**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Survey:**

|  |  |
| --- | --- |
| **Types of Samples:** | |
| **Self – Selected:** **members of a population can volunteer to be in the sample.** | **Random: each member of a population has an equal chance of being selected.** |
| **Systematic: a rule is used to select members of a population, such as selecting every other person.** | **Stratified: The population is first divided into groups. Then members are randomly chosen from each group.** |
| **Convenience: easy-to-reach members of a population are selected, such as those in the first row.** | **Clustered: The population is first divided into groups. A sample of the groups is randomly chosen. All members of the chosen groups are surveyed.** |

**Biased vs. Unbiased**:

* Biased:
* Unbiased:

**Convert from a Sample to Population**

More vocabulary:

* Variables:
* Treatment Group:
* Control Group:

An **Experiment** or an **Observational Study?**

|  |  |
| --- | --- |
| **Experiment: An experiment imposes a treatment on individuals to collect data on their responses.** | **Controlled experiment:** **In a controlled experiment, two groups are studied under conditions that are identical except for one variable.** |
| **Randomized comparative experiment: In a randomized comparative experiment, the individuals are assigned to a group at random**   * 1. **control group**   2. **treatment group** | **Observational Study: An observational study observes individuals and measures variables without controlling the individuals or their environment in any way.** |

**Ex.3 –** A researcher wants to know if a soil additive makes a fern grow more quickly. He grows one specimen in treated soil and one in untreated soil.

**Ex. 4 –** To find out whether car accidents are more likely on rainy days, a researcher records the weather conditions during 50 randomly selected accidents for the past year.

**Ex. 5 –** Does using tanning beds at least twice a month affect the likelihood of developing skin disease?

**Ex. 6 –** One hundred arthritis sufferers reported the severity of their symptoms daily for a month. Fifty of the subjects were given Epsom salt to bathe in at least every other day. At the end of the month, 30% of the subjects who used Epsom salt reported a decrease in severity of their symptoms, compared 5% in the other group.

**Ex. 7 –** Classify the method:

|  |  |  |
| --- | --- | --- |
| **Method A:** | **Method B:** | **Method C:** |
| Choose 50 people who have at least one serving of soy a day and 50 who don’t, and check their cholesterol levels. | Randomly choose 100 people. Ask how many servings of soy they have a week, and ask if their cholesterol levels are high. | Randomly choose 50 people to eat at least one serving of soy a day, and 50 people not to, and monitor their cholesterol levels. |