

Laboratory Notebook/Log Book:
MUST BE SUFFICIENTLY LEGIBLE DETAILED AS A GUIDE

Serves as a

- Organization
- tool, reliable reference for writing up materials, methods and importantly results for a study
- intellectual property comes from this research



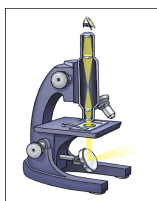
Outlines of procedures

Choosing a notebook

- bound notebook, quadrille-ruled, prenumbered pages and places for date & teacher's signature (if required)

Preparing the notebook

- use ball point pen for all entries
- write your name, telephone number, project name on the outside front cover
- reserve the next several pages for table of contents by labeling the top of each page as *Table of Contents*



What to enter

- all procedures and data directly into notebook in timely manner while you are conducting the actual work
- must be sufficiently detailed, chronological
- can include hypothesis, queries of the experiment
- can also contain research notes, pre-lab preparation, notes idea,

questions

LABORATORY NOTEBOOK/LOG BOOK

Title, date, time for each new record

Materials

- list of required materials, equipment, tools and machine
- calculation of the stock and working concentration of reagents
- detailed, step by step recording of each procedure

Methods

- detailed, step by step record of each procedure
- recorded changes made during actual experimentations
- include mistakes made or precautions that are found necessary to be taken note of
- if performing repeated procedures, can refer back to original text and note page or source
- always include controls for your experiments, positive and negative



Observations

Results



- legible, recorded raw data from experiment with proper dimension, symbols, units conversions
- can be in the plotted into a table, graph with Microsoft excel for better comparison

Summary

- summarized of what you have achieved

- keyword to maintains continuity and plan for the next experiment

REPORT

→ Introduction

- Simple literature review of research topic based on literature search. Sources: Pubmed contains published research journals in international journal

<http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=pubmed&cmd=search&term=>

Internet search engines eg. Googles

Text books, books, scientific magazine eg. Popular Science

- Explain hypothesis to your experiment based on previous observations or extensions of scientific theories

→ Aim or objectives (included with introduction section)

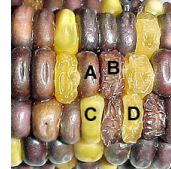
- stated the purpose(s) of the experiment

→ Materials & methods

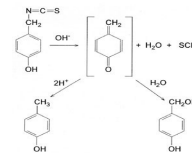
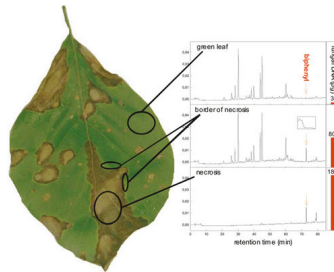
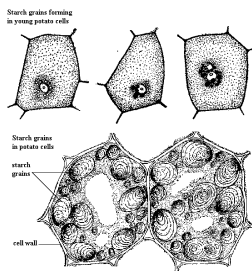
- Summarized form of the optimized methods

→ Result

- summarized raw data into suitable statistical presentation (eg . mean) in the format of table, graph, figure with proper labeling and titles



Picture showing the classification of the results



Pathway of SCN⁻ is produced from the primary glucosinolate in *Sinapis alba* meal by way way of a unstable isothiocyanate intermediate

Drawings of observation

Table 1. Vertical growth of selected plants*

Time (days)	<i>Acer palmatum</i>	<i>Quercus rubra</i>	<i>Morus alba</i>
0	1.0	1.5	1.0
2	1.5	2.0	2.2
4	2.2	2.7	3.7
6	3.2	3.2	5.4
8	4.3	3.5	7.0
10	5.2	3.7	8.7
12	5.6	3.8	10.3

*Height, in cm

Picture

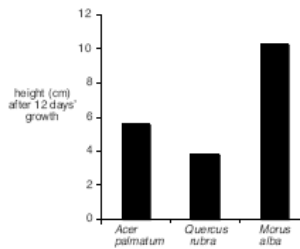


Figure 3. Cumulative growth patterns for three common North American tree species.

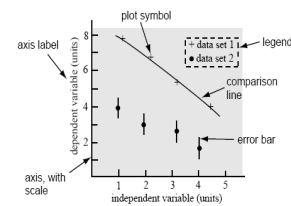


Figure 1. Basic form of a graph. The plot area is shaded. A description and key to variable symbols, etc. would go into this caption.

→ Discussion &/Conclusion

- inferences from your results
- compare your results with known sources
 - o deviations, similarities and differences
 - o applications, implications of project
- can also summarized of results in a diagram with flow chart format
- sharing of how challenges embrace

- suggestions future direction of your project

→ References

- list of the sources you consulted for your introduction, results and discussion

