# Statistics Vocabulary & Toolkit

Name:_____

| Type of Study | Definition | Example |
|---|---|---|
| Sample Survey or Poll | Observation or survey of a _____in order to estimate the characteristics of the larger population. | You randomly select 50 names from a list of the entire school and give them a questionaire about there happiness with cafeteria food. |
| Experiment | Gather data on the effect of one or more _____ on the characteristic of interest. | You randomly assign a group of 20 volunteers to either take a vitamin supplement each day or take a placebo. You meaure their number of days with a cold throughout a year. |
| Observational Study | Conditions you want to compare already apply to the subjects.  No randomization occurs. | |

| Word | Definition | Example/Visual |
|---|---|---|
| Response Variable/ Characteristic of Interest | The outcome of the treatment and control group.  The thing you are measuring to compare. | |
| Subjects/ Experimental Units | A group of people, plants, or objects that are randomly assigned treatments | |
| Population | Represents all the possible data that are of interest in a study or survey. | |
| Sample | A subset of data selected from a population. | |
| Random Sample | Randomly choosing a few subjects from a _____ | Drawing 25 names out of a hat from the entire school population. |
| Biased Sample | A sample that is collected in a way that makes it _____ of the population. | You want to get the opinions of DSA high school students about the hat policy.  You survey all the students in Women's Ensemble. |
| Treatment | The condition you are testing.  What is applied to the subjects. | |

| Word | Definition | Example/Visual |
|---|---|---|
| Random Assignment | Choosing subject arbitrarily to be placed in either the _____ or treatment group. | Drawing students' names out of a hat to determine which one goes into which group. |
| Sufficient number of subjects | | The results of using 100 patients would be much better than the results of only using 10. |
| Control group (Comparison Group) | A group that _____ receive the treatment to compare responses.<br>Or a group that receives a _____ to compare responses. | The patients receiving the new drug are the treatment group. The patients NOT receiving the new drug would be the control group. |
| | People respond differently if they believe they are receiving a treatment; whether they are or not. | A patient receiving a pill after surgery who believes it is a pain killer will feel better whether the pill has the medicine or not. |
| Lurking/Confounding Variable | Something that helps explain the association between the treatments and the response that is not what the experiment is designed to test. | |
| Randomization Test | A test to help you determine if a treatment has an effect on the _____. | Seeing if using a calculator makes a difference in a math test. |

| Comparing Three Types of Studies | | | |
|---|---|---|---|
| Randomization? | Causation? | Generalization? | Advantages/Disadvantages |
| **Experiment:**<br>Random Assignment of the Treatments | | | |
| **Sample Survey:** Selecting a random sample from the a population | | | |
| **Observation Study:**<br>No randomization | | | |

Characteristics of a Well Designed Experiment:

- Random Assignment
- Sufficient number of subjects
- Control Group or Comparison Group