

General assessment criteria for **practical reports**

NB. Inclusion of ‘**demonstrates awareness of personal safety and the safety of others**’ type of criteria in the assessment of a practical report. Although not included here, a criteria such as the one above might be used as a threshold for passing, for example. This could be expanded: demonstration of an awareness of health & safety issues for self and others (e.g. lab coats, safety glasses worn etc.), risk assessment & management (e.g. COSHH forms, lab bench organisation to minimize risks etc.), group/collaborative working, leadership and ability to take initiative/resourcefulness.

Level indicators L3, 4, L5 and L6: stratification of some criteria by level are given where appropriate, indicated by * and found at bottom of first section

Mark/ Class	Scientific content and understanding	Data collection and processing	Conclusion and evaluation, analytical skills	Report structure & style
80 - 100% 1st	<ol style="list-style-type: none"> Shows a sophisticated understanding of the underlying scientific principles of the methodology used with originality and flair* Shows a complete mastery of the issues and theoretical implications underlying the research** Evidence of extensive reading and research around the subject area. 	<ol style="list-style-type: none"> Presentation of all data (raw and processed) is exceptional in terms of clarity, organisation and rigour, demonstrating initiative and flair. Processing of raw data is insightful and purposefully pertinent to the central research question as well as the discussion of results. 	<ol style="list-style-type: none"> Conclusion and discussion show an insightful grasp of the implications of the data with outstanding depth and breadth* Sources of error and limitations of the experiment are comprehensively explored with originality and flair* Suggests realistic, meaningful improvements as well as novel and valid future work, that shows initiative and firm understanding of the experiment and it's wider context. 	<ol style="list-style-type: none"> Eloquent use of appropriate formal academic language Report follows a logical sequence: Title> Abstract> Objectives > Materials > Methods > Results (Raw and analysed data) > Conclusions and Discussion/Evaluation. Outstandingly coherent report, well structured, imaginative and engaging where central evidence, ideas and arguments are enhanced

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	<p>L3* broad knowledge and understanding of the main concepts and terminology in a defined area of study, ** shows awareness of current limitations in a defined area of study</p> <p>L4 *broad knowledge and understanding of main concepts and terminology, **shows awareness of ambiguities & limitations of knowledge (and that some areas are open to ongoing debate and reformulation)</p> <p>L5 *detailed knowledge and understanding of well-established material, concepts and theories, **shows awareness of the limitation of their knowledge and how this influences any analyses and interpretations based on that knowledge (and where the knowledge base is most/least secure)</p> <p>L6 *detailed systematic knowledge and understanding of the main theories/concepts of the discipline(s) and inter-relationships with other disciplines, **shows understanding and knowledge of current problems &/or new insights at forefront of field &/or in specialist areas &/or multiple perspectives possible</p>	<p>Criteria applies to L3-L7 equally.</p>	<p>L3* Shows awareness of the reliability or limitation of data and information using pre-defined techniques and/or criteria.</p> <p>L4 * Judges the reliability of data and information using pre-defined techniques and/or criteria.</p> <p>L5 * Analyses a range of information comparing alternative methods and techniques. Selects appropriate techniques/criteria for evaluation and discriminates between the relative relevance and significance of data/evidence collected.</p> <p>L6 * Analyses new, novel and/or abstract data using an appropriate range of established subject specific techniques. Judges the reliability, validity and significance of evidence to support conclusions and/or recommendations suggests reasons for contradictory data/results.</p>	<p>Criteria applies to L3-L7 equally.</p>

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70-80% 1st	<ol style="list-style-type: none"> 1. Shows a full understanding of the underlying scientific principles of the methodology used* 2. Shows an excellent understanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. All relevant data (raw and processed) is presented in a clear and usable manner with appropriate labelling, units, and proper level of significance, so that conclusions can be checked and any desired re-analysis can be done. 2. Processes the raw data correctly so as to relate it to the central research question through calculations and appropriate tables & graphs. Clear and concise account of any statistical tests applied to data and their results with relevant tables (e.g. means, ANOVA). 	<ol style="list-style-type: none"> 1. States a relevant conclusion, with justification, based on a reasonable interpretation of the data. Compares results to known theory and/or published values, whenever possible.* 2. Specific sources of error are identified with analysis of the effect of those errors on the magnitude of results. Limitations of the experiment are noted.* 3. Suggests realistic, meaningful improvements to experimental methods in respect of identified errors and limitations. 	<ol style="list-style-type: none"> 1. Clear, simple language, written in the past tense, third person (and passive voice if required). 2. Report follows a logical sequence: Title> Abstract> Objectives > Materials > Methods > Results (Raw and analysed data) > Conclusions and Discussion/Evaluation. 3. The introduction clearly explains the rationale for the study. This is picked up in the conclusion/discussion where the results are considered in relation to the research questions, and conclusions are drawn as to whether or not hypotheses have been supported and what the implications of the findings might be for further research.
60-69% 2(i)	<ol style="list-style-type: none"> 1. Shows a good understanding of the underlying scientific principles of the methodology used* 2. Shows a good understanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. Most of the relevant data (raw and processed) is presented in a clear and usable manner with appropriate labelling, units, and proper level of significance. 2. Processes the raw data correctly using appropriate methods 	<ol style="list-style-type: none"> 1. States a relevant conclusion, with justification, based on a reasonable interpretation of the data but may be less concise than a 1st or over-speculative or rambling in places. Compares results to known theory and/or published values, whenever possible.* 2. Most key sources of error are identified with some analysis of the effect of those errors on the magnitude of results. Some limitations of the experiment are noted.* 	<ol style="list-style-type: none"> 1. Mostly clear, simple language, written in the past tense, third person (and passive voice if required). 2. Report contains all relevant sections with some minor errors in logical sequential order (e.g. processed data is presented before the raw data) 3. The introduction may lack some clarity in the rationale for the study. The conclusion/discussion relates the results to the research questions, and some general conclusions are drawn as to whether or not hypotheses have been supported and what the

