Environmental Impacts on Seed Germination SUMMATIVE Lab: Getting Started

**Experimental Question:** What are you testing? The question needs to be measurable and involve a cause and effect. (You may create your question after you start your research.)

Example: How do abiotic factors affect the bald eagle population?

__________________________________________________________________________________________

Background Information/Research:

*Cite sources using MLA format.* NoodleBib will be helpful in using the correct format.

Helpful Databases may include Student Resources in Context and Ebsco.

http://nhsn-nashua.libguides.com/biology/environmentalimpactofseedgermination

You may also use books and the internet for research. **Be sure to use reliable resources.**

*Take written notes,* rather than making “copy & paste” notes on the computer. This is a good practice to prevent inadvertently plagiarizing. Use additional paper if needed. **NOTE:** You may research with your partner(s), but each individual must write their own “Background Information” section of the final report.

1. Describe the factor (*salinization/salt, acid rain, flooding, drought, extreme temperatures, soil type, available space, etc.*) being tested in detail.
2. According to the research, how does this factor affect plant growth in general?
3. How does this factor affect the ecosystem and/or biosphere?
4. How is the factor related to people? Is it a concern or benefit? Are people causing this to occur?

5. Have similar experiments been done before? What were the details of the experiment? What were the results?
1. General seed germination/plant growth best practices. What seeds will you be using? What are the ideal conditions for germination? For plants, what are the ideal conditions for growth? (Before experimenting on seeds, it is helpful to know best practices in growing the particular type of seeds.)

2. Include any additional relevant information.

Hypothesis: If (manipulated variable), then (measurable responding variable).

Material List: List EVERY item you will need for your procedure.
Procedure: When writing your procedure be very detailed and remember anyone should be able to duplicate it. It is like the *recipe* for your experiment. This should be written with your partner(s) if you are working in a group. The procedure can be written in a bulleted list, while using complete sentences. *The material list and procedure will need to be approved before the experiment is started.*

1) Decide how you will test your environmental impact. You must include between 3-5 different experimental groups (variations of your impact) AND a control group.
2) Choose how many seeds you will test for each variation (between 5-10 seeds for each). You will need to use the same number for each experimental group and the control group.
3) It is recommended that you wrap seeds in paper towels (if not in soil type) to avoid interactions with other elements.
4) Run the experiment for up to 2 weeks, collecting data each day. Data should include how many seeds are germinating, as well as descriptive data concerning the beans. (You may use various types of beans, corn, marigolds, or other seeds if available. You may also use your plants that are growing.)

If you have *thoroughly* completed your research, experimental question, hypothesis, materials and procedure, you may begin writing these sections of your final lab report. (This is formal informational writing and we will not use personal pronouns.)