

**Mr. Krebs Contact Information**

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**IB Biology II Summer Assignment (200 Points)**

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The summer assignment is split between two parts:

(1) IA Design ( should take about 1 hour). If you have questions regarding your topic contact me

(2) Raw Data Collection for IA

\*\*\*The summer assignment is due on the first day of school. NO LATE WORK WILL BE COLLECTED\*\*\*

Part I: IA DESIGN 50% of Grade

*Instructions: Complete the table found on the last few pages on this document. It may be written in a **medium of your choice (paper or digital)**.*

Part II: Raw Data Collection on a data table 50 % of grade

*Instructions: Run the experiment that you designed and collect all your data  
Be sure to include four experimental groups (treatment groups) and one control.*

The GIST:

- The lab design = complete grid on next page (it does not have to be in grid format).  
*This means that you will have generated a RESEARCH QUESTION, INDEPENDENT VARIABLE, DEPENDENT VARIABLE, CONSTANTS, BACKGROUND QUESTIONS TO RESEARCH, AND FOUR EXPERIMENTAL GROUPS IN ADDITION TO A CONTROL GROUP.*
- The Data collection = Collect data in a data table.
- That's it!

<b>Research question</b>				
<b>Independent variable</b>				
<b>Dependent variable:</b> Quantitative data			<b>Dependent variable:</b> Qualitative data	
<b>Constant variables</b>				
<b>Background Questions</b>				
<b>Hypothesis</b>				
<b>Control group</b>	<b>Experimental group # 1</b>	<b>Experimental group # 2</b>	<b>Experimental group # 3</b>	<b>Experimental group # 4</b>
<b>Sketch of graph (must answer research question)</b>				

## **Term Glossary**

### Research Question

- The research question is clearly stated and precisely formulated
- Research questions includes IV and DV
- Research question includes scientific name of organism, if relevant (Genus species)  
*Example: What natural fertilizers (cow manure, chicken manure, mushroom compost, kitchen compost, TN clay) will allow the daisies to increase in mass (grams) the most over a 12 week period?*

### Background

- The background sets the research question to context
- Appropriate and relevant biology is described and explained
- Citations relevant to the research question is used
- Background information is used to form a hypothesis
- Null and alternative hypothesis is given if a statistical test of significance is used.

### Variables

- Independent variable (IV) = the thing you vary
- Dependent variable (DV) = the thing you measure
- Controlled variable (DV) = the things you are controlling between all trials

#### ***Examples:***

*IV: four natural fertilizers (compost, animal manure, cottonseed meal, alfalfa meal) and water*

*DV: the dried biomass of the daisies as measured on a digital scale*

*CV: volume of soil, volume of water added daily, breed of daisy seed used, mass of fertilizer added, time fertilizer is added, daylight exposure, ambient temperature*

### Hypothesis

**Must be in “ If, then.. Because of the statement”.**

***Ex : If five groups of daisies are exposed to four different types of natural fertilizer and one group is exposed to water only, then the group exposed to backyard compost will grow the most because of (cite recent research.)***