Actual Answer is called a *parameter*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_--

Question about a POPULATION (group)

***infer***

The number that describes the sample is called a *statistic*

Take SAMPLE

How can we take the sample? Write down as many ways as you can to take a sample from a population

*Answers will vary…Some examples: Choose the first 10 people to come in the room. Stand in the quad and get 10 people top answer your question. Pick names out of a hat.*

|  |  |
| --- | --- |
| Good Samples | Not-so-good Samples |
| ***RANDOM SAMPLES***  *Names out of a hat*  *Give everyone a unique number and pick numbers randomly*  *AP Stats Types of samples…*  *Simple Random Sample*  *Stratified Random Sample*  *Cluster Sample*  *Census* | Not Random Samples…  *AP Stats Types of samples…*  *Convenience Sample*  *Voluntary Response Sample* |

**Question #1: How do I take the sample?**

Example #1: What is the average number of minutes of screen time our population watches from the time they get into bed to the time they fall asleep?

Take a random sample of 10 from the population to estimate the parameter of interest.

1. What is the population? *The whole class*
2. What is the parameter of interest? *True average number of screen time minutes for the whole class*
3. Describe how you would take a random sample from the population.

*Give each student a unique number. (Label students from 1 to \_\_\_\_)*

*Put all those numbers into a hat and shake it up. Choose 10 numbers*

*The students that are assigned the numbers are chosen from the sample*

1. Why is taking a **random** sample important?

*We want the sample to be* ***representative*** *of the population. We would like to be able to* ***generalize*** *the information gathered from the sample to the population.*

*If you do NOT take a random sample, you run the risk of a biased sample. For example, let’s say that you are trying to estimate the average height of students at your school. Since you have time during lunch, you go to the gym to measure the kids that are in there before they go to their class after lunch. It so happens that volleyball and basketball players are playing in the gym. What could be wrong with using THIS sample to estimate your school’s average height?*

1. What was the average number of minutes of screen times watched for the sample taken? \_\_\_\_\_\_\_\_

This number that describes the sample is called a *statistic*

1. What is your inference (prediction) about the population?

*I estimate that the average number of minutes of screen time our class watches from the time they get into bed to the time they fall asleep is about \_\_\_\_\_\_\_\_\_\_\_ (the sample average)*

1. Do you have any concerns about your inference?

*This is just ONE sample of 10 people. How do we know that the population average is EXACTLY equal to what the average we got from the sample?*

**Question #2: What do I do *AFTER* I take the sample?**

Observational Study:

Data is collected from the sample without imposing a treatment.

Sample

Experiment:

People in the sample are randomly assigned to a treatment and data is collected.

Example of a Randomized Experiment:

Measure and Compare proportion still standing

**Random** Assignment

Eyes Closed

Eyes Open

Students