

Natural science GEAR Rubric

updated 2021

*Expectations	Does not meet	Approaches	Meets	Exceeds
1) Identify the role of observations in science	Few or no significant observations are identified or reported; those that are identified or reported lack detail.	Some observations are correctly identified but may not be fully or clearly articulated.	Many observations are accurately identified and details of at least some of the elements are provided.	Most observations are accurately identified, and details are assigned appropriate significance.
2) Evaluate and/or create hypotheses	A hypothesis is not identified or stated, OR, a hypothesis is proposed that may not be plausible or testable.	A hypothesis is recognized but its relevance to the scientific issue under study is not discussed, OR a simplistic hypothesis is proposed.	A plausible hypothesis is recognized or proposed, that is relevant to the scientific issue under study.	A plausible testable hypothesis is recognized or proposed, and a sophisticated understanding of its implications is demonstrated.
3) Describe and/or apply appropriate data collection methodologies	Limited knowledge is shown of measurement strategies and/or data collection techniques appropriate to the scientific issue under study. Limited knowledge of how measurement and data collection is involved in the scientific method.	Recognition of the need for measurement and data collection, but the appropriate techniques are not used or are not described. Recognition that measurement and data collection are an integral part of the scientific method, but application may not be described/done correctly.	Measurement strategies and/or data collection techniques are correctly identified or described for the scientific issue under study. Recognition that measurement and data collection are an integral part of the scientific method and the application is described/done correctly.	Measurement strategies and/or data collection techniques related to the scientific issue are correctly identified, described, and/or performed, and applicability and limitations of each are discussed. Recognition that measurement and data collection are an integral part of the scientific method and the application is described/done correctly.
4) Explain the relationship between hypothesis and experimentation	Work shows no evidence of an ability to explain the relationship between a hypothesis and the experiment used to test the hypothesis or design the experiment.	Work shows limited evidence of an ability to explain the relationship between a hypothesis and the experiment used to test the hypothesis or design the experiment.	Work shows sufficient evidence of an ability to explain the relationship between a hypothesis and the experiment used to test the hypothesis or design the experiment.	Work shows substantial evidence of an ability to explain the relationship between a hypothesis and the experiment used to test the hypothesis or design the experiment.
5) Interpret and apply methods of analysis and	Work shows no evidence of an ability to analyze and evaluate data collected during science research.	Work shows limited evidence of an ability to analyze and evaluate data	Evidence is seen of an ability to analyze and evaluate data collected during	Evidence is seen of an ability to analyze and evaluate data collected during

evaluation of data		collected during science research.	science research in the context of the scientific issue under study.	science research and to discuss the significance of data collected, including its strengths and limitations.
6) Apply scientific concepts appropriate to the discipline	Work shows no evidence of an ability to apply scientific concepts to practical problem solving appropriate to the discipline.	Work shows limited evidence of an ability to apply scientific concepts to practical problem solving appropriate to the discipline.	Work shows evidence of reasonable ability to apply scientific concepts to practical problem solving appropriate to the discipline.	Work shows evidence of sophisticated ability to apply scientific concepts to practical problem solving appropriate to the discipline.

*N/A (not applicable) was used to indicate that an outcome was not measurable in the student work because the learning activities had not been designed with a specific outcome in mind.