1

4 experiments

Due dates

	Logbook (11 am)	Report
1	21/08	09/09
2	11/09	14/10
3	16/10	08/11 → all other work is due (11 pm)
4	07/11	

Logbook ~ 18% unit total each

Report ~ 6% unit total each

Some experiments have higher weighting factor (x1.2)

- Compton scattering (extended version)

Marking Criteria

1. **Structure** (chronology, navigability, readability)
2. **Data** (method, collection, quality, presentation)
3. **Analysis** (appropriateness, correctness, uncertainties)
4. **Insight** (evaluation, interpretation, comments)

32 Marks total → Report

- content
- analysis
- context
- presentation

upload ~2 weeks after logbook

- Scale corresponds to the Monash N (0 %) to HD (here 88%).
- HD8 (= 100%) is for extending beyond what you are required to do.

N	F	P	C	D	HD	HD
0	3	4	5	6	7	8

	HD 7	HD 8
Structure (chronology, navigability, readability)	All your notes are readable, and you have recorded your data in an appropriate format. Mistakes have been identified and clearly explained, and corrected via links between pages. The logbook is highly organised: sections are labelled appropriately in a logical way, all information is easily accessible. All steps in the scientific process are present in logbook document in a highly logical order reflecting that the logbook was completed in the order demanded of a scientific investigation. References are used to support statements wherever possible. All comparison data is referenced. The quality of the reference sources would be appropriate for a research article.	The logbook is of a similar quality that would deserve a 7, however in addition you were particularly careful to explain your work, catering for a reader unfamiliar with the experiment.
Data (method, collection & quality, presentation)	You collected data for all aspects of the experiment. Additional data as required was collected that contributed further to your analysis. You explained all aspects of how you collected and analysed your data, using informative diagrams/sketches/photos, and it would take no effort for someone else to reproduce your work. You obtained a sufficient amount of appropriate data to make your analysis meaningful, any further measurements would not improve precision. You refined the methods in a way that improved your experimental precision. You have explored the full parameter space available to you with the given apparatus. You recorded all your raw data. All units are present and correct. You have included all relevant qualitative observations related to your data. **You must have included a satisfactory risk assessment.**	Your logbook is of a similar quality that would achieve a 7, however, in addition you made a improvement to a method recommended by the script, and/or undertook a deeper investigation of the physical phenomena specified by the script, and/or designed and carried out an investigation of a physical phenomenon not specified by the script (after consultation with TA).

	HD 7	HD 8
Analysis (appropriateness, correctness, uncertainties)	Your methods of data analysis resulted in all of your results being representative of the experiment you performed. Your graphs are easily understandable, containing all the necessary elements, and the data is displayed over appropriate ranges. For visual data, you have included insightful commentary which clearly identifies the main features of these images. You have explained the physical meaning of all of the models and equations you used. You have identified all sources of uncertainty, and all of your raw data includes an uncertainty value of an appropriate size. You have correctly propagated these uncertainties through all calculations to your final results. Where appropriate, all data in your graphs include correct error bars and your fits take into account the uncertainty of each data point.	The logbook is of a similar quality that would deserve a 7, however in addition: • your analysis was remarkably in-depth or sophisticated, • and/or you linked your results to a subtle aspect of the underlying physics beyond what was suggested by the script, • and/or there is evidence that you critically evaluated the quality of your data based on these uncertainties, and took any further action accordingly.
Insight (evaluation, interpretation, comments)	You have answered all the questions raised in the experiment and clearly demonstrated your understanding of the experiment. You have made specific, realistic suggestions for improvements to the experiment, and future avenues of investigation, which would be worthwhile to explore. You have summarised the main results of the experiment, and compared these to literature values with comments on the accuracy and precision of your results.	The logbook is of a similar quality that would deserve a 7, however in addition your answers to questions raised in the experiment, and/or your suggestions for further investigations, are particularly insightful.

Logbook

Completeness

- everything is written here (memory sucks)

structure

Submit format PDF

— Title —

date names of participants

Aim

Theory explanation of what equations and parameters
Refer to info in reference material

How you understand the physics

can have subsections

Experimental record

Record ALL DATA

Put as you go!

Analysis

mistakes don't matter

uncertainties

Fill as you go! Do not re-write history

Discussion

comparisons [5]

≠?

discrepancy

mention your uncertainty analysis.

Report

Abstract is mash of aim + conclusion

References

Conclusions