

Scientific Paper Outline

Voice:

- All in present tense, except for methods sentences, which are in past tense.
- Do NOT use 1st person. The experiment should always be the subject of your sentences, NOT yourselves! (For example, do NOT say, "We burned peanuts." Instead say, "Peanuts were burned.")

Format:

- Required Length: 7 - 10 pages
- 12 point font -Arial or Times New Roman only.
- Line Spacing: 1.5 (go to Format and Paragraph to change line spacing)
- Abstract will be centered on top of the page.
- Double Column format for the rest of the paper (Introduction to Conclusion) Go to Format, Columns, and choose 2 columns
- Results Tables, Graphs, and Pictures do not need to be in columns.
- Always must be word-processed.
- Number your pages - Number should appear along bottom center of page
- Cover page: Include your name, date, class, teacher, and period somewhere on your cover.

Order and Subject of Paragraphs:

I. Abstract: (Include this title in your paper and center it!) ~ 1 paragraph

- An abstract is a one paragraph (6-8 sentences) summary of your entire project. You must use the IMRaC format for writing an abstract. In other words, you use one to two sentences to describe each of the following main points about the experiment (not about the classroom procedures) in your one-paragraph abstract:

I= Introduction (purpose)

M= Methods (simple overview of procedure)

R= Results (numerical data)

and

C= Conclusion (interpretation of data)

II. Introduction: (Include this title in your paper)~2-3 pages

- Introduce the lab and purpose of the lab. Explain the significance or importance of the experiment.
- Use additional research to provide some background information about the scientific concepts involved in the lab. This research must be cited in-text and a works cited page provided at the end of the paper.

- State the problem/question- The background information needs to lead into question that is being investigated in this experiment. Make sure your scientific question is worded clearly.
- State the Hypothesis- The introduction should conclude with the hypothesis for this experiment. The hypothesis should be written in the "If...then..." form. You should include explanations for your hypothesis.

III. Methods: (Include this title)~1-2 pages

- Summarize the methods (procedure) used to conduct your experiment in paragraph form. Be thorough yet concise. It is not necessary to list the materials! DO NOT number the steps of the procedures and do NOT copy the procedure section out of your book!
- Explain what was established as your control group, and what was established as your experimental group in this experiment.
- Identify the independent and dependent variables.
- Identify the variables that were necessary to control for this experiment and why these variables were controlled.

IV. Results: (Include this title)~1-2 pages (This section does not need to be in columns)

- Choose the most appropriate method for representing your data. All numerical data gathered during the experiment must be presented in this section as a table, and a graph, Tables and graphs must be computer generated and may not be done by hand!
- Make sure tables and graphs are appropriately titled, axes labeled.
- Non-numerical data must be represented as a picture.
- All tables, graphs, and pictures must include a 1-2 sentence caption explaining the graph, table, or picture.
- Tips: Do NOT break a table up into different pages. Make sure your table fits on one page. If it doesn't, start the table on the following page.

V. Discussion/Conclusion (Include this title) ~2-3 pages

- First, restate the original problem and original hypothesis.
- Second, state if your hypothesis was supported or not supported.
- State and describe the numerical data/results.
- Provide an explanation for the results by referring back to the scientific background information. This section will be read through very carefully to see if you truly understand the scientific concepts of this lab and to see if you can express and support your scientific thinking!
- Application: Now that you have the answer to the scientific question, discuss ways or areas this valuable information is useful. How would this information be applied to other fields of study? How would the general public or scientific community use this information?

- State problems and sources of error. Explain how they affected your results. Explain what you think would have and should have happened in your experiment had you not had those problems.
- Now that you have finished the experiment, what could be done to find out more about the subject, or what can be done to the present experiment to improve it? Always state a question that could be tested further and/or suggestion for improvement of the experiment.

Plagiarism and Other Unpleasant Subjects: Under no circumstances is it acceptable to "copy" from a source - even if the source is cited. (Sources can be the Internet, books, magazine, journals, advertisements, or even another person.) Paraphrase all of the research in your own words or use direct quotes. Direct quotes should be used sparingly and should be no longer than 1-2 sentences; they are used to emphasize and support your ideas. (They are not meant to replace your own writing) You will get an automatic zero score for any form of cheating found on this paper.

What do I Cite?

- Cite all scientific background information that is not "common knowledge" to the general public. This will typically be in your introduction and the conclusion sections of your paper. What is "common knowledge" in your science classes might not be common knowledge to everyone else.
- Both paraphrases and direct quotes must be cited.
- Cite all internet graphics

Citation Format:

- Use parenthetical citations or endnotes in-text within the introduction and conclusion.
- Use MLA format taught in your English classes for your works cited page.

Rough Draft Project Due Date: _____

Edited Draft Due Date: _____

Final Draft Due Date: _____