



THE MAGIC OF GRAPHS AND STATISTICS

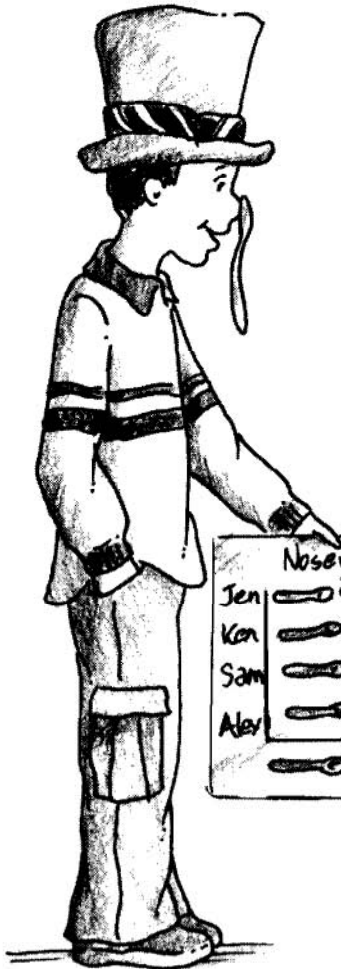
It's hard to get through a day without seeing a graph or chart somewhere, whether you're reading a newspaper or a magazine, watching an ad on television, or looking at a display in the grocery store. Graphs and charts are used everywhere because they make data easy to understand.

In **this** book, you are going to learn about five types of charts and graphs: pictographs, bar graphs, pie charts, line graphs, and map charts. Different types of graphs are often used to show different types of data. Pictographs are made out of pictures and have instant visual impact. Bar graphs are made up of either vertical or horizontal bars and are often used to show performance. Pie charts use sectioned circles to emphasize comparisons. Line graphs use horizontal, vertical, and diagonal lines and are especially good for tracking changes over time. Map charts use maps of a state, a country, the world, or any part of the world to make geographical comparisons.

You'll also learn a lot about statistics, which is the science of representing or grouping data so that they are easily understood. It can sound complicated, but really it's not. When you find your average test score on your spelling tests, you have computed a statistic. Instead of calling it the average,



PICTOGRAPHS



Pictographs are graphs using picture-symbols. Usually, the symbol looks like the thing that you are graphing, and the number of symbols corresponds to the number of whatever you are graphing. Pictographs are fun to look at and easy to interpret.

In this part, you will make a 3-dimensional (3-D) pictograph using hard candies, track television commercials, shoot free throws with your

friends, dangle a spoon from your nose, and interpret the amount of TV watched.

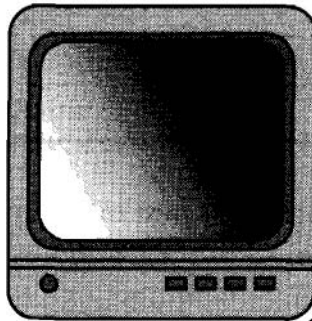
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But First... A Brief Commercial Break

Before you start graphing data, you have to collect them and organize them. Try this activity to practice gathering data.

Procedure

1. Gather your materials and watch a 30-minute television show. As soon as the show starts, use the stopwatch to time the length of each commercial that you see. Make a list of the type of product each commercial advertises and the commercial's length in seconds.



MATERIALS

TV
stopwatch
pencil
paper
calculator



EXAMPLE

soda commercial	30 seconds
creditcard commercial	60 seconds

2. Now reorganize the data by type of product. Make a list of all of the different products you recorded in the left-hand column of the chart. Use slash marks to represent the number of commercials you recorded for each product.

EXAMPLE

Product	Slash Marks	Tally	Total Time
Soda	/	1	
Cars	///	3	
Fast Foods	//	2	
Toys	/// ///	8	
TV Shows	//	2	
Clothes and Shoes	////	4	
Total Commercials		20	

3. Count the number of slash marks next to each product. Enter these numbers in the "Tally" column.

BRAIN Stretcher

Record the number of commercials in three different half-hour television programs. What is the total airtime devoted to commercials over all three shows? What percentage of the airtime was devoted to commercials in each of the shows?

Now record the length in seconds of each commercial in three different hour-long television programs. What is the total time devoted to commercials? What percentage of airtime was devoted to commercials in each of the shows?

Is the same percentage of airtime devoted to commercials in both half-hour and 1-hour television programs?