

BIASED SAMPLES A sample chosen for a survey should be representative of the population. A **biased sample** is a sample that is not representative. In a biased sample, parts of the population may be over-represented or under-represented.

Random samples and stratified random samples (as in Example 1) are the most likely types of samples to be representative. A systematic sample may be representative if the rule used to choose individuals is not biased.

EXAMPLE 2 Identify a potentially biased sample

In Example 1, suppose the owners question 50 workers chosen at random from one factory. Is the method likely to result in a biased sample?

Solution

Workers at other factories may hold significantly different opinions, so the method may result in a biased sample.

BIASED QUESTIONS A question that encourages a particular response is a **biased question**. Survey questions should be worded to avoid bias.

EXAMPLE 3 Identify potentially biased questions

Tell whether the question is potentially biased. Explain your answer. If the question is potentially biased, rewrite it so that it is not.

- Don't you agree that the voting age should be lowered to 16 because many 16-year-olds are responsible and informed?
- Do you think the city should risk an increase in pollution by allowing expansion of the Northern Industrial Park?

Solution

- This question is biased because it suggests that lowering the voting age is a good thing to do. An unbiased question is "Do you think the voting age should be lowered to 16?"
- This question is biased because it suggests that the proposed expansion will be bad for the environment. An unbiased question is "Do you think the city should allow expansion of the Northern Industrial Park?"



GUIDED PRACTICE for Examples 2 and 3

- SOCCER** In a survey about Americans' interest in soccer, the first 25 people admitted to a high school soccer game were asked, "How interested are you in the world's most popular sport, soccer?"
 - Is the sampling method likely to result in a biased sample? *Explain.*
 - Is the question potentially biased? *Explain* your answer. If the question is potentially biased, rewrite it so that it is not.