Natural Science Core Assessment Rubric
(April 2017)

Objective	Highly proficient - 4	Proficient - 3	Approaching proficiency - 2	Not proficient - 1
1.1 Demonstrate a basic understanding of the theory and concepts central to the study of a particular topic or discipline in the natural sciences.	Provides an in-depth, sophisticated description of relevant theory and/or concepts and how this helps explain a scientific phenomenon.	Provides a reasonably clear and complete description of relevant theory and/or concepts, but it may lack depth or not clearly connect to an explanation of a scientific phenomenon.	Shows familiarity with theory and/or scientific concepts, but description lacks specificity or may leave some terms undefined or connected to an explanation of a scientific phenomenon.	Unable to provide a basic overview of relevant theory and/or concepts, or how this connects to understanding a scientific phenomenon.
1.2 Apply scientific reasoning <u>and</u> methods of inquiry, such as formulating testable hypotheses, identifying variables, or collecting experimental or observational data that explain phenomena in the natural world.	Identifies the problem/question to be explained and provides a well-developed summary of the inquiry process. Method/model is properly identified. Details are provided in a sequential manner for all key elements.	Identifies the problem/question to be explained and provides a reasonable description of the inquiry process. Method/model is identified, but some key elements may be underdeveloped.	Identifies the problem/question to be explained, and provides some elements of the inquiry process. Incomplete description of method/model with key elements unclear or missing.	Failure to clearly and/or accurately define the problem/question to be explained. No clear account of the inquiry process. Misidentification or incomplete/unclear description of the method/model; failure to list key elements.
1.3 Interpret scientific data, qualitatively and quantitatively, in order to derive conclusions appropriate to the scope and quality of the data, attentive to concepts of probability, causation, and correlation.	Consistently uses the quantitative and/or qualitative analysis of data as the basis for thoughtful conclusions, drawing insightful, carefully qualified judgements.	Uses the quantitative and/or qualitative analysis of data as the basis for competent and reasonable conclusions, usually drawing appropriately qualified judgements about the scope or quality of the data.	Uses the quantitative and/or qualitative analysis of data to provide a conclusion consistent with the data but with minimal consideration of the scope or quality of the data.	Uses the quantitative and/or qualitative analysis of data as the basis for a conclusion, but the conclusion may be inaccurate or does not reflect any consideration of the scope or quality of the data.
1.4 Recognize limitations of evidence produced by experimental and observational methods.	Demonstrates an in-depth or sophisticated understanding that scientific evidence will always be limited by its accuracy, relevance to concepts, theories or methods.	Demonstrates a basic understanding that scientific evidence is limited by its accuracy and/or relevance to concepts, theories or methods and provides concrete examples of this.	Offers minimal understanding that scientific evidence is limited by its accuracy and/or relevance to concepts, theories or methods. Provides at least one example, but the example may be incomplete or at a fairly general level.	Offers very limited understanding that scientific evidence is limited by its accuracy and/or relevance to concepts, theories or methods. Statements are superficial and/or lack any connection to the specific inquiry.