

Writing a Lab Report or Scientific Research Paper

A scientific lab report should include some or all of the following sections, depending on your instructor's directions. Individual instructors may also have specific formatting requirements.

Abstract : A one-paragraph summary that, if present, appears first after the title. It should summarize the paper in such a way that a researcher could read it and determine if the paper will be relevant to his research. It should not reference specific items that appear later in the paper (i.e. table 2) or use specialized terminology.

Introduction : This 2-3 paragraph section introduces your paper to your audience. It should proceed from general to specific, highlighting current knowledge on the topic and the significance of your study. Why is your study important? How does it fit in with what others have discovered? What is the purpose of your study? Discuss only relevant references and get to the point of your paper quickly. Scientists usually define specialized terms here and some may summarize the results.

Materials & Methods : This section should include enough information that someone could repeat the experiment(s) and get the same results. Materials should be listed in detail, noting the molarity of solutions, precise sources of living organisms, compositions of chemical substances, etc. As you write the procedure, be sure to describe the steps in detail. Do not copy the steps from your lab manual but rather make this a flowing description of what you did. The passive voice is the preferred (and often required) writing style.

Passive: The mice were injected with the antibiotic bi-weekly

Active: ~~I injected the mice with the antibiotic bi-weekly.~~

Results : The Results section should summarize the data and observations but should not interpret the data or draw conclusions. Scientists organize data using tables, figures, and graphs.

Discussion : Interpret the findings you just summarized in the Results section in a confident and authoritative tone. The following questions may help direct your writing: What do the results mean? Do they support your hypothesis? Do they agree with other scientists' findings? What do your results mean in the big picture? The discussion is the climax of the story, so take the time to think, explain the results, and draw conclusions.

Acknowledgements: Acknowledgements are included in formal research papers. This section is a brief *thank you* to anyone who assisted you with your research or report.

References: Any reference used to write any section of the report should be listed here. List sources in alphabetical order using the format your instructor prefers.

Tips:

- Title your paper. Be specific and informative.
 - Inappropriate title: A Look at Caffeine
 - Appropriate title: The Effect of Caffeine on Short Term Memory in College Students
- Title each section of the paper with a bold heading (i.e. Introduction, Conclusion).
- Include units on any data you include in the results section or reference in other paragraphs.
- Label figures. Title graphs and label axes appropriately (and units if applicable).
- Don't forget to include your references.

Reference

McMillan, Victoria E. (2001). *Writing Papers in the Biological Sciences* (3rd ed.). New York: Bedford.

Compiled by Rachel Gado
November 2011