

Natural Science GEAR

Expectations	Does not meet	Approaches	Meets	Exceeds
Understanding 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.
Understanding Scientists' use of 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.
Understanding Measurement and Data Collection	Limited understanding is shown of measurement strategies and/or data collection techniques appropriate to the scientific issue under study. Limited understanding 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.
Understanding Experimentation	Little or no evidence is seen of an understanding of the relationship between a hypothesis and the experiment used to test the hypothesis.	Some evidence is seen of an understanding of the relationship between a hypothesis and the experiment used to test the hypothesis.	Sufficient evidence is seen of an understanding of the relationship between a hypothesis and the experiment used to test the hypothesis.	Substantial evidence is seen of an understanding of the relationship between a hypothesis and the experiment used to test the hypothesis.
Understanding Methods of Analysis and Evaluation of Data	Little or no evidence is seen of an understanding of how data collected during science research is analyzed or evaluated.	Some evidence is seen of an understanding of how data collected during science research is analyzed or evaluated.	Evidence is seen, in the context of the scientific issue under study, of how data collected during science research is analyzed or evaluated.	Evidence is seen of discussion of the significance of data collected during science research, and its strengths and limitations.
Application of scientific concepts appropriate to the discipline	Work shows no evidence of ability to apply scientific concepts to practical problem solving appropriate to the discipline.	Work shows limited evidence of 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.