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			3. Suggests sensible improvements to experimental methods in respect of identified errors and limitations.	implications of the findings might be for further research.
50-59% 2(ii)	<ol style="list-style-type: none"> 1. Shows a basic understanding of the underlying scientific principles of the methodology used* 2. Shows a basic understanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. Most relevant data (raw and processed) is presented in a clear and usable manner with appropriate labelling, units, and proper level of significance, but with some mistakes and/or omissions. 2. Processes the raw data correctly but with some processing mistakes and/or omissions 	<ol style="list-style-type: none"> 1. States a conclusion that reasonably reflects the data but is weak in places or includes inappropriate speculation.* 2. Some relevant sources of error are identified with limited analysis of the effect of those errors on the magnitude of results. Some limitations of the experiment are noted.* 3. Suggests some improvements to experimental methods in respect of identified errors and limitations but these may not be realistic. 	<ol style="list-style-type: none"> 1. Language is sometimes clumsy with inconsistent tenses. 2. Report contains all relevant sections with some errors in logical sequential order or presented in a non-meaningful sequence (e.g. evaluating methods before methods section, interpreting data in results) 3. The introduction lacks some clarity in the rationale for the study. The conclusion/discussion relates the results to the research questions, but some conclusions are missed as to whether or not hypotheses have been supported and what the implications of the findings might be for further research.
40-49% 3	<ol style="list-style-type: none"> 1. Shows some misunderstanding or limited understanding of the underlying scientific principles of the methodology used* 2. Shows some misunderstanding or limited understanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. Most relevant data (raw and processed) is presented clearly with appropriate labelling, units, but with some significant mistakes and/or omissions. 2. Processes the raw data but with some significant processing mistakes and/or omissions 	<ol style="list-style-type: none"> 1. States a conclusion that reasonably reflects the data, but fails to relate how the findings supports this conclusion 2. Identifies some relevant sources of error and limitations, but the evaluation is weak or missing 3. Suggests only superficial improvements 	<ol style="list-style-type: none"> 1. Language is often clumsy with inconsistent tenses. Meaning of statements may be unclear. 2. One or more sections of the report have been omitted or presented in a non-meaningful sequence (e.g. evaluating methods before methods section, interpreting data in results) 3. The introduction may fail to make the rationale clear. The conclusion/discussion may fail to

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				<p>relate the results to the research questions, and some conclusions are missed as to whether or not hypotheses have been supported and what the implications of the findings might be for further research.</p>
<p>30-39% Fail</p>	<ol style="list-style-type: none"> 1. Shows significant misunderstanding of the underlying scientific principles of the methodology used* 2. Shows significant misunderstanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. Presents relevant data inappropriately or incomprehensibly 2. Little processing of quantitative raw data is carried out or major mistakes are made in processing 	<ol style="list-style-type: none"> 1. States no conclusion or the conclusion is based on an unreasonable/incorrect interpretation of the data 2. Identifies irrelevant sources of error and limitations 3. Suggests unrealistic improvements or no improvements 	<ol style="list-style-type: none"> 1. Language is often clumsy with inconsistent tenses. Meaning of statements may be unclear. 2. One or more sections of the report have been omitted or presented in a non-meaningful sequence (e.g. evaluating methods before methods section, interpreting data in results) 3. The introduction fails to make the rationale clear or is incorrect. The conclusion/discussion may misinterpret or misunderstand the results, and most conclusions are missed as to whether or not hypotheses have been supported and what the implications of the findings might be for further research.

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15-29% Fail	<ol style="list-style-type: none"> 1. Shows little understanding of the underlying scientific principles of the methodology used* 2. Shows little understanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. Little or no data presented or presented incomprehensibly 2. Little or no processing of quantitative raw data is carried out or major mistakes are made in processing 	<ol style="list-style-type: none"> 1. States no conclusion or conclusion may misinterpret or misunderstand the findings 2. Identifies irrelevant sources of error and limitations 3. Suggests unrealistic improvements or no improvements 	<ol style="list-style-type: none"> 1. Language is often clumsy with inconsistent tenses. Meaning of statements may be unclear or confusing. 2. One or more sections of the report have been omitted or presented in a non-meaningful sequence (e.g. evaluating methods before methods section, interpreting data in results) 3. There are serious errors in the logical progression and linking of rationale to conclusion in the report.
0-14% Fail	<ol style="list-style-type: none"> 1. Shows no or little understanding of the underlying scientific principles of the methodology used* 2. Shows no or little understanding of the issues and theoretical implications underlying the research** 	<ol style="list-style-type: none"> 1. No data presented or presented incomprehensibly 2. No processing of quantitative raw data is carried out or major mistakes are made in processing 	<ol style="list-style-type: none"> 1. States no conclusion or conclusions misinterpret or misunderstand the findings 2. Fails to identify sources of error or limitations 3. Suggests unrealistic improvements or no improvements 	<ol style="list-style-type: none"> 1. Language is often clumsy with inconsistent tenses. Meaning of statements are unclear or confusing. 2. One or more sections of the report have been omitted or presented in a confusing sequence (e.g. describing results in conclusion) 3. Incomplete or serious errors in the logical progression and linking of rationale to conclusion in the report.