

Writing the Science Lab Report or Research Paper

The scientific lab report, or research paper, is the cornerstone of professional discussion in the sciences. Professional journals and college departments use it as a basic template to report findings. It is in this format that findings and new experiments are submitted for peer review. Professionalism is a required aspect of this type of writing. Writing in first person sets a casual tone and should be avoided. Speak in the past tense and use quantitative (opaque, 3 mL, etc.), not qualitative (large, far, hard, etc.) words. Assume that your readers are familiar with the subject matter. Give precise measurements labeled with proper units.

Before you begin, be sure that you have a hypothesis and prediction, background research and sources, organized data, and an understanding of the context and audience. Break up your paper into the following sections, labeling each section with the corresponding bolded name:

1. **Title page:** should include the title of the paper, the author's name, the date, and the class or school the paper was written for. The title should describe the hypothesis clearly but still be succinct. This page should be evenly spaced down the page and should not be labeled.
2. **Abstract:** should give a brief overview of the entire paper. The hypothesis should be introduced and a general explanation of the methods used should be given. A brief introduction of the results and the conclusion should also be included. This section should be concise and no more than 250 words.
3. **Introduction:** why was the study done? Provide here such as research that came before and information that is necessary for a reader to understand the context of the paper. Relate the hypothesis to the information you discussed.
4. **Materials and Methods:** this section includes the instructions for repeating the experiment. Be specific; give weights, times, lengths, name and explain the settings on any instruments used. Write chronologically and clearly. A fellow scientist with no coaching should be able to successfully repeat the experiment and get the same results. It is important that data or analysis is not presented here.
5. **Results:** data found is presented here. Professional-looking charts and graphs should be used and everything should be descriptively labeled. Include axis labels and units. **DO NOT** include any analysis here! This should be only hard data and no interpretation.
6. **Discussion:** this section is for data analysis. Describe your results: were they expected; were there any measurements that seemed out of place; was there anything that went wrong; were there any sources of error; what conclusions can be drawn from the results; what new questions can be asked in the future? Remember to ask and explain why everything happened as it did. If you cannot explain something, discuss that and ask a new question. This section should be the longest and most detailed. It is certainly the most important.
7. **Sources:** use this section to give citation to any source referred to in your paper. Follow APA guidelines unless otherwise instructed.