

Biased Sample:

all members **do not have an equal** chance of being chosen

Random Sample (unbiased):

each member **has an equal** chance of being chosen

<http://www.ixl.com/math/grade-6/identify-representative-random-and-biased-samples>

One bead for every member of the school orchestra is placed in a bag. All but 2 of the beads are white. Each member draws a bead from the bag, and the members who pick the non-white beads will represent the orchestra.

A real estate agent surveys people about their housing preferences at an open house for a luxury townhouse.

To determine the most popular children's programs, a television station asks parents to call in and complete a phone survey.

Two teachers from each school in the district are chosen at random to fill out a survey on classroom behavior.

Airline boarding passes are marked with red stars at random to decide which passengers should have their carry-on luggage inspected.

To determine how often people eat out, every tenth person entering a fast-food restaurant is surveyed.

To evaluate the defect rate of its memory chips, an integrated circuit manufacturer tests every 100th chip off the production line.

Students who wish to represent the school at a school board meeting are asked to stop by the office after lunch.

To determine if the class understood the homework assignment, the math teacher checks the top 3 papers in the pile of collected homework.

To determine the representatives to the recess activities meeting, 2 students are selected at random from each homeroom.

A member of the cafeteria staff asks every fifth student leaving the cafeteria to rank 5 vegetables from most favorite to least favorite.

Name \_\_\_\_\_

Date \_\_\_\_\_

## CHOOSING SAMPLES

**Sampling** is a way to get information about a population without having to study the entire population. In a **random sample**, each member of the population has an equal chance of being selected. If all members do not have an equal likelihood of being chosen, the sample is **biased**.

**Tell whether each sample is a random sample or a biased sample. If it's biased, tell how.**

1. A sneaker company wants to find out how much money a customer usually pays for sneakers. The company surveyed 250 people who recently bought a T-shirt from the company.

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2. A food company wants to find out what shoppers in its stores in the area think about a new logo on its products. The company surveyed every fifth shopper entering throughout a whole weekend day and a whole weekday day at three of its food stores.

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3. An election committee wants to know how voters in its area will vote in an upcoming election. They call 150 voters by selecting every fifth name in a telephone directory.

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4. A pet supply company wants to know what dog owners in the area think about a new style of leash. The company surveys 150 people shopping in the dog food aisle in a grocery store.

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5. A car manufacturer wants to know how much people are willing to pay for heated seats. The company surveys 250 people who recently purchased a car from the company.

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6. A restaurant chain wants to identify the beverage most commonly ordered with lunch at its restaurants. The company surveys 100 women eating lunch at one of its restaurants.

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**Tell whether the sample is a random sample or a biased sample. If it's biased, tell how.**

- 1.** An airline wants to know how many flights an average businessperson takes each year. The airline surveys 150 people waiting for their luggage at an airport carousel.

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- 2.** Members of a town council want to know whether people who live in the town would like to have a recreation center. They survey every eighth house on the tax rolls of the town.

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- 3.** A restaurant owner wants to know how customers rate the quality of food served. He surveys every person who ate food in the restaurant during the first weekend of June.

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- 4.** The owners of a fitness center want to know what its members like best about the facility. They survey every fifth person registered at the center.

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**A biased sample is described below. Explain how the sample could be changed to make it a random sample.**

- 5.** A book publisher wants to know how many books a child between the ages of 8 and 12 owns. The company surveys every fourth 8 to 12 year-old who attends a particular school.

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Name \_\_\_\_\_

Date \_\_\_\_\_

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**Sampling** is a way to get information about a population without having to study the entire population. In a **random sample**, each member of the population has an equal chance of being selected. If all members do not have an equal likelihood of being chosen, the sample is **biased**.

**Describe a random sample for each situation.**

1. A car manufacturer wants to know the distance a car owner drives each week.

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2. A beverage company wants to know whether people like the taste of a new product.

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3. Managers of a department store want to know whether males or females use their store charge cards more often.

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4. A school Principal wants to know if eighth grade students would prefer an end-of-year dance or a class trip.

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5. The owners of a local sporting goods company want to know how much money families who live in the community spend on sports equipment each year.

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6. A chief of police wants to know if more tickets were issued to drivers under the age of 25 or over the age of 60.

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