SUMMARY: 1.1 Where do Data Come From? Name: _____

1.) Statistics is the art and science of dealing with data

2.) Any statistical study records data about some individual (people, animals, or things), by giving the value of one or more variables for each individual.

3.) There are two types of variables. Provide examples of each below:

Categorical:	gender, hair color, marital status, zip code
Quantitative:	age, weight, height, mph (speed), GPA

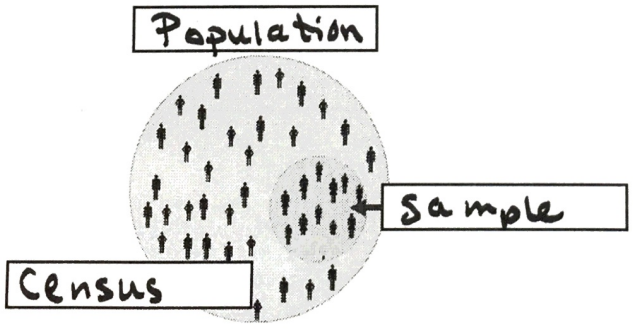
4.) Be sure the variables in a study really do tell you what you want to know. In other words, do the variable answer the "Question of interest?"

5.) The most important fact about any statistical study is how the data were produced.

6.) Ways to gather data: observational study or experiment.

7.) A sample survey is a type of observational study.

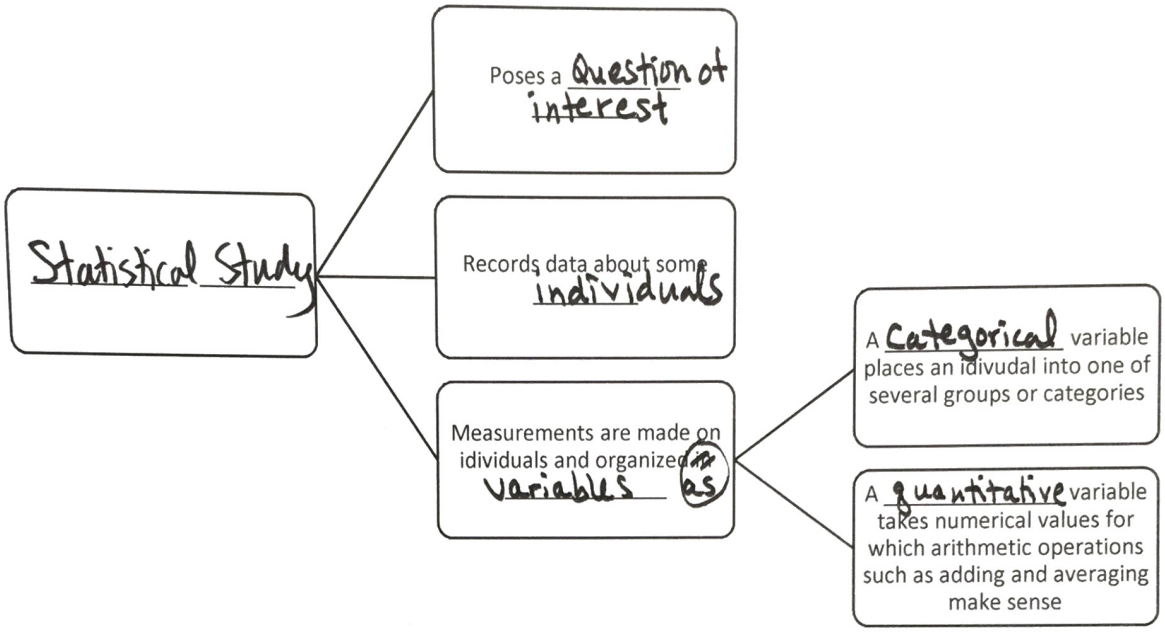
8.) Complete the diagram using the terms population, sample, and census. Then describe each term with a real world example.

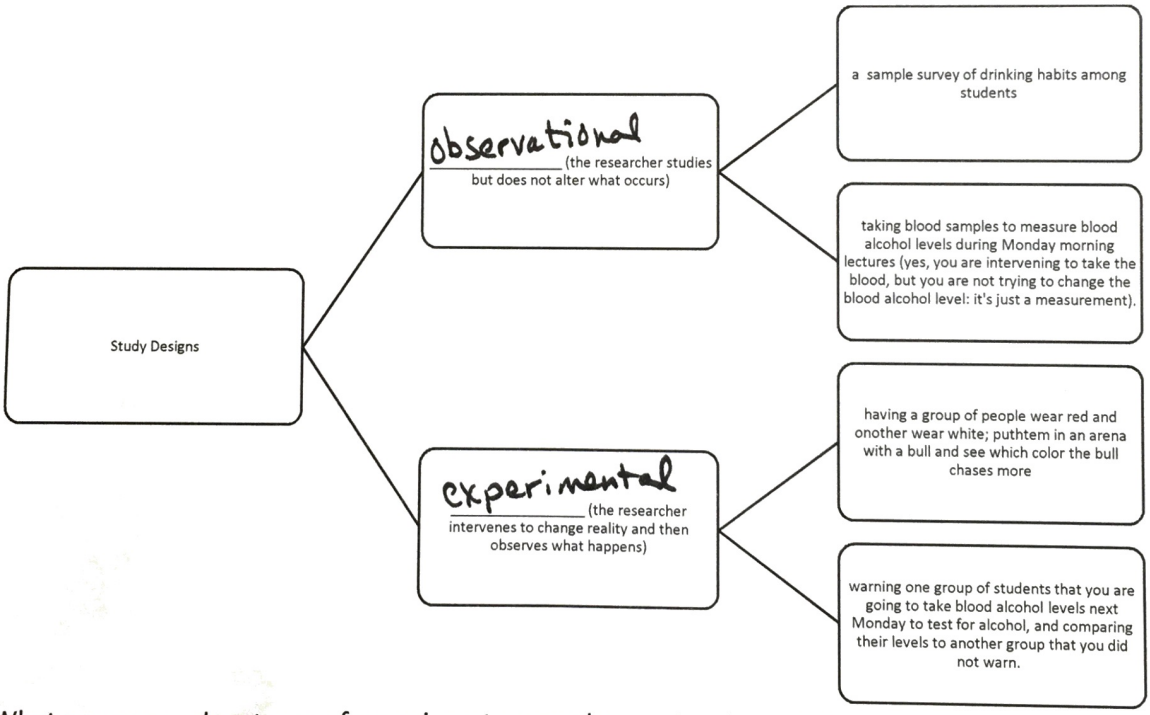


9.) Experiments actually do something to individuals in order to see how they respond. The goal of an experiment is usually to learn whether some treatment actually causes a certain response.

10.) Do not rely of personal experiences or one case snapshots for inference. Rely on carefully produced data.

11.) Fill in the blanks using the following words: ~~categorical~~, ~~quantitative~~, ~~statistical study~~, ~~variables~~, ~~individuals~~, ~~question of interest~~, ~~observational~~, ~~experimental~~





12.) What are some advantages of experiments over observational studies?

- You can infer cause + effect from experiments, but NOT observational studies
- control for variation (control group versus treatment group)

13.) What is an advantage of a sample survey over a census?

Census: over counts + under counts the population
expensive, difficult

Sample Survey: save time + money