure of center, responds to changes in the number and magnitude of data values

Important Concepts & Examples

Conduct data investigations by posing questions, collecting and analyzing data, and making interpretations to answer questions

Distinguish between categorical data and numerical data and identify which graphs and statistics may be used to represent each kind of data

Categorical Data

Data that are "words" that represent possible responses within a given category.

Numerical Data

Values that are numbers such as counts, measurements, and ratings.

Frequency counts can be made of the entries for a given category. The table below shows examples of categories and their possible entries.

Category	Possible Entries
Month people are born	January, February, March
Favorite color to wear	magenta, blue, yellow
Kinds of pets people have	cats, dogs, fish, horses

- Number of children in families
- Pulse rates (number of heart beats per minute)
- Height
- Amount of time people spend reading in one day
- Amount of value placed on something, such as: on a scale of 1 to 5 with 1 as "low interest," how would you rate your interest in participating in the school's field day?

Graphing to represent distributions of data using line plots, bar graphs, stem-and-leaf plots, and coordinate graphs

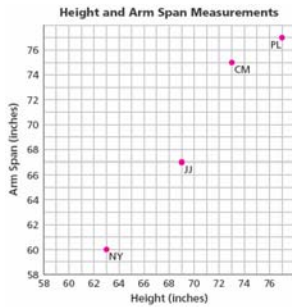
Bar Graph

A graphical representation of a table of data in which the height or length of each bar indicates its frequency.



Coordinate Graph

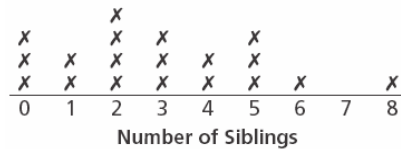
A graphical representation in which points are used to denote pairs of related numerical values.



Line Plot

A quick, simple way to organize data along a number line where the Xs (or other symbols) above a number represent how often each value is mentioned.

Number of Siblings Students Have



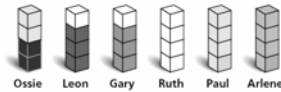
Compute the mean, median, mode, or range of the data

Mean

The value you would get if all the data are combined and then redistributed evenly.

Before:

Ossie	2 people
Leon	3 people
Gary	3 people
Ruth	4 people
Paul	6 people
Arlene	6 people
<hr/>	
Total	24 people



After:

Ossie	4 people
Leon	4 people
Gary	4 people
Ruth	4 people
Paul	4 people
Arlene	4 people
<hr/>	
Total	24 people

Median

The number that marks the middle of an ordered set of data.

The median of the distribution of siblings is 3 because the tenth (middle) value in the ordered set of 19 values (0, 0, 0, 1, 1, 2, 2, 2, 2, 3, 3, 3, 4, 4, 5, 5, 5, 6, 8) is 3 siblings.

Mode

The category or numerical value that occurs most often.

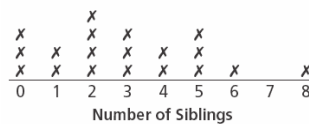
The mode of the distribution of siblings is 2. It is possible for a set of data to have more than one mode.

Range

The difference between the least value and the greatest value in a distribution.

In the distribution below, the range of the number of siblings is 8 people.

Number of Siblings Students Have



Duval County Public Schools

