EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

In this topic, students begin the study of statistics and use data to answer questions. Students learn to recognize a **statistical question** and the type of data (**categorical** or **numerical**) that are collected to answer it. To organize and summarize the data they collect, students create histograms (for numerical data) and **dot plots**, noting the advantages and disadvantages of both types of graphs. Students also explore the shape of the data distribution (how it looks on a graph) to determine whether the distribution is **symmetric** or **skewed**. (See Models.) In the final lesson of the topic, students extend their knowledge to relative frequency histograms where the vertical scale is **relative frequency**, not **frequency**.

You can expect to see homework that asks your child to do the following:

- Determine whether a question is a statistical question and explain his reasoning. If it is not, rewrite it as a statistical question.
- Classify data as categorical or numerical.
- Create a dot plot to represent given data and use the data to answer questions.
- Match a statistical question to the dot plot representing data that answer the question.
- Complete a frequency table; then create a histogram with its data.
- Use a histogram and relative frequency histogram to answer questions. (See Sample Problems.)

SAMPLE PROBLEMS *(From Lesson 5)*

Below is a relative frequency table of the seating capacity of NBA basketball arenas.

Number of Seats	Tally	Frequency	Relative Frequency
17,000–<17,500	||	2	0.069
17,500–<18,000	|	1	0.034
18,000–<18,500	𝍸 |	6	0.207
18,500–<19,000	𝍸	5	0.172
19,000–<19,500	𝍸	5	0.172
19,500–<20,000	𝍸	5	0.172
20,000–<20,500	||	2	0.069
20,500–<21,000	||	2	0.069
21,000–<21,500		0	0.000
21,500–<22,000		0	0.000
22,000–<22,500	|	1	0.034

a. What is the total number of NBA arenas?

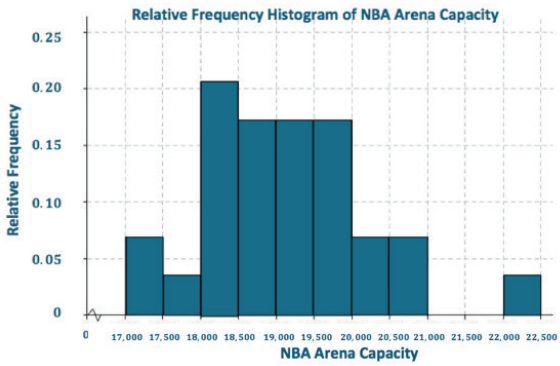
I added the values in the frequency column, and there are 29 NBA arenas in total.

b. Complete the relative frequency column. Round the relative frequencies to the nearest thousandth.

(See the last column in the table above.)

c. Construct a relative frequency histogram of the arena capacities.

(See the image to the right.)



d. Describe the shape of the relative frequency histogram.

The shape is skewed slightly to the right.

SAMPLE PROBLEMS *(continued)*

e. What percentage of the arenas have a seating capacity between 18,500 and 19,999?

Approximately 51.6% of the arenas have a seating capacity between 18,500 and 19,999.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

You can help at home in many ways. Here are some tips to help you get started.

- Ask your child to write one statistical question and one question that is not statistical and explain the difference. Your child might consider questions such as, "What are the favorite colors of sixth graders in my school?" and "What is my favorite color?" The first question is a statistical question because the favorite color would not be the same for every student, so there would be **variability** in the data.
- Write a list of any 15 numbers from 6 to 25, with 4 of the numbers repeating at least once. Have your child create a dot plot (see Models) to represent the data and then answer the following questions: "Which number occurs most/least often in the **data set**? What number would you use to describe the center of the data?"

TERMS

Categorical data: Data that can be represented as a group or category (e.g., hair color or flavor of ice cream).

Data set: A collection of numbers, values, or categorical data often gathered to answer a particular statistical question.

Frequency: The number of data values included in each interval displayed in a frequency table or histogram.

Interval: A set of numbers that lie between two specific values and include the lower of the two values but not the upper one. The upper value belongs to the next interval.

Numerical data: Data that can be represented as numbers (e.g., age or number of pencils).

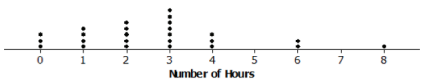
Relative frequency: The number of data values included in each interval divided by the total number of values included in the data set.

Statistical question: A question that can be answered by collecting data and that anticipates variability in the data collected.

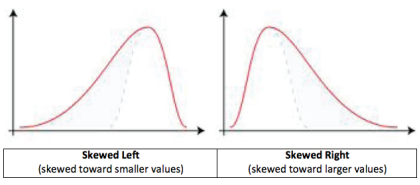
Variability: The extent to which the values in a data set differ from each other; variability occurs when the observations in a data set are not all the same. For example, the variability of the data set {0, 2, 4, 4, 5, 9, 18} is greater than the variability of the data set {2, 3, 3, 3, 3, 3, 4}.

MODELS

Dot Plot



Skewed Data Distributions



Symmetric Data Distribution