Lab Reports and Documentation

Objective = Title / Abstract
The objective of the lab reports is the title / abstract of the documentation. The documentation should have a statement at the beginning saying what this documentation is going to be about.

Hypothesis = Criteria
In grade school experiments, students must guess what is going to happen because the experiments are used for understanding. In documentation, the problem should be so well understood that predictions about what is going to happen are given along with a set criteria. Before the experiment has started, it is necessary to write down what the results are expected to be (at least an order of magnitude estimation) and how success and failure will be measured. There are several questions to consider. How long will this experiment take? Where will it take place? What should the final result be? What kind of equipment is needed to conduct this experiment? How will the experiment be conducted?

Procedure = Testing
A step-by-step procedure of how the experiment will be conducted should be written. As the experiment is being conducted, careful notes about any variations in the procedure should also be written.

Results = Observations
It is necessary to record what happens during the testing trying to document as much as possible. Commentary should be avoided in this section. Pictures should be taken to help with documentation. Only objective observations should be noted here.

Discussion = Analysis
This section should include comments about why things happened the way they did. Did things go right? Did things go wrong? Compare and contrast the test results with the criteria that was developed.

Error Analysis
This is a new section. It is necessary to explain why things happened. It is also important to address factors that had no relevance and prove that those factors had no relevance. Those irrelevant factors need to be recorded as evidence that they are considered. If data collection is part of the experiment, this is where a statistical analysis would be appropriate.

Recommendations
What should be done in the future? What would have made the testing procedure better? How could error be minimized?

*Final Note: Be sure that the time and date is recorded with each entry.*