

**GE SLO 5.1** Conduct planned investigations using the scientific method to reach reasoned conclusions.

	Initial 1	Emerging 2	Developing 3	Highly Developed 4
<b>Observation</b>	Few or no significant observations identified or reported; those that are identified or reported lack detail.	Some observations correctly identified, but may not be fully or clearly articulated.	Many observations accurately identified and details of at least some of the elements provided.	Most observations accurately identified and details assigned appropriate significance.
<b>Hypothesis Recognition</b>	A hypothesis not identified or stated, OR, a hypothesis proposed that may not be plausible or testable.	Hypothesis recognized but its relevance to the scientific issue under study not discussed, OR a simplistic hypothesis proposed.	A plausible hypothesis recognized or proposed, relevant to the scientific issue under study.	A plausible testable hypothesis recognized or proposed, and a sophisticated understanding of its implications is demonstrated.
<b>Measurement and Data Collection</b>	Limited understanding shown of measurement strategies and/or data collection techniques appropriate to scientific issue under study.	Recognition of need for measurement and data collection, but appropriate techniques not used or not described. Recognition of measurement and data collection as integral part of the scientific method, but application may not be done correctly.	Measurement strategies and/or data collection techniques correctly identified or described for scientific issue under study. Recognition of measurement and data collection as integral to scientific method and application is done correctly.	Measurement strategies and/or data collection techniques correctly identified and/or described, and/or performed and applicability and limitations of each discussed.
<b>Experimentation</b>	Little or no evidence of understanding of relationship between a testable hypothesis and the test or experiment used to support or refute the hypothesis.	Some evidence of an understanding of how experiments are used to support or refute the hypothesis.	Evidence of understanding of how information from a well-designed experiment can support or refute a hypothesis.	Evidence of understanding of how appropriate experimentation can be shown to be a valid method to test the hypothesis.
<b>Analysis and Evaluation of Data</b>	Little or no evidence of an understanding of how information gained from an experiment is analyzed or evaluated	Some evidence of how experimental data is analyzed or evaluated	Evidence, in the context of the scientific issue under study, of how information gained from an experiment is analyzed or evaluated	Evidence of discussion of the significance of experimental information, and its strengths and limitations
<b>Reasoned conclusions</b>	Work shows no evidence of ability to apply scientific concepts and experimental results to reach reasoned conclusions	Work shows limited evidence of ability to apply scientific concepts and evidence to reach reasoned conclusions	Work shows evidence of reasonable ability to apply scientific concepts and evidence from experiments to reach reasoned conclusions	Work shows evidence of sophisticated ability to apply scientific concepts and analysis from experiments to develop reasoned conclusions

(Updated September 2025)