



11-2 Additional Practice

Statistical Studies and Sampling Methods

What type of study is described?

1. A company that manufactures light bulbs selects 3 bulbs at random. These bulbs are then tested to see how many hours they last.
2. A video game store wants to discontinue one of the gaming consoles they sell, but want to ensure they keep the most popular. For two weeks, the sales clerk asks every third customer which console is their favorite.

For Items 3 and 4, what sampling method is used in the following examples? Is the method biased or not? Explain.

3. Students who are preparing for the junior class party want to determine what kinds of pizza to buy. They ask all the owners of the closest pizza restaurants what kinds of pizza they sell the most.
4. The county road department wants to know which roads cause the most concern among the residents of the county. They ask local pet stores to hand out survey forms for customers who volunteer their opinions.
5. Describe a design for a controlled experiment to determine whether an acne-reducing medication is effective for people who are 13–22 years old. What are some potential sources of bias in your study?
6. Explain why the results of a survey could have statistical bias, even if the questions used in the survey are not biased.



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observational

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sample survey

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convenience; Biased; the restaurant sells to people other than students.

4. The county road department wants to know which roads cause the most concern among the residents of the county. They ask local pet stores to hand out survey forms for customers who volunteer their opinions.

self-selected; Biased; the patrons are not representative of the entire county.

5. Describe a design for a controlled experiment to determine whether an acne-reducing medication is effective for people who are 13–22 years old. What are some potential sources of bias in your study?

Sample: For 100 people who are 13–22 years old, create two groups. One group gets the medication, and one gets a placebo. Over time, assess the degree of acne reduction. Possible biases include false reporting of results or errors in using the medication.

6. Explain why the results of a survey could have statistical bias, even if the questions used in the survey are not biased.

Sample: The sample might be too small to accurately reflect the population or the sampling method could be biased.