

Name _____ Date _____ Class _____

LESSON

10-1

Populations and Samples**Reteach**

Survey topic: number of books read by seventh-graders in Richmond

A population is the whole group that is being studied.	<i>Population:</i> all seventh-graders in Richmond
A sample is a part of the population.	<i>Sample:</i> all seventh graders at Jefferson Middle School
A random sample is a sample in which each member of the population has a random chance of being chosen. A random sample is a better representation of a population than a non-random sample.	<i>Random sample:</i> Have a computer select every tenth name from an alphabetical list of each seventh-grader in Richmond.
A biased sample is a sample that does not truly represent a population.	<i>Biased sample:</i> all of the seventh-graders in Richmond who are enrolled in honors English classes.

Tell if each sample is biased. Explain your answer.

1. An airline surveys passengers from a flight that is on time to determine if passengers on all flights are satisfied.

2. A newspaper randomly chooses 100 names from its subscriber database and then surveys those subscribers to find if they read the restaurant reviews.

3. The manager of a bookstore sends a survey to 150 customers who were randomly selected from a customer list.

4. A team of researchers surveys 200 people at a multiplex movie theater to find out how much money state residents spend on entertainment.

Name _____ Date _____ Class _____

LESSON
10-1**Populations and Samples****Practice and Problem Solving: D**

Identify the population and the sample in each exercise. The first one is done for you.

1. The number of home runs hit during one week in July of the 2014–2015 baseball season.

Population:

Home runs hit in 2014–2015.

Sample:

Home runs hit one week in July.

2. The amount of sap that is collected from six sugar maples from a 12-acre forest of sugar maples that are being tapped.

Population:

Sample:

Identify the best method of getting a random sample in Exercises 3 and 4. Explain your answer. The first one is done for you.

3. The school board wants to study how middle school teachers use computers and the Internet in their classes.

Sample A: all middle-school math-science teachers

Sample B: teachers whose last name begins with "N"

Sample C: every eighth teacher on a list of the school's teachers

Sample C is the best method of getting a random sample.

4. A lawn service wants to find out how satisfied its customers are with its lawn services and pricing.

Sample X: the ten customers who spent the most money with the lawn service over the past year.

Sample Y: ten customers who only used the lawn service one time over the past year

Sample Z: ten customers who used the lawn service at any time during the past year

Answer the question.

5. Why does the following question show bias in a survey of a town's citizens about a new professional sports stadium?

"What are your feelings about a new stadium that will bring in a professional sports teams and the possibility of more business development by hotels and restaurants in our town?"

Name _____ Date _____ Class _____

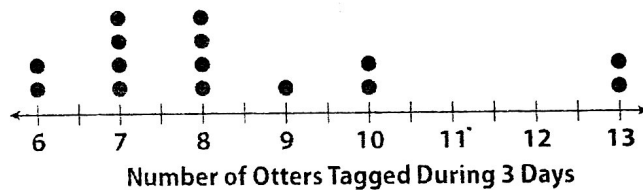
LESSON
10-2**Making Inferences from a Random Sample****Reading Strategies: Analyze Information**

Sample data displayed in dot or box plots can provide a variety of information about the sample itself and also about the population from which it is taken.

Example

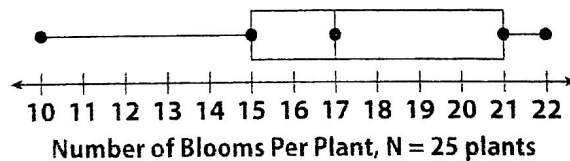
Make five statements about the sample data shown in the dot plot. Include one *inference* that can be made about the population from which the sample was taken.

Solution The statements should make use of terms used to describe a distribution of data: median, mode, number of data points, outliers, range, skew, etc. The inference about the general population should be based on the features of the sample that have the most certainty.



1. The data is **skewed to the left** or lower end, of the distribution.
2. The **range** of the data is 13 – 6 or 7 otters tagged.
3. There are 15 data points, so the **median** is the middle or 8th data point, which is 8. Even if the **outlier** data points, 13 otters tagged twice are ignored, the median is still 8.
4. There are two **modes**, 7 and 8 otters.
5. Since over half of the data are represented by the eight data points representing 7 and 8 otters tagged, this information is probably the most reliable to use to make an inference about the entire population of otters tagged by the wildlife conservation department.

Use the box plot to make four statements about the sample data using the terms listed.



1. Skew:

2. Outlier:

3. Median, with and without outlier:

4. Population inference: