Experimental Design Matrix

Title of the Experiment

- What are you trying to find out? "The Effect of *(independent variable)* on *(dependent variable)* in *(organism studied)*."
- A statement of what is being investigated that should include the independent variable, the dependent variable, and the organism being studied. For example: "The Effect of Fertilizer on Tomato Plant Height."

Hypothesis

- What do you predict will happen during the experiment? "If __(you do this)__, then __(this will happen)."
- A prediction about the relationship between the variables that can be tested. Your hypothesis should be expressed in the form of an "If ...., then..." statement.
- For example: "If the amount of fertilizer is increased, then the tomato plants will grow taller."

Independent Variable

- What are you testing or changing in your experiment? What are your units of measurement?
- The variable that is purposefully changed by the experimenter and the units in which this variable is being measured.
- For example: Fertilizer concentration (%)

*** Levels of Independent Variable**	amounts of independent variable	--------->	in increasing order	--------->	
*** Number of Repeated Trials**	number of times tested				

Dependent Variable

- What results will you measure? What are your units of measurement?
- The variable that is measured as the results of the experiment and the units in which this variable is being measured.
- For example: "tomato plant height (cm)"

Controlled Factors (List at least 5)

- List at least five things that it would be important to keep the same during your experiment so that it will be a fair test of your hypothesis.
- All factors that are kept the same and have fixed values.
- For example: "light, water, temperature, soil, wind, ages and variety of plants."

Control

- What is the control in your experiment or why do you think that your experiment is a controlled experiment.?
- The group that is used as a standard for comparison in the experiment. Usually the group that receives no treatment.
- For example: "The control is the group of tomato plants that were treated with 0% fertilizer." or "Only the fertilizer concentration was changed. All other factors were kept the same."

* Levels of Independent Variable

List the levels at which the independent variable is being tested in the appropriate number of rectangles across the top. For example: "0, 10, 25, 50, 100"

* Repeated Trials

The number of experimental repetitions, objects, or organisms tested at each level of the independent variable. List the number of trials being performed at each level in the rectangles across the bottom. For example: "25 tomato plants" written in each column.