

IB Biology Internal Assessment

Marking Criteria

Research Question:	Candidate Number:
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CRITERIA					Total	%
Personal Engagement	Exploration	Analysis	Evaluation	Communication		

PERSONAL ENGAGEMENT			
	Evidence of personal engagement with exploration. (PE1)	Justification for choosing the research question and/or the topic under investigation. (PE2)	Evidence of personal input & initiative in the designing, presentation or implementation (PE3)
2	Clear with significant independent thinking, initiative or creativity.	Demonstrates personal significance, interest or curiosity.	A lot
1	Limited with little independent thinking, initiative or insight.	Does not demonstrate personal significance, interest or curiosity.	Little
0	Standard not reached.	Standard not reached.	Standard not reached.
	<input type="checkbox"/> Intelligent use of references to support discussions <input type="checkbox"/> Discussions consider collected data, published data, & observations together <input type="checkbox"/> Where necessary, discussions use theory/references beyond the RQ to explain anomalies & trends	<input type="checkbox"/> RQ is related to IB Biology course content but does not repeat investigations done in class <input type="checkbox"/> Demonstrates a personal interest in the topic being investigated <input type="checkbox"/> RQ is relevant on a local and global scale	<input type="checkbox"/> RQ is novel/unusual <input type="checkbox"/> Demonstrates an innovative approach to address the RQ <input type="checkbox"/> Adapts known procedures to design a method tailored for the RQ
SCORE:			
JUSTIFICATION:			

EXPLORATION					
	Relevance & focus of the research question. (EX1)	Appropriateness & relevance of the background information (EX2)	Appropriateness of the methodology of the investigation. (EX3)	Consideration of factors that may influence the reliability of collected data. (EX4)	Evidence of awareness of the significant safety, ethical or environmental issues (EX5)
6	Relevant and fully focused.	Entirely appropriate & relevant & enhances the understanding of the context of the investigation.	Highly	Nearly all factors considered.	Full - all potential hazards identified and dealt with appropriately
4	Relevant but not fully focused.	Mainly appropriate & relevant & aids the understanding of the context of the investigation.	Mainly	Some factors considered.	Limited
2	Some relevance but not focused.	Superficial or of limited relevance and does not aid the understanding of the context of the investigation	Limited	Few factors considered.	Some
0	Standard not reached.	Standard not reached.	Standard not reached.	Standard not reached.	Standard not reached.
	<input type="checkbox"/> RQ is clearly stated <input type="checkbox"/> RQ is a precisely formulated question <input type="checkbox"/> RQ can be used to formulate a hypothesis	<input type="checkbox"/> Provides context to, & refers back to, the RQ <input type="checkbox"/> Explains the relevant biological theory <input type="checkbox"/> Supported by appropriate references <input type="checkbox"/> Used to form a null and alternative hypothesis	<input type="checkbox"/> IV identified with units & range <input type="checkbox"/> DV identified with units <input type="checkbox"/> Method is clear, tailored to the RQ, and repeatable <input type="checkbox"/> Accounts for equipment needed and uncertainty	<input type="checkbox"/> Identifies main CV's <input type="checkbox"/> Discusses potential impact of CV's <input type="checkbox"/> Method to keep CV's constant explained	<input type="checkbox"/> Safety issues are described <input type="checkbox"/> Explains how to prevent risks/hazards <input type="checkbox"/> Ethical and environmental issues are considered
SCORE:					
JUSTIFICATION:					

ANALYSIS				
	Raw data is (A1)	Data processing (A2)	Impact of uncertainties (A3)	Interpretation of processed data (A4)
6	Sufficient. Could support a detailed and valid conclusion.	Appropriate and sufficient accuracy enables a conclusion to the RQ to be drawn that is fully consistent with data.	Full and appropriate consideration.	Correct valid and detailed conclusion.
4	Relevant but incomplete. Could support a simple or partially valid conclusion.	Appropriate and sufficient. Could lead to a broadly valid conclusion but significant inaccuracies and inconsistencies in the processing.	Some consideration.	Broadly valid limited conclusion.
2	Insufficient to support a valid conclusion.	Basic, inaccurate or too insufficient to lead to a valid conclusion	Little consideration.	Incorrect or insufficient invalid or very incomplete
0	Standard not reached.	Standard not reached.	Standard not reached.	Standard not reached.
	<ul style="list-style-type: none"> <input type="checkbox"/> Data collected is relevant to the RQ <input type="checkbox"/> IV has at least 5 increments over a suitable range <input type="checkbox"/> Performs 5 repeats for reliability <input type="checkbox"/> Qualitative data is insightful and thorough 	<ul style="list-style-type: none"> <input type="checkbox"/> Correct calculations to determine mean and standard deviation <input type="checkbox"/> Statistical tests appropriate to the RQ applied <input type="checkbox"/> Worked examples of calculations provided 	<ul style="list-style-type: none"> <input type="checkbox"/> Error bars included and the source stated (e.g. S.D) <input type="checkbox"/> Size and source of uncertainties discussed <input type="checkbox"/> Impact on the validity of conclusions discussed 	<ul style="list-style-type: none"> <input type="checkbox"/> Refers to graphs/tables to describe patterns/trends in the data <input type="checkbox"/> Variation and anomalies in data discussed <input type="checkbox"/> Patterns in the data are related back to the RQ
SCORE:				
JUSTIFICATION:				

