

IA Lab Final Draft Guide 2018-2019

Delete all of the writing in italics/red

Formatting – font: 12pt, Times New Roman; between sections double spaced, within sections single spaced; every diagram, table, figure must be given a number, title, and description; pages numbered; normal margins; only the introduction can be written in 1st person, the rest should be written in 3rd person. IAs must be between 6 to 12 pages (not including title page and work cited).

HEY BIOLOGIST!!! I gave this to your IB Bio 1 teacher, so many of you have already seen this document. I update it every year in an attempt to make it easier to follow. Your goal this summer is to select your IA topic, complete the sections in this template, and turn in this assignment by Friday the first week back to school.

You can email me with questions you may have over the summer: lesnow@fcps.edu. You cannot use topics from labs completed during IB Bio 1. I also included the rubric which I will use to grade this assignment.

Title

(Title must contain the independent and dependent variables and should not be in the form of a question. It should be brief and give the reader an idea of what you did.)

(Your first and last name)

Candidate # _____

May 2019

Personal Engagement Statement:

Show that you LOVE this research topic. The evidence of personal engagement with the exploration is clear with significant independent thinking, initiative or creativity. The justification given for choosing the research question and/or the topic under investigation demonstrates personal significance, interest or curiosity.

Exploration

Background Information:

- a) What have other scientists said about your topic?*
- b) Put your topic in context. Why should we care?*
- c) Pretend the reader knows nothing about your topic. Give us all the information we need to understand your experiment.*
- d) If you are going to include diagrams make sure you give them a fig # & descriptive title.*
- e) Make sure to be specific to your experimental design. Don't speak so generally that is could be background information about ANY experiment regarding your topic.*
- f) Try to include known values / expected results from literature/websites*

Research Question (aim or problem):

This is a chance to show what your original question was. It could also be stated as a problem to be solved.

Hypothesis:

Hypothesis includes an independent variable and a dependent variable with an explanation of how/why they are related. Does not have to be written as "if...then...because" , but this is a good model if you need help with wording.

H0 Null hypothesis: state that your treatment has no effect

Independent Variable: Brief description of at least 5 degrees of your IV. Must include units, what instruments will be used to measure the variable, and why you selected it to be tested. Also discuss instrumental errors or personal errors possible in measurement. Clearly explain which variable(s) will be your control(s).

Dependent Variable: Brief description of the dependent variable. Must include units, what instruments will be used to measure the variable, and why you selected it to be tested. Also discuss instrumental errors or personal errors possible in measurement.

Constants: Briefly explain all your constants by suggesting what would happen if you did not keep these variables constant.

Experimental Design

There should be a paragraph here explaining how you came up with this experiment and why you designed it the way you did. Your methodology or procedures of the investigation is highly appropriate to address the research question because it takes into consideration all, or nearly all, of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.

*There is evidence of **personal input and initiative** in the designing, implementation or presentation of the investigation. Why did you select the independent and dependent variables? How do they model your hypothesis? What are some issues you see arising? What limitations does your experimental design have?*

List of Materials:

Make sure to include units. How much will you need? I will use this to order your supplies, so be specific!

Methodology:

- a) Plan to collect between 5 to 10 trials.*
- b) Be specific, but do not include things like, “collect materials” or “prepare to collect data” or “wash glassware after experiment”. These steps are part of every experiment.*
- c) Writing a paragraph is best; it is how scientists usually write.*
- d) If there are any parts of this lab that you are worried will affect your results or seem out of your control, **then be honest about that here.***
- e) Also, the more you make this experiment sound like your design, the better your score.*

Safety, ethical or environmental issues:

- a) How might you or someone else be injured during the course of your data collection?*
- b) Especially if you are using human or any small animals, what steps are you going to take to make sure that you will fully respect animal life and health?*
- c) Will your experiment have an impact on the environment? How will you minimize/eliminate any negative effects?*
- d) Do you need an autoclave to kill bacteria before disposal? Do you need to freeze the plants before disposal because they are an invasive species? Do you need a fume hood for ventilation when working with the chemicals?*
- e) Have will you dispose of your materials?*