



Unit 9



Statistics

Who will win the World Series this year?

Is this question a difficult question? For who?



Suppose you were a fan of a given team how may this affect your answer?

Factors that could lead to problems when **collecting data**:

1. **Bias**--Don't you think 16 year olds should be allowed to leave school at lunch?

Go ahead → Question is worded to influence the answer

2. **Use of language**--Don't you think 16 year olds should be allowed to leave school at lunch?
Better Question: Should 16 year olds be allowed to leave.

Better Question: Who do you think should be allowed to leave school at lunch?

All grades, if you are over 16, or no one

3. **Timing**--You just get 90% on a math test and you are asked to say which class is your favorite.

When the data is collected could influence the answer.

4. **Privacy**-- If the topic is too personal a person may not want to participate or give untrue answers on purpose.
Anonymous surveys may help.

How many math tests did you fail?

What is your weight?

5. **Cultural Sensitivity**--be aware of other cultures and avoid asking offensive questions.

What is your favorite holiday? Christmas or Easter [this question may not apply to everyone because they may not celebrate either]

Better Question: If you celebrate Christmas and Easter which one is your favorite?

Right or Wrong

6. **Ethics**-- the data collected must not be used for purposed other than those told to the participants.

Ask which class you like best?

Information will be given to all teachers.

7. **Cost**--the cost of collecting the data must be considered
Do you have to pay to print the questions? hire people to do the survey?

8. **Time**--how long it takes to collect the data

If 10 min vs 1 hour [probably have more willing to complete a 10 minute survey]

A survey is conducted to determine the level of school spirit. It is conducted as students leave the gym where their High School Basketball team has just won the championship.

What is the problem with collecting data this way?

Timing, Bias

How could this problem be avoided?

Random day through any given week.

Do you think that small dogs make good pets even though they are yappy?

Bias, use of language

Create a biased question about the use of technology among teenagers

Positive Do you like iphones as much as I do?

Negative Don't you think teenagers spend too much time on phones

Jane wants to find out if there is a relationship between household income and how much people spend on Christmas presents.

What are some problems she may encounter?

Privacy, cultural sensitivity



Which of the following questions are biased? Explain.

- i) Is it appropriate to use a tanning bed before taking a trip to a tropical destination to avoid getting a bad sunburn? Positive "spin" Bias
- ii) Should tanning beds be banned because they can cause skin cancer? Negative "spin" Bias
- iii) Should the government regulate the use of tanning beds?

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Answers