**Subject area**: Sciences **Teacher**: Mr. Groth and Ms. Bauder

**Year**: 3 **Title**: Lab Graph, Data Analysis and Conclusion

**Criterion**: C: Processing and evaluating

**Objectives**: i. Present collected and transformed data

ii. Interpret data and describe results using scientific reasoning

iii. Discuss the validity of a hypothesis based on the outcome of the scientific investigation

iv. Discuss the validity of the method

v. Describe improvements or extensions to the method

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| **Achievement level** | **IB Level descriptor** | **Task specific descriptor** |
| 0 | The student does not reach a standard described by any of the descriptors below | Limited to no evidence |
| 1-2 | 1. Collect and present data in numerical and/or visual forms 2. Accurately interpret data 3. State the validity of a hypothesis with limited reference to a scientific investigation 4. State the validity of the method with limited reference to a scientific investigation with limited success 5. State limited improvements or extensions to the method | Data present; Data is restated in simple format, no explanation; Hypothesis is detailed as being supported or not supported but student does not reference back to experiment; Procedure is restated with no reasoning evident; Limited application and/or improvements with no reference to experiment |
| 3-4 | 1. Correctly collect and present data in numerical and/or visual forms 2. Accurately interpret data and describe results 3. State the validity of a hypothesis based on the outcome of a scientific investigation 4. State the validity of the method based on the outcome of a scientific investigation 5. State improvements or extensions to the method that would benefit the scientific investigation | Data collected and applies to experiment; Data is restated and explained; Hypothesis is detailed as being supported or not supported and student refers back to experiment; Procedure is restated with reference to other experiments; Limited application and/or improvements with reference to experiment |
| 5-6 | 1. Correctly collect, organize and present data in numerical and/or visual forms 2. Accurately interpret data and describe results using scientific reasoning 3. Outline the validity of a hypothesis based on the outcome of a scientific investigation 4. Outline the validity of the method based on the outcome of a scientific investigation 5. Outline improvements or extensions to the method that would benefit the scientific investigation | Data collected and applies to experiment and data tables are evident; Data is restated and explained using scientific terminology; Hypothesis is detailed as being supported or not supported and student refers back to experiment and contains a summary of hypothesis evaluation; Procedure is summarized with reference to other experiments; Fully state application and/or improvements with reference to experiment |
| 7-8 | 1. Correctly collect, organize, transform and present data in numerical and/or visual forms 2. Accurately interpret data and describe results using correct scientific reasoning 3. Discuss the validity of a hypothesis based on the outcome of a scientific investigation 4. Discuss the validity of the method based on the outcome of a scientific investigation 5. Describe improvements or extensions to the method that would benefit the scientific investigation | Data collected and applies to experiment and graphs and data tables are evident; Data is restated and explained using correct scientific knowledge for evaluation; Hypothesis is detailed as being supported or not supported and student refers back to experiment and contains a summary of hypothesis evaluation with reflection of cause of hypothesis being supported or not supported; Procedure is summarized with reference to other experiments as a source for reasoning of procedure; Fully state application and/or improvements with reference to experiment. Student reflects on how modifications/improvements can be of a benefit to the experiment |