

**WHAT WE ARE LEARNING**

Analyze Data and Graphs

**VOCABULARY**

Here are the vocabulary words we use in class:

**Survey** A method of gathering information about a group by asking questions and recording people's answers.

**Sample** A part of a group that is chosen to represent the whole group.

**Population** The whole group.

**Random sample** A sample in which each person in a population has an equal chance of being chosen.

**Cumulative frequency** A running total of frequencies.

**Outlier** A data item that is well-separated from the rest of the data.

**Mean** The number found by dividing the sum of a set of numbers by the number of addends.

**Median** The middle number in an ordered set of data.

**Mode** The number or item that occurs most often in a set of data.

Name .....

Date .....

**Dear Family,**

Your child is learning about statistics and ways of representing data. Statistics and data reflect our lives in many ways. For example, a student's grade is based on the data the teacher has collected over time.

Here is the method we use to find the mean of a set of data.

**Example** Find the mean for this set of data.

8, 11, 17, 9, 15

<p><b>Step 1</b> Find the sum of the numbers in the set of data.</p> $8 + 11 + 17 + 9 + 15 = 60$	<p><b>Step 2</b> Divide the sum by the number of addends.</p> $60 \div 5 = 12$ <p>So, the mean is 12.</p>
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To guide your child's thinking about data and its representation, you may wish to ask questions such as these:

**Why might a mean not be a good way to represent all the data?** Your child might say: A mean gives you a general idea, but it doesn't necessarily give you an idea of the least or greatest amounts, and those might be important.

**When might there be no mode in a set of data?** Your child might say: When each number in a set of data occurs only once.

If you wish to reinforce your child's grasp of the concepts of statistics, you and your child may wish to do the activity that follows.

**Sincerely,**



## Three *M*s and an *R*



Finding a median, mode, mean, and range for a set of data will help you study the data and make the data more useful.

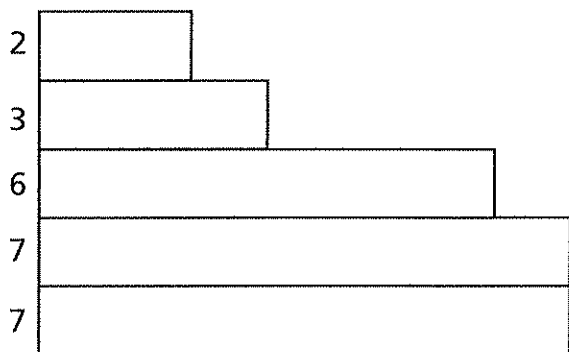
### Materials

- paper
- centimeter ruler, if you prefer using an inch ruler, change “cm” to *in.* in the directions below.
- bag

### Directions

1. Draw rectangular strips on paper. All the strips should be 1 cm wide. Vary the length—1 cm, 2 cm, 3 cm, and so on, up to 10 cm. Cut several strips of each length. Label each strip with its length.
2. Take a handful of strips.
3. Work with a partner to arrange the strips in order from shortest to longest.
4. Find the median, mode, mean, and range for the lengths of the strips you took.

The illustration shows what a small sample of only 5 strips might look like. Your sample will be larger.



**Median** length of center strip or mean length of the two middle strips when arranged in order; in this example, the median is 6.

**Mode** length of strip that occurs most often; in this example, the mode is 7.

**Mean** average length selected; in this example, the mean is 5.

**Range** difference between longest and shortest strips; in this example, the range is 5.



You may have heard the term **degree-days** if you listen to the weather report. A degree-day is a unit of heat measurement. It is used to estimate how much it will cost to heat a building. One degree-day means 1°F between that day's mean temperature and 65°F, which is considered a comfortable indoor temperature in the winter.

Suppose you wanted to find the number of degree-days for January 16.

Temperature Record	
January 16	
High	48°F
Low	30°F

**Step 1** Find the mean of the highest and lowest temperature for the day.

$$48 + 30 = 78; 78 \div 2 = 39$$

So, the mean is 39.

**Step 2** Subtract the mean from 65.

$$65 - 39 = 26$$

**Step 3** The difference is the number of degree-days.

So, there were 26 degree-days on January 16.

**Complete the table.**

Date	High Temperature (°F)	Low Temperature (°F)	Mean	Number of Degree-Days
March 1	72	58	65	
March 2	68	54	61	
March 3	63	53		
March 4	55	41		
March 5	51	37		

Answer: March 1: 0; March 2: 4; March 3: 58, 7; March 4: 48, 17; March 5: 44, 21