**Lab #1: Experimental Design**

**Introduction:**Look around you! Have you ever thought, “Hmm…I wonder why that happens?” For your 1st lab assignment, you will be designing your own scientific experiment. You may work on your own or with 1-3 partners.

**Day 1 (in Class) (Fill in Outline Provided in Class…Like “Brainstorming for a Paper”)**

1. **Pick a research project**. Is there something about plants, animals, the human body, bacteria, ecology, or the environment that you really wonder about? Perhaps you have a question based on something you have observed. Can you form a testable hypothesis for this project? Do you want to do this alone or with a group. You will still be responsible for submitting your own lab report.
2. **Do research**. Do not just skip this step because you think you know everything about the topic. Start to read articles related to your project. This will help you to form a hypothesis and decide what your plan of action should be. Develop your research question
3. **Form a hypothesis**. What is it that you think will happen when you carry out your experiment? Remember, there is no right or wrong hypothesis. The hypothesis only needs to be a specific, reasonable assumption based on observation and past research. Your experimentation will answer the question.
4. **Design your experiment.**How *exactly* are you going to test your hypothesis? Remember here that you need to have a control group or groups that will ultimately support your final conclusions. Identify your variables & materials. Also included in this step is designing a method for data collection. How will you document the data you need to collect to prove your hypothesis?

\*\*\*Determine the materials you need for your experiment and assign to members of your group to bring to class tomorrow. When designing your procedure, keep things simple in terms of supplies.

**Day 2 (in Class)**

1. **Run your experiment.** Come to me if you need additional equipment besides items you can get on your own. I will help you as best as I can to get all the necessary materials to do the experiment.
   1. **If you are choosing an experiment to be conducted at home and over a period of time, use Day 2 to completely set up your lab report to be ready to collect data. In other words, work on completing your final report up to an empty data table waiting for data collection.**

**Complete on Your Own (Homework)**

1. **Analyze your data.** How are you going to display the data that you collect? Will you use graphs, and if so what kind? Will you have charts or pictures?
2. **Discussion of results.**This is where you discuss what happened in your experiment and come to a conclusion about your findings. Was your hypothesis proven to be correct, or did your findings fail to support your hypothesis? Why do you think this happened? What could be done to further this research?
3. **Present your research findings in the form of a lab report. Follow the outline of “lab report” on the back of this page.**