

Introduction

Your internal assessment is a student lead investigation into an area of biology that you are interested in. This investigation can take the form of primary practical work in a lab, use of online resources and data bases as a secondary study or a combination of the two.

Mark scheme

The internal assessments will be marked in school, using the following mark scheme. A small explanation of each section is included plus its overall weight in marks. The whole report has a total 24 marks available and is worth 20%(SL and HL)

Personal engagement

Total marks available: 2 (8%)

This section is about how engaged you are in the investigation. How much you explored the topic and made the investigation your own. The mark bands are shown below.

| 0 | The student’s report does not reach a standard described by the descriptors below. |
| --- | --- |
| 1 | The evidence of personal engagement with the exploration is limited with little independent thinking, initiative or creativity.  The justification given for choosing the research question and/or the topic under investigation does not demonstrate personal significance, interest or curiosity.  There is little evidence of personal input and initiative in the designing, implementation or presentation of the investigation. |
| 2 | The evidence of personal engagement with the exploration is clear with significant independent thinking, initiative or creativity.  The justification given for choosing the research question and/or the topic under investigation demonstrates personal significance, interest or curiosity.  There is evidence of personal input and initiative in the designing, implementation or presentation of the investigation. |

Exploration.

Total marks available : 6 (25%)

This section looks at the extent that you have established the scientific context of your work, if you have stated a clear and focused research questions and use techniques and concepts appropriate to the DP level.

The mark scheme is as follows.

| 0 | The student’s report does not reach a standard described by the descriptors below. |
| --- | --- |
| 1-2 | The topic of the investigation is identified and a research question of some relevance is stated but it is not focused.  The background information provided for the investigation is superficial or of limited relevance and does not aid the understanding of the context of the investigation.  The methodology of the investigation is only appropriate to address the research question to a very limited extent since it takes into consideration few of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.  The report shows evidence of limited awareness of the significant safety, ethical or environmental issues that are relevant to the methodology of the investigation. |
| 3-4 | The topic of the investigation is identified and a relevant but not fully focused research question is described.  The background information provided for the investigation is mainly appropriate and relevant and aids the understanding of the context of the investigation.  The methodology of the investigation is mainly appropriate to address the research question but has limitations since it takes into consideration only some of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.  The report shows evidence of some awareness of the significant safety, ethical or environmental issues that are relevant to the methodology of the investigation\*. |
| 5-6 | The topic of the investigation is identified and a relevant and fully focused research question is clearly described.  The background information provided for the investigation is entirely appropriate and relevant and enhances the understanding of the context of the investigation.  The methodology of the investigation is highly appropriate to address the research question because it takes into consideration all, or nearly all, of the significant factors that may influence the relevance, reliability and sufficiency of the collected data.  The report shows evidence of full awareness of the significant safety, ethical or environmental issues that are relevant to the methodology of the investigation\*. |

Analysis

Total marks available: 6 (25%)

This section looks at how you have provided, recorded, selected, processed and interpreted the data that is relevant to your research question and can support a conclusion.

Mark scheme is as follows.

| 0 | The student’s report does not reach a standard described by the descriptors below. |
| --- | --- |
| 1-2 | The report includes insufficient relevant raw data to support a valid conclusion to the research question.  Some basic data processing is carried out but is either too inaccurate or too insufficient to lead to a valid conclusion.  The report shows evidence of little consideration of the impact of measurement uncertainty on the analysis.  The processed data is incorrectly or insufficiently interpreted so that the conclusion is invalid or very incomplete. |
| 3-4 | The report includes relevant but incomplete quantitative and qualitative raw data that could support a simple or partially valid conclusion to the research question.  Appropriate and sufficient data processing is carried out that could lead to a broadly valid conclusion but there are significant inaccuracies and inconsistencies in the processing.  The report shows evidence of some consideration of the impact of measurement uncertainty on the analysis.  The processed data is interpreted so that a broadly valid but incomplete or limited conclusion to the research question can be deduced. |
| 5-6 | The report includes sufficient relevant quantitative and qualitative raw data that could support a detailed and valid conclusion to the research question.  Appropriate and sufficient data processing is carried out with the accuracy required to enable a conclusion to the research question to be drawn that is fully consistent with the experimental data.  The report shows evidence of full and appropriate consideration of the impact of measurement uncertainty on the analysis.  The processed data is correctly interpreted so that a completely valid and detailed conclusion to the research question can be deduced. |

Evaluation

Total marks available: 6 (25%)

This section assesses the extent to which a students report provides evidence of evaluation of the investigation and the results in regard to the research question and accepted scientific context.

The mark scheme is as follows.

| 0 | The student’s report does not reach a standard described by the descriptors below |
| --- | --- |
| 1-2 | A conclusion is outlined which is not relevant to the research question or is not supported by the data presented.  The conclusion makes superficial comparison to the accepted scientific context.  Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are outlined but are restricted to an account of the practical or procedural issues faced.  The student has outlined very few realistic and relevant suggestions for the improvement and extension of the investigation. |
| 3-4 | A conclusion is described which is relevant to the research question and supported by the data presented.  A conclusion is described which makes some relevant comparison to the accepted scientific context.  Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are described and provide evidence of some awareness of the methodological issues\* involved in establishing the conclusion.  The student has described some realistic and relevant suggestions for the improvement and extension of the investigation. |
| 5-6 | A detailed conclusion is described and justified which is entirely relevant to the research question and fully supported by the data presented.  A conclusion is correctly described and justified through relevant comparison to the accepted scientific context.  Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are discussed and provide evidence of a clear understanding of the methodological issues\* involved in establishing the conclusion.  The student has discussed realistic and relevant suggestions for the improvement and extension of the investigation. |

Communication

Total marks available: 4 (17%)

This section assesses if the report is written and presented in a way that supports effective communication of focus, purpose and outcomes.

The mark scheme is shown below.

| 0 | The student’s report does not reach a standard described by the descriptors below |
| --- | --- |
| 1-2 | The presentation of the investigation is unclear, making it difficult to understand the focus, process and outcomes.  The report is 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\*. |
| 3-4 | The presentation of the investigation is clear. Any errors do not hamper understanding of the focus, process and outcomes.  The report is well structured and clear: the necessary information on focus, process and outcomes is present and presented in a coherent way.  The report is 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. |

Timetable

Proposal of IA topic and research question September 2020

Review and approval of research question October/November 2020

Equipment requests submissions December 2020

Begin research into topic Summer vacation

Review of research and planning of methodology February/March 2021

Refinement of methodology and write up of both background research and methodology complete April 2021

Performing experiments and collection of results May 2021

Analysis and conclusion first draft June 2021

Review of complete report July 2021