Oobleck Lab Rubric/IB Rubric

\*\*\* Please note that spelling and grammar will account for 15% of this lab grade. Please proof read before turning in your final lab report.

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|  | 1 | 2 | 3 | 4 |
| Title | Title does not adequately address the laboratory experience | Title begins to address the laboratory experience, but is incomplete | Title almost addresses the laboratory experience, but is missing some minor points | Title of the lab is clearly stated |
| Purpose | A purpose is not clearly stated or the information is incorrect | Shared some information, but still missing some major points | Purpose is nearly complete, missing some minor points | Purpose of the lab is clearly stated in 1-2 sentences |
| Materials | Missing several important materials | Still missing some materials details | Important materials covered, some minor details missing | Well-written, all materials covered |
| Procedure | Missing several important experimental details | missing some experimental details | Important experimental details are covered, some minor details missing | Well-written, all experimental details are covered |
| Results | Tables and graphs contain errors/poorly constructed, missing titles, captions, numbers, units missing, | Most tables and graphs OK, some missing some important or required features | All figures, graphs, tables are correctly drawn, but some have minor problems or could still be improved | All figures, graphs, and tables are correctly drawn, are numbered, and contain titles/captions |
| Conclusion | Whether hypothesis is supported by data is poorly stated. Results not discussed. | Whether hypothesis is supported is somewhat stated. Results somewhat discussed. | Hypothesis and results are discussed, but have some minor problems or could still be improved. | Hypothesis is explained with reasons, and results are thoroughly explained. |

**Criterion B: Inquiring and Designing**

At the end of year 3, students should be able to:

1. Describe a problem or question to be tested by a scientific investigation
2. Outline a testable hypothesis and explain it using scientific reasoning
3. Describe how to manipulate the variables, and explain how data will be collected
4. Design scientific investigations

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| **Achievement Level** | **Level Descriptor** | **Task Specific Clarifications** |
| **0** | The student does not reach a standard indicated by any of the descriptors below. | The work you turned in, does not meet any of the standards for this lab. |
| **1 - 2** | The student is able to:  i. **state** a problem or question to be tested by a scientific investigation, with **limited success**  ii. **state** a testable hypothesis  iii. **state** the variables  iv. design **a method, with limited success**. | You were hardly able to complete a lab report that included a title, purpose, materials, procedure, results, conclusions and discussion. You were also hardly able to put together everything in the correct format.  Your title did not adequately address the laboratory experience. The purpose was not stated clearly, there was missing pieces to the materials, the results also did not include any graphs or tables. And you did not restate your hypothesis in your conclusion.  You were also unsuccessful in answering the guided questions at the end of the lab. |
| **3 - 4** | The student is able to:  i. **state** a problem or question to be tested by a scientific investigation  ii. **outline** a testable hypothesis **using scientific reasoning**  iii. **outline** how to manipulate the variables, and **state** how **relevant data** will be collected  iv. design a **safe method** in which he or she **selects materials and equipment**. | You were partially able to complete a lab report that included a title, purpose, materials, procedure, results, conclusions and discussion. You were also partially able to include a title that addresses the lab. You were able to include a purpose, yet there was a lot of missing information to it.  You were not able to list all the materials, and you skipped some steps when outlining your procedure. Your results were stated, however, you did not include any graphs or tables. Within your conclusion the hypothesis and results were discussed, however, there was place for improvement.  You also did not answer all the guided questions at the end of the lab. |
| **5 - 6** | The student is able to:  i. **outline** a problem or question to be tested by a scientific investigation  ii. **outline and explain** a testable hypothesis **using scientific reasoning**  iii. **outline** how to manipulate the variables, and **outline** how s**ufficient, relevant data** will be collected  iv. design **a complete and safe method** in which he or she **selects appropriate materials and equipment**. | You were mostly able to complete a lab report that included a clear title and purpose. The materials and procedures were also well written. However, the results and conclusion was not completely supported by experimental details.  You also was able to answer all the guided questions at the end of the lab. |
| **7 - 8** | The student is able to:  i. **describe** a problem or question to be tested by a scientific investigation  ii. **outline and explain** a testable hypothesis **using correct scientific reasoning**  iii. **describe** how to manipulate the variables, and **describe** how **sufficient, relevant** data will be collected  iv. design a **logical, complete and safe method** in which he or she **selects appropriate materials and equipment**. | You were thoroughly able to complete a lab report that included a proper title, a detailed purpose, materials, procedure, results, conclusion and discussion. You were also able to design and follow a logical, safe, and complete procedure that could be followed by someone else, using the lab report that you completed.  You were also successful at answer the guided questions at the end of the lab, in regards to dissolution and it properties. |

