**Bottle Biosphere Experiment Rubric**

*Learning Objective: I can name and describe the varied interactions between living organisms and their environment.*

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| **Section** | **Mastery (4.5-5.0)** | **Superior (3.5-4.4)** | **Proficient (2.5-3.4)** | **Novice (1.5-2.4)** | **Insufficient (0-1.4)** |
| **Title** | Creates own Title that is descriptive of the lab (includes independent and dependent variables) | Title includes both variables but needs more description. | Simple title without both variables.  | Title is simple, without variables, or something like “Bottle Biosphere Experiment.” | No Title |
| **Hypothesis** | Hypothesis is in the correct “If… then… because…” format and includes the independent and dependent variables. Hypothesis is specific and descriptive.  | Hypothesis is in the correct format and includes both variables, but lacks description.  | Hypothesis has both variables but is in the wrong format.  | Hypothesis contains one variable and is written in the wrong format.  | Hypothesis is absent.  |
| **Experimental Procedure** | Procedure is described in a thorough, sequential manner that is clear and easy to read. Important details help the reader to smoothly recreate design. Diagrams enhance the reader’s understanding. | Procedure is correctly listed in a step-by-step manner. With a minimum of effort, the reader should be able to recreate the design. | Procedure is mostly present in a step-by-step manner. However, important pieces may be missing, and it may take some effort to recreate the design. | Procedure is not listed in an easy-to-follow manner. Key parts of the desgin are not explained, so that it would become difficult to recreate the bottle with similar results. | Procedure is incomplete and not sequential. Little explanation is offered in each step. Recreating the design would be very difficult or not possible. |
| **Data Table and Analysis***5 days of data*  | Data table includes qualitative (observations) and quantitative (numerical) data. All data is descriptive, detailed, and complete. Sketches or other descriptive data provided.  | Data table includes both qualitative and quantitative data. All data is descriptive and complete for 5 days.  | Data table includes either qualitative or quantitative data and is somewhat complete. 4-5 days of data recorded.  | Data table lacks some results, 3-4 days of data, or is incomplete. Data taken is lacking description or numbers to show differences.  | No results are recorded or data is lacking a significant amount of detail to determine any changes in the biosphere.  |
| **Conclusion- Use of Vocab***Producer**Consumer**Decomposer**Food web**Trophic level**Energy flow* | All conclusion questions are answered thoughtfully and scientifically, using all of the vocabulary words and descriptive data to support conclusions. Student makes significant connections to real life situations and applies content knowledge to fully explore the topic.  | All conclusion questions are answered in a satisfactory manner and includes most of the vocabulary words and data to support conclusions. Students makes limited connections to real life situations.  | Questions are answered, but are brief and provide little insight beyond the basics of the experiment. Some vocabulary words are used and few connections are made to real life situations.  | Not all conclusion questions are answered or all questions are given unsatisfactory answers. No further discussion is provided beyond the basics of the experiment. Few vocabulary words are used.  | No effort is made to answer the conclusion questions or answers include incorrect answers.  |

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