Name: Period: \_\_\_\_\_\_\_\_\_

Title of Investigation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_

**IB CHEMISTRY INTERNAL ASSESSMENT RUBRIC**

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| **PERSONAL ENGAGEMENT (PE)** | |
| **Mark** | **Descriptor** |
| **0** | The report does not reach the standard described below. |
| **1** | **Evidence** for personal engagement in the exploration is **limited** with little independent thinking, initiative, or insight.  Justification for choosing the research question **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** | **Evidence for personal engagement** in the exploration is clear with **significant independent thinking, initiative, or insight**.  **Justification** for choosing the research question **demonstrates personal significance, interest, or curiosity**.  There is evidence of **personal input and initiative** in the designing, implementation, or presentation of the investigation. |

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| **EXPLORATION (EXP)** | |
| **Mark** | **Descriptor** |
| **0** | The report does not reach the standard described 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\*. *\*This indicator should only be applied when appropriate to 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\*. *\*This indicator should only be applied when appropriate to the investigation.* |
| **5**  **6** | Topic of 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\*. *\*This indicator should only be applied when appropriate to the investigation.* |

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| **ANALYSIS (AN)** | |
| **Mark** | **Descriptor** |
| **0** | The report does not reach the standard described 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 are **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 are 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 are **correctly interpreted** so that a completely **valid and detailed conclusion** to the research question can be deduced. |

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| **EVALUATION (EVAL)** | |
| **Mark** | **Descriptor** |
| **0** | The report does not reach the standard described 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. |

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| **COMMUNICATION (COM)** | |
| **Mark** | **Descriptor** |
| **0** | The report does not reach the standard described 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 is **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.  There use of **subject-specific terminology and conventions\* is appropriate and correct**. Any errors do not hamper understanding. |

*\*For example, incorrect/missing labeling of graphs, tables, images; use of units, decimal places. For issues of referencing and citations, refer to the Academic Honesty section of the 2016 Biology guide.*