**SCORE: \_\_\_\_\_**

**Criterion C: Processing and Evaluating**

At the end of year 3, students should be able to:

1. Present collected and transformed data
2. Interpret data and describe results using scientific reasoning
3. Discuss the validity of a hypothesis based on the outcome of the scientific investigation
4. Discuss the validity of the method
5. Describe improvements or extensions to the method

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| **Achievement Level** | **Level Descriptor** | **Task Specific Clarifications** |
| **0** | The student does not reach a standard indicated by any of the descriptors below. | The work you turned in, does not meet any of the standards for this lab. |
| **1 - 2** | The student is able to:  i. **collect and present** data in numerical and/or visual forms  ii. **accurately interpret** data  iii. **state** the validity of a hypothesis **with limited reference** to a scientific investigation  iv. **state** the validity of the method **with limited reference** to a scientific investigation  v. **state limited** improvements or extensions to the method. | You were not able to collect, present, and accurately interpret the effect of how the independent variables dissolved within the food coloring and water, within your research.  You were also unable to properly explain the materials/procedures that was conducted during this lab. You also did not restate your hypothesis within your conclusion/results.  You also was not successful in answering the guided questions, at the end of the lab. |
| **3 - 4** | The student is able to:  i. **correctly collect and present** data in numerical and/or visual forms  ii. **accurately interpret** data and **describe** results  iii. **state** the validity of a hypothesis based on the outcome of a scientific investigation  iv. **state** the validity of the method based on the outcome of a scientific investigation  v. **state** improvements or extensions to the method that would benefit the scientific investigation. | You were somewhat able to collect, present, and accurately interpret the effect of how fast the independent variable dissolved within the food coloring and water.  You were also somewhat able to properly explain the material/procedures that was conducted within the lab. You did restate your hypothesis within your conclusion, however you were missing a lot of experimental details within it.  You only included pictures/tables within your results, however, you did not interpret them into words.  You were also somewhat able to answer the guided questions at the end of the lab. |
| **5 - 6** | The student is able to:  i. **correctly collect, organize and present** data in numerical and/or visual forms  ii. **accurately interpret** data and **describe** results **using scientific reasoning**  iii. **outline** the validity of a hypothesis based on the outcome of a scientific investigation  iv. **outline** the validity of the method based on the outcome of a scientific investigation  v. **outline** improvements or extensions to the method that would benefit the scientific investigation. | You were mostly able to correctly collect, organize, present, and accurately interpret the effect how fast the independent variables dissolved within your research. Title and purpose was clear. Important materials/procedure was covered, however, some minor details were missing within your research.  All graphs/tables are correctly drawn, but some have minor problems that could have been improved. You also was successful in restating your hypothesis and results within your conclusion.  You were also able to successfully answer all the guided questions, towards the end of the lab. |
| **7 - 8** | The student is able to:  i. **correctly collect, organize, transform and present** data in numerical and/ or visual forms  ii. **accurately interpret data** and **describe** results **using correct scientific reasoning**  iii. **discuss** the validity of a hypothesis based on the outcome of a scientific investigation  iv. **discuss** the validity of the method based on the outcome of a scientific investigation  v. **describe** improvements or extensions to the method that would benefit the scientific investigation. | You were thoroughly able to correctly collect, organize, transform, present, and accurately interpret your lab into a lab report. You were also successful in giving a title. As well as properly explain the procedures/scientific investigation that was conducted within the entire lab.  You were also successful in backing up your results with figures, graphs, and tables with great captions. Your hypothesis was also explained and restated with reasons that were thoroughly explained throughout the conclusion.  You were also successful in answering all the guided questions at the end of the lab. |

**SCORE: \_\_\_\_\_**