

Section Overview

Populations and Samples

Lesson 7-6

Why? Usually, it is not possible to collect data from every member of a **population**. Instead, a sample is drawn from the population.

A **sample** needs to be representative of the entire population. This is why a sample should be *random*. If the sample is not random, the information collected could inaccurately represent the population and reflect a bias.

This is **not a random sample** because only those readers willing to mail in the responses will be included.

A magazine conducts a reader survey in which readers mail in responses.

Selecting Samples

Lesson 7-7

Why? Students can determine whether a sample is likely to be representative of a population.

Sampling Methods	
Method	Description
Random sample	Each member of the population has an equal chance of being selected.
Systematic sample	A member of the population is selected at random, and then others are selected by using a pattern.
Convenience sample	The most-available members of the population are selected.
Self-selected sample	Members of the population volunteer to respond to a survey.

Random samples and systematic samples are generally more representative of a population than convenience samples and self-selected samples.

Sampling Errors and Bias

Lesson 7-8

Why? Students can make better and more-informed decisions about the world around them.

Biased samples and biased survey questions can affect the validity of the results of a survey.

The first 30 people leaving a swimming pool are surveyed to find out the favorite recreational activities of city residents.

This is a **biased sample**. These people are probably more likely to choose swimming as their favorite recreational activity than other city residents.

Twenty people are asked, "Should county residents be forced to pay unreasonably high tolls on Highway 28?"

This is a **biased question**. The words *forced* and *unreasonably high* lead people to answer no.