**Overview of Expectations of Senior Authentic Experiment Report**

**Title** (creative, original and reveals purpose)

**Introduction:**

**Background information and relevance**

* This should address the “big picture” including background information on the topic of the experiment and how you derived your hypothesis (what prior knowledge does someone have to know in order to understand your report)
* Importance, relevance to real world applications
* Additional important information relevant to your particular experiment (if required)

**Research Question:**

* Explicitly state research question of the experiment (relate to your dependent variable)
* Brief overview of methods/analysis (what are you going to do and how are you going to evaluate it)

**Hypothesis Statement:**

* Take your research question, background information and your particular experiment, and then formulate a statement in the form of
  + “*If* the (independent variable) … , *then* the (dependent variable) … , *because* …”
  + Example: *If* a bean plant receives more sunlight, *then* it will grow taller than bean plants that do not receive as much sunlight *because* of during the process of photosynthesis sunlight provides the chemical energy required for growth.
* Very specific to your lab

**Methods:**

* State materials used in experiment
* State the independent variable and the dependent variable
* State all controlled variables
* Detailed procedure (someone else should be able to follow this procedure and duplicate your results)

**Results:**

* Raw unprocessed data and final presentation of data in tables (original hand written data needs to be attached behind graph at back of report in appendix)
* Uncertainties of equipment should be in data table headings ie. Volume (±0.5)
* Tables need a title relevant to what was measured and a table #

**Discussion:**

**Graphical Analysis:**

* Graph (dependent vs. independent) with title and graph number; including reference to data table the information it is gathered from (in upper left corner)
* Equation of the line shown on graph
* Graph is on its own page attached to the back of the report (prior to raw data in appendix)

**Written Analysis:**

* Any additional calculations
* Interpretation of graph and equation (building a case that leads up to conclusion)
* Evaluation of impact of measurement uncertainty
* Justification of methodology choices

**Conclusion:**

* Reiteration of research question/objective
* Conclusion is described and justified
* Is relevant to research question and supported by data
* Explicitly state strengths and weaknesses of study methodology (reliability of methodology including limitations and errors of data)
* Discussion of suggestions to improve the investigation
* Future considerations (suggestion of a new research question that builds on this experiment)

**References:**

* Any information borrowed from another source that is not common scientific knowledge must be cited (statements of known facts or what is considered common scientific knowledge does not need to be referenced)
* Citing using either APA or MLA, but be consistent throughout report
* Cited within the text, as well as in reference list
* All sources in reference section must be in alphabetical order

**\*\*\* Report must be typed, not hand written\*\*\***

**Helpful links:**

*Writing Centre Scientific Report:*

http://writingcenter.unc.edu/handouts/scientific-reports/

*Uni Learning Report Writing:*

http://unilearning.uow.edu.au/report/2b.html

**Referencing Links:**

*APA:* https://owl.english.purdue.edu/owl/resource/560/01/

*MLA:* https://owl.english.purdue.edu/owl/resource/747/01/

*RE Mountain Library References:*

http://mountainlibrary.weebly.com/citing-sources.html