Arabidopsis **Project (PREP)**

Field Biology

For this project, you are going to be growing several specimens of the plant *Arabidopsis thaliana*. Your goal will be to create stresses on the plants and monitor their responses. In order to gather data that is scientifically accurate, you will need to design your experiment in a scientifically valid way. Information about how to set up your study is available on the PREP website – http://www.prep.biotech.vt.edu/expinfo/expinfo_background.html. Your first goal will be to use the PREP site and Google to answer the questions below as part of your preliminary research and brainstorming. You can hand-write or type this assignment – when you are done, turn it in to the turkey bin or e-mail it to dan.bregar@corvallis.k12.or.us with the subject "per *X your name* Arabidopsis brainstorming".

1. What is a mutant plant?

2. What is a wild-type plant?

3. Why do the PREP plants appear to be normal when they are grown under ideal conditions?

4. Describe at least one experimental condition you could create from each of the following categories:
    a. Light*
    b. Temperature*
    c. Water*
    d. Soil*
    e. Pollution*
    f. Other*

    *For each of these categories, describe what materials you would need to create your experimental condition. Also describe the steps you would take to implement your idea.

5. List five different types of plant "behaviors" could you measure in order to assess the response of your plant to a stressful environmental condition (for some ideas, look at the "*Arabidopsis* Growth and Development" section of the PREP website).

6. What is a replicate? How many replicates do you think would be reasonable for you to use on your project?

7. Write two different questions that you COULD use as the basis for your *Arabidopsis* project.
    a.
    b.

8. For each of the questions you wrote in part 7, describe what data you would collect and HOW you could collect that data.
    a.
    b.