# Experimental Design Worksheet Scientific Method

Name _____

Worksheet: Identifying Controls & Variables Independent Variable - the variable you purposely change - variable "T"control - also called the "manipulated variable. THINK OF THIS AS THE CAUSE IN THE EXPERIMENT. Dependant Variable - the factor that you measure or may change as a result of the manipulated variable depends on the independent also called the responding" variable. THINK OF THIS AS THE EFFECT IN THE EXPERIMENT. Control Variable - anything that is kept constant. Sometimes an individual or group is kept from the independent variable completely - then it is called a Control Group

1. You water three sunflower plants with salt water. Each plant receives a different concentration of salt solutions. A fourth plant receives pure water. After a two-week period, the height is measured. IV different concentrations of salt solutions DV height. CV plant type (all sunflowers), time (two months) plant receiving pure water is also considered a control group since it does not receive salt at all

2. You decide to clean the bathroom. You notice that the shower is covered in a strange green slime. You try to get rid of this slime by adding lemonade juice. You spray half of the shower with lemonade juice and spray the other half of the shower with water. After 3 days of spraying equal amounts 3 times a day, there is no change in the appearance of the green slime on either side of the shower. IV different cleaners (lemonade & water) DV appearance of slime CV 3 days, equal amounts, 3 times a day

3. One tank of gold fish is fed the normal amount of food once a day. A second tank is fed twice a day. A third tank is fed four times a day during a six week study. The fish's weight is recoded daily. IV different amount of time fed DV fish's weight CV same fish type (goldfish), time (six weeks)

4. Different rose bushes are grown in a greenhouse for two months. The number of flowers on each bush is counted at the end of the experiment IV different rose bushes DV number of flowers. CV same greenhouse, time (two months)

5. Three redwood trees are kept at different humidity levels inside a greenhouse for 12 weeks. One tree is left outside in normal conditions. The heights of the trees are measured once a week IV different humidity levels DV height CV same tree type(redwood), time (12 weeks) - tree left outside I normal conditions is also considered a control group as it experiences no humidity change

6. Pea plant clones are giving different amounts of water for three-week period. The first pea plant receives 400 milliliters a day. The second pea plant receives 200 milliliters a day. The third pea plant receives 100 milliliters a day. The fourth pea plant does not receive any extra water: the plant only receives natural ways of receiving water. The heights of the pea plants are recorded daily. IV different amounts of water DV height CV plant type (pea plant clones), time (3 weeks) - the plant that receives no extra water is also considered the control group as it does not receive a different amount of water

7. You decide to clean your bedroom. You notice that your floor is covered with clothes. You try to get rid of the clothes by throwing them into the air. You throw clothes from 1/3 of the room into the closet and a second 1/3 of the room straight up in the air. The last 1/3 of the room you leave the clothes on the floor. After 30 minutes of "cleaning" the floor of the room is now visible. IV different places to throw clothes DV floor visibility CV same amount of clothes (1/3) to each area