WRITING LAB REPORTS

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The Importance of Writing

Many engineers spend between 1/3 and 1/2 of their work time engaged in *technical writing*. Examples include:

- Proposals
- Regulations
- Manuals
- Procedures
- Requests
- Technical reports
- *Laboratory reports*
- Progress reports
- Emails
- Memos

THE SIMPLE REPORT STRUCTURE

Title page

Introduction

Method and Materials

Results

Discussion

Conclusion

TITLE PAGE

- List the name of the experiment
- Write your name (assistant or partner if deemed necessary)
- List the instructor's name
- Write the date that the experiment was performed
- Write the date of the submission of the report

INTRODUCTION

Subject -defines the topic and associated terminology; may include theory, historical background, and its significance. Does not include specifics such as equations or symbols.

Purpose -indicates the reason for the investigation

Scope -indicates the extent and limits of the investigation

* The language in the Introduction is commonly in the present tense. Some common verbs are: measure, compare, prove, show

METHODS AND MATERIALS

Describe and define the methods you have used in your experiment.

Use tables, graphs, diagrams, figures, calculations to illustrate your findings and to give further information about the data.

A figure is any drawing, photograph, graph, or chart that is used to explain and support the technical Information in the text.

The figure number and title will appear below the image.

****Refer to a figure or table within the text, and place the image close to the reference.***

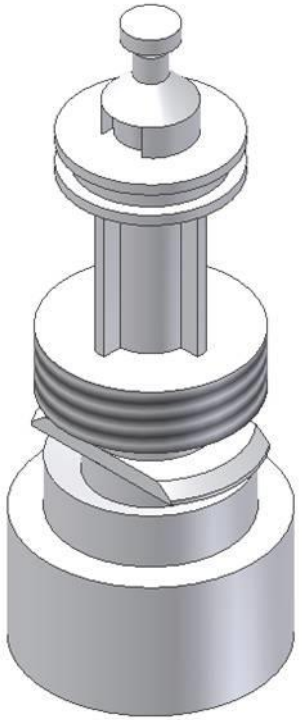

Figure 8
Stream Diverter

FIGURES and TABLES

A ***table*** is an arrangement of detailed facts or statistics that are arranged in a row-and-column format.

The table number and title appear above the table.

**Refer to the table within the text, and place the image close to the reference.*

Table 1
Hose Nozzle Parts List

Parts List	
QTY	Part Name
1	Handle Body
1	Spring
1	Plunger
1	Shim Ring
1	Adjustment Knob
1	Gasket
1	Large O-Ring
1	End-Cap
1	Trigger
2	Small O-Ring
2	Spacer Ring
1	Stream Diverter

LANGUAGE FOR DATA

Use the present tense when appropriate.

Table 1 displays, shows, exhibits….

The graph clearly illustrates, shows….

The diagram illustrates the method in which…..

According to the calculation below, …

This equation is expressed as…..

Result language – past

The calculation resulted in…

The results obtained by the experiment…

The results gave ……

The time constants retrieved were…….

RESULTS and DISCUSSIONS

The ***results and discussion*** section describes what you learned about the problem *as a* ***result*** *of your experiment*, identifies the ***degree of accuracy*** related to your findings, and gives the reader your view of the ***significance*** of your findings.

Use the past tense here

Results

What did you learn about the problem through your experiment?

Discussion

How accurate are your findings? What is the significance of the results of the experiment?

CONCLUSION

Restatement of Results

- What are the factual findings that resulted from your experiment?
- What are you implying as a result of these findings?

Concluding Remarks

- What are your opinions based on the findings and results?

SCIENTIFIC WRITING STYLES

You should write in complete, grammatically correct sentences.

If most of your sentences are long (4 or more 'clauses' or parts) you will confuse the reader. Consider making two long sentences with proper punctuation.

Be concise. If you can use one word instead of a phrase with two or more words, then choose the one word (get around = avoid).

Be objective. Limit your use of personal pronouns (I, you, we), emotionally loaded words (wonderful, useless, lovely) and casual or ambiguous expressions ('the reaction carried on for 10 minutes').

Use technical terms correctly. Learn what they mean, how to use them and how to spell them.

Do not use contractions (isn't, doesn't, it's), While these are common in speech, in formal writing the full form (is not, does not, it is) is expected.

Elements of style: some key DOs and DON'Ts

DO:

- use the appropriate tense - you are reporting on an experiment that has been carried out in the past
- ensure all figures have appropriate numbered captions
- ensure you reference all source material appropriately (if relevant)
- consider when words should begin with a capital letter
- re-read and review your report critically before handing in for marking

DON'T:

- just list instructions on how to perform the experiment
- give detailed arithmetic or algebraic calculations
- use jargon or undefined abbreviations
- make excessive use of personal style of "I" or "we"
  (but we often use impersonal "we"!)
- give long lists of experimental results in the main text of the report-use appendices if really necessary

LANGUAGE FOR THE LABORATORY EXPERIMENT

General Rules of thumb:

Present Tense: Introduction

Past Tense: Methods, Results , Conclusions

Choose Passive voice over Active voice in most cases

Use concise, precise language

SUBJECT – VERB - AGREEMENT

The time constants used for this experiment (is/are) located in the appendix.

are

By applying the LaPlace transform, the parts (was/were) calculated.

were

The DC motor (was/were) simulated without a problem.

was

* Find the subject, decide if it is singular or plural, use the appropriate verb.

Assessment of reports: criteria

All Lab reports are assessed according to standard criteria relating to:

- *Presentation and Organisation*
- *Use of English (spelling, grammar etc.)*
- *Use of Figures, Tables and References*
- *Clarity and Conciseness*
- *Structure (page numbers, etc)*

Each of these five areas is scored out of a maximum mark of 10, with a resulting total mark out of 50.

Feedback should be provided from each marker. Feedback is crucial in learning the art of writing reports.

If you are unsure about something, ASK!!

Assessment of reports: criteria

Activity:

You have been provided with with an anonymous (but real!) report, and are requested to mark it using the criteria in the previous slide.

NO CONFERRING!!!

You will then exchange your total mark sheet with a partner.

You will then discuss the distribution of marks.