EVALUATION				
	Conclusion data (EV1)	Conclusion theory (EV2)	Strengths, limitations, & sources of error (EV3)	Improvements & extensions (EV4)
6	Described in detail and justified, entirely relevant to the RQ fully supported by the data.	Justified through relevant comparison to the accepted scientific context.	Discussed and provide evidence of a clear understanding of the methodological issues* involved in establishing the conclusion.	Are discussed.
4	Described, relevant to the research question and supported by the data.	Some relevant comparison to accepted scientific context.	Described and provide evidence of some awareness of the methodological issues* involved in establishing the conclusion.	Some described.
2	Outlined but may not be relevant to the research question or may not be supported by the data.	Erroneous or superficially compared to the accepted scientific context.	Outlined but are restricted to an account of the practical or procedural issues faced.	Very few outlined.
0	Standard not reached.	Standard not reached.	Standard not reached.	Standard not reached.
	<input type="checkbox"/> Conclusions refer to interpretation of raw and processed data <input type="checkbox"/> Possible impacts of qualitative data are discussed <input type="checkbox"/> Level of support for the hypothesis/RQ is identified, correct & justified	<input type="checkbox"/> Relevant scientific theory used to explain the results collected <input type="checkbox"/> Comparison made with published data and theoretical texts	<input type="checkbox"/> Discusses the impact of error bars/S.D on the trends/patterns observed <input type="checkbox"/> Analyses the sufficiency of data collected to answer the RQ <input type="checkbox"/> Discusses systematic errors within the method	<input type="checkbox"/> Suggests appropriate improvements for limitations of data and sources of error <input type="checkbox"/> Improvements are specific and clearly explained with references if necessary <input type="checkbox"/> Suggests relevant further investigations based on conclusions & linked to RQ
SCORE:				
JUSTIFICATION:				

COMMUNICATION				
	Presentation (C1)	Structure (C2)	Relevance (C3)	Terminology (C4)
4	Clear. Any errors do not hamper understanding of the focus, process and outcomes.	Well-structured and clear: the necessary information on focus, process and outcomes is present and presented in a coherent way.	Relevant and concise thereby facilitating a ready understanding of the focus, process and outcomes of the investigation.	The use of subject-specific terminology and conventions is appropriate and correct. Any errors do not hamper understanding.
2	Unclear, making it difficult to understand the focus, process and outcomes	Not well structured and is unclear: the necessary information on focus, process and outcomes is missing or is presented in an incoherent or disorganized way.	The understanding of the focus, process and outcomes of the investigation is obscured by the presence of inappropriate or irrelevant information.	There are many errors in the use of subject-specific terminology and conventions*.
0	Standard not reached.	Standard not reached.	Standard not reached.	Standard not reached.
	<ul style="list-style-type: none"> <input type="checkbox"/> Consistent passive voice maintained throughout <input type="checkbox"/> Material taken from sources is referenced <input type="checkbox"/> Referencing is clear and consistent and included within the text <input type="checkbox"/> Report consists of 6-12 pages 	<ul style="list-style-type: none"> <input type="checkbox"/> Clear headings and titles, including for tables, images and graphs <input type="checkbox"/> Graphs, tables, & images included close to where first referenced <input type="checkbox"/> Graphs, tables, & images are appropriately sized and coloured and do not break across pages 	<ul style="list-style-type: none"> <input type="checkbox"/> All tables, graphs, & images are relevant to the RQ <input type="checkbox"/> All references used are relevant to the RQ <input type="checkbox"/> All arguments and discussions are relevant to the RQ <input type="checkbox"/> Concise and avoids excessive use of jargon 	<ul style="list-style-type: none"> <input type="checkbox"/> Table headings are correct and include units <input type="checkbox"/> Uncertainties correctly stated <input type="checkbox"/> Decimal points are consistent with precision of equipment <input type="checkbox"/> Graph choice is appropriate, scaled, & correctly plotted & labelled <input type="checkbox"/> Appropriate scientific terminology used & explained
SCORE:				
JUSTIFICATION:				