

Warm-Up

Multiple Choice Identify the choice that best completes the statement or answers the question.

- ___ 1. The last three days Alexa had a test and ate an energy bar on her way to school that morning, she did well on the test. Today she had a test, so she ate an energy bar on her way to school. Was her decision based on theoretical probability, experimental probability, or subjective judgment?

D

- a. A combination of theoretical probability and subjective judgment
- b. Theoretical probability
- c. Subjective judgment
- d. Experimental probability

- ___ 2. Haley will not go on a cruise because the boat may sink even though cruise ships are very rarely involved in accidents. Is her decision based on theoretical probability, experimental probability, or subjective judgment?

A

- a. Subjective judgment
- b. Experimental probability
- c. A combination of theoretical and experimental probability
- d. Theoretical probability

- ___ 3. The chance of winning a prize in a lottery was 15%. Claudia was having a lucky day, so she bought a ticket. Was her decision based on theoretical probability, experimental probability, or subjective judgment?

A

- a. Subjective judgment
- b. Experimental probability
- c. Theoretical probability
- d. A combination of experimental probability and subjective judgment

4. A school principal reads a study with this information.

Only 40% of teenage boys and 20% of teenage girls consume enough dairy products to maintain good health.

The principal decides to provide students with a free glass of milk each day and to add chocolate milk, cheese, and yogurt to the cafeteria menu.

- a) What assumptions has the principal made?
- b) Why may there not be any change in the students consumption?

→ His ^{students} the same as those in survey

→ Students will buy dairy/take free milk

→ Students go to cafeteria

→ The study is correct

→ Students aren't lactose intolerant

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?

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: 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?

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

How could this problem be avoided?

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

Teenagers stay on their phones way too much, don't you agree?

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?

Bias

ii) Should tanning beds be banned because they can cause skin cancer?

Bias

iii) Should the government regulate the use of tanning beds?

Good