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| **Grade:** 9th Grade | **Course:** Biology |
| **Benchmark(s):**  SC.912.N.1.1: Define a problem based on a specific  body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:   1. **Pose questions about the natural world,** (Articulate the purpose of the investigation and identify the relevant scientific concepts). 2. **Conduct systematic observations,** (**Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).** 3. **Examine books and other sources of information to see what is already known,** 4. **Review what is known in light of empirical evidence,** (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models). 5. **Plan investigations,** (Design and evaluate a scientific investigation). 6. **Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs),** **(Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).** 7. **Pose answers, explanations, or descriptions of events,** 8. **Generate explanations that explicate or describe natural phenomena (inferences),** 9. **Use appropriate evidence and reasoning to justify these explanations to others,** 10. **Communicate results of scientific investigations, and** 11. **Evaluate the merits of the explanations produced by others.** | |
| **Skills – Students should be able to do** | **Concepts – Student should know** |
| **Verbs** | **Nouns** |
| Observe  Examine resources  Use tools to gather information  Describe observations  Infer  Provide evidence  Communicate results | Observations  Appropriate resources  Equipment usage  Measurement  Inference  Evidence/evidence based claims  Presentation |
| **Critical Area of Focus based on CTS:**  Photosynthesis and Respiration | |
| **Learning Goal:**  SWBAT:  Examine resources about what information is already known  Make observations during experiments  Conduct and record measurements  Describe observations from experiment  Generate inferences using evidence from observations  Communicate the results in a log book and presentation | |
| **Essential Question for the lesson:**  What is needed for a scientific investigation? | |
| **Supporting questions for the lesson:**  How do I and my classmates stay safe in a science laboratory?  Why is it important to learn how to identify and use the laboratory equipment? | |

This is a supplementary benchmark that will be used with most benchmark lessons.