**UNIT 1 BIOLOGY OUTCOME 1b - STUDENT DESIGNED INVESTIGATION OF PHOTOSYNTHESIS TASK:**

1. Students must design and carryout an experiment that tests at least one aspect of the idea that the following equation accurately represents what happens in photosynthesis.

Chlorophyll

Carbon dioxide + Water + Light Energy--------------------------------> Glucose + Oxygen + Water

1. The experiment must include a CONTROL
2. The experiment can be run over 2 weeks.
3. You can investigate either the inputs, outputs or both.
4. You will be provided with plants that can grow in test tubes or wheat seeds to grow on cotton wool.
5. Your report must be written in full scientific style (Title, Purpose, Method, Results, Discussion, Conclusion) and must include your method and materials.

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| **Ability To Stay On Task** | Student always remains on task or allows others to remain on task. | Student remains on task or allows others to remain on task most of the time. | Student rarely remains on task or allows others to remain on task. | Student never remains on task or allows others to remain on task. | \_\_/4 |
| **Problem/Purpose** | Addresses an issue directly related to research. | Addresses an issue somewhat related to research. | Addresses a issue which is unrelated to research. | Does not address any issue related to research. | \_\_/3 |
| **Procedure(s)/**  **Experimental design** | Presents logically ordered steps with adequate details. RA complete | Most of the steps are understandable, but some steps lack detail. RA detailed | Most steps are confusing and lack detail. | Not sequential, most steps are missing or are confusing. | \_\_/5 |
| **Data** | Data is neatly presented and totally accurate. | Both accurate, some ill-formed characters. | Data is complete, but minor inaccuracies and/or illegible characters are present. | Data contains missing information or is inaccurate. | \_\_/3 |
| **Discussion/**  **Explanation** | A complete response with a detailed explanation with reference to theory and data. | Good solid response with clear explanation with some reference to theory & data. | Explanation is unclear with only limited reference to theory and or data. | Misses key points and fails to use theory and or data. | \_\_/6 |
| **Conclusion (General)** | Draws insightful conclusions from the investigation. | Draws some thoughtful conclusions, but the conclusion lacks insight. | The significance of the comparison lacks clarity. | Conclusions are not valid or appropriate. | \_\_/4 |
|  |  |  |  | **Total:-----** | \_\_/25 |

**TEACHER COMMENTS**