

Name: \_\_\_\_\_

### Biased or Unbiased Survey Questions

*For the following examples, determine whether the survey sample is biased or unbiased. Explain your answers.*

1. Question: What is your favorite sport? Sample is chosen from people attending a soccer game.
2. Question: What is your favorite soft drink? Sample is chosen by picking names out of a telephone book.
3. Question: Should more money be put into athletic programs or music programs at school? Sample is chosen from students in the band program.
4. Question: What is your favorite vacation destination? Sample is chosen by asking every student in the class.

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

5. Don't you agree that the voting age should be lowered to 16 because many 16-year-olds are responsible and informed?
6. Do you think the city should risk an increase in pollution by allowing expansion of the Northern Industrial Park?
7. 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?"
8. Don't you agree that the school needs a new baseball field more than a new science lab?
9. Would you pay even higher concert ticket prices to finance a new arena?
10. The budget of the Wake County Public School System is short of funds. Should taxes be raised in order for this district to fund extra-curricular sports programs?
11. Due to diminishing resources, should a law be made to require people to recycle?
12. You want to determine whether to serve hamburgers or pizza at a soccer team party.
  - a) Write a survey question that would likely produce biased results.
  - b) Write a survey question that would likely produce unbiased results.
13. You want to find students' opinions on the current attendance policy. Give two ways that your sample for the survey might be selected. The first must be an example of a biased sample and the second must be an example of an unbiased sample. Thoroughly explain your answers.
14. Two toothpaste manufacturers each claim that 4 out of every 5 dentists use their brand exclusively. Both manufacturers can support their claims with survey results. Explain how this is possible.

Answers:

1. biased – you should expect the most popular sport to be soccer because these people were attending a soccer game.
2. unbiased
3. biased – results will overestimate the proportion of people who would support music programs
4. unbiased

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

5. biased – question states 16 year olds are responsible and informed, so results will most likely be higher in favor of lowering the voting age.  
“Do you believe that the voting age should be lowered to 16?”
6. biased because of the statement about the increase in pollution  
“Do you think the city should allow expansion of the Northern Industrial Park?”
7. biased – asking people about soccer at a soccer game is ridiculous. Survey should be taken in a neutral location.
8. biased – the statement “don’t you agree” makes people say yes. A better question would be “Do you feel that the school needs a new baseball field or a new science lab?” To be completely fair, half of the people should be asked the question mentioning the science lab first.
9. biased – this implies that concert tickets are already priced too high. Take out the word “even”.  
“Would you pay higher concert ticket prices to finance a new arena?”
10. This is really not biased if raising taxes is the way that the sports programs will be funded.
11. biased – eliminate “due to diminishing resources” and rephrase this to eliminate the concept of having a law. “Should people be required to recycle?”
12. a) Since pizza is a much cheaper option, wouldn’t you rather have pizza served at the party than hamburgers?  
b) Would you prefer pizza or hamburgers at the party?
13. biased: ask a random sample of students who have missed at least 10 days of school (they will not be in favor of any attendance policy)  
Unbiased: give all students at the school a number and select a simple random sample
14. since those statistics are taken from a sample of dentists, it is possible that both companies’ reports are true – the companies used a different sample of dentists.