

**Chapter
1****Data Analysis and Statistics**

Dear Family,

What types of surveys have you participated in? Did you volunteer for a survey or did a surveyor contact you? The Internet has changed the way we do business with each other. Examples include buying and selling merchandise, researching contractors to hire, and finding restaurants to eat at. Within online communities, there are programs called reputation systems, in which consumers can rate a product, service, packaging, and more. Other consumers use this information to decide whether or not to trust a store, buy a product, or make a purchase. Many places use a five-star rating system such that five is the best and one is the worst.



As a family, discuss the following questions:

- What are the benefits of a reputation system?
- What are the drawbacks of a reputation system?
- What stores have you rated?
- What products have you rated?
- Does a rating system help you when you are making a decision?
- What are some things to consider when comparing the ratings of different products or stores?
- What are some strategies business owners can do to boost their ratings?

People who leave feedback are a self-selected sample, so the ratings may be biased. In this chapter, you will learn about the different ways to conduct an experiment by choosing a sample of the population, collecting the data, and analyzing the data. From the data, you can make predictions about the population.

The next time you buy something online, remember to leave feedback for other consumers!

**Chapter
1**
Data Analysis and Statistics (continued)

	Learning Target	Success Criteria
Chapter 1 Data Analysis and Statistics	Understand data analysis and statistics.	<ul style="list-style-type: none"> I can find probabilities in normal distributions. I can identify populations and samples. I can explain different methods for collecting data. I can make inferences from sample surveys and experiments.
1.1 Using Normal Distributions	Understand normal distributions.	<ul style="list-style-type: none"> I can find probabilities in normal distributions. I can interpret normal distributions. I can find probabilities in standard normal distributions.
1.2 Populations, Samples, and Hypotheses	Use random samples and simulations to make conclusions.	<ul style="list-style-type: none"> I can distinguish between populations and samples. I can find a sample proportion. I can use a simulation to test a hypothesis.
1.3 Collecting Data	Describe sampling methods and recognize bias when collecting data.	<ul style="list-style-type: none"> I can identify types of sampling methods in statistical studies. I can analyze methods of collecting data. I can describe bias in sampling and in survey questions.
1.4 Experimental Design	Describe and analyze experiments and their designs.	<ul style="list-style-type: none"> I can assess the validity of an experiment's results. I can design an experiment or observational study. I can analyze experimental designs.
1.5 Making Inferences from Sample Surveys	Use sample surveys to make conclusions about populations.	<ul style="list-style-type: none"> I can estimate population parameters. I can analyze the accuracy of a hypothesis using simulations. I can find margins of error for surveys.
1.6 Making Inferences from Experiments	Understand how to make inferences from experiments.	<ul style="list-style-type: none"> I can analyze data from an experiment. I can explain how to resample data. I can use resampling to make inferences about a treatment.