

All AP Environmental Science labs must be kept in a bound journal (composition notebook) for submission to your instructor within three days following completion of each lab. If you miss a lab you will be required to make it up after school within three days of your absence (or else you will receive a zero). Leave two blank pages at the beginning of your notebook for the Table of Contents. Write your labs in blue or black ink. Do not use pencil, do not use white-out, and do not erase. If you make a mistake, simply draw a line through the text and re-write. Mistakes are okay, we learn from them and correct them. The following format must be followed in detail.

Title:

For example “Ecological Impacts of Rice Farming: Nutrient Cycles”

Background Research (aka Introduction):

Background research on the topic covered in the lab. You may use your book and/or the internet; write in your own words to avoid plagiarism. This section should be 1-2 pages long and include sources of information.

Problem or Objective:

What problem or question is to be studied in this experiment? For example: “How can water and nutrient content in paddy rice from different agricultural regions be quantified and compared; why is this an important concept in agriculture as related to ecology?”

Hypothesis:

Using an “If..., then..., because...” statement you will come up with an educated proposal (from your background research, not an unsupported “guess”) of what you expect to observe and why (always use third person). The goal of a hypothesis is to state the purpose of the research and the variables to be tested for outcomes. For example “If rice is incinerated, the difference in the mass of the rice before and after incineration will represent the quantities of carbohydrates and minerals in the rice because the carbon in the rice will be oxidized when burned and minerals will remain in the sample”.

This format may deviate somewhat in selected labs.

Materials:

List all materials used in the lab.

Procedure (a.k.a. Methods):

Should be written down so that if another scientist (or student) wants to repeat this experiment, they can use your journal. Remember to use third person and past tense. For example “The dried rice was incinerated over the Bunsen burner until only ash remained. Each sample was re-weighed following incineration” [NOT - “We incinerated the dried rice until only the ash remained, then we re-weighed the sample” or “... incinerate each sample and then re-weigh it to obtain...”]

Results: (Data/Observations)

Copy down any data tables used for the lab and record observations and notes while collecting data. If graphs are used to show results, be sure to include axis labels and units. Photos of experiments may be taped into your journal.

Questions and Analysis:

Answer any questions that are in the lab handout. You will be graded for accuracy of calculations/answers.

Conclusion:

Using a “When..., then..., because...” statement (third person, past tense), decide whether you accept or reject your hypothesis. In your conclusion, link your results to your background research and problem or objective statement.

Discuss in writing any errors that you may have observed, or that may have caused you to have data outliers or suspicious results. Do not be discouraged by errors, we learn more from mistakes than we do from successes. Describe anything you would change to improve the experiment.