Some tips for a successful lab report.

Executive Summary: The reader should be able to tell, without opening the report, what was studied and why it was important, how it was studied, and what was found. It should take no more that 4-5 lines to describe this.

Objective/Background: The role-playing aspect (“Here at ACME Umbrella, we use high strength steels for…”) is useful for a writing prompt, but don’t let it distract from the report. You are reporting on a material property or phenomenon. Tell the reader about that, instead of the imaginary application. For example, in the hydrogen embrittlement lab, you need to explain what HE is, and how it happens. That is necessary Background to put the report in context. Describe the tests, and how they should show what you are trying to demonstrate.

Procedure: Many groups used a recipe-style procedure (“1. Measure the samples. 2. Anneal at…”). This was OK and nobody was marked off for using this, but look at examples of procedures in professional papers. They are normally written in a style consistent with the rest of the report (paragraph form). Consider adopting this style. Most importantly, a reader should be able to replicate your experiment using only what they find in your Procedure.

Results: It is not enough to simply present data. You must write something to give the data context. You are narrating the story told by the data, if you will. Tell the reader what they are looking at, e.g. “In Fig. 4 we see that the extension at fracture for the 900°C annealed sample is…”

Discussion: This is separate from your results, and is the most important section of any report. Here, you show what is important about your results, and justify your claims. Keep the discussion focused on your data; anything this might imply about your particular application really belongs in the Conclusion.

Conclusion: Two good writing prompts for this section are, “We have reported on…” and “It was found that…” You are telling the reader what they have just read. You can then go on to talk about what your results mean for your application, if necessary.

Figures: Take care with how you present your data. Organized tables, well labeled and uncluttered graphs, etc. help to convey the information in your data. For example, you probably compared tensile strengths of the samples annealed at different temperatures. By overlaying the two stress-strain curves in one figure, the reader can immediately see how they differ.

Any figure, graph, or table should have a descriptive caption, to tell the reader what they are looking at. A title is not enough. They should also be numbered, so that you can reference them directly in your discussion.

Format: Follow the report guidelines given by Dr. Quesnel. Don’t get creative with your sections.

Be careful with the format of your reports. Look at some professional papers to see what standard formats look like. Never use a sans-serif font (such as Calibri or Arial) for bodies of text. It is more difficult to read in blocks than serif fonts. There is a reason why Times New Roman is so common. Take the time to insert symbols when necessary, e.g. °, 0, ×10⁵, etc. Again, it makes your text much more readable. A hint: learn a few ASCII codes, and look that up if you don’t know what that means. For example, the degree sign, °, is Alt+248.

Do not neglect spelling or grammar. Good ideas can get lost if they are difficult to read.