Student Learning Outcome: Apply methods of scientific inquiry and problem solving to contemporary issues and scientific questions					
Criteria	**Insufficient**	**Developing**	**Competent**	**Exemplary**	**Rating**
Identification of elements of problems	Unable to identify applicable concepts, theories, hypotheses, or questions central to the problem.	Minimal recognition of the applicable concept, theory, hypothesis or questions central to the problem	Identifies important elements of problems such as applicable concepts, hypotheses, theories, and empirical questions	Identify and clearly describe all important elements of problems, including applicable concepts, hypotheses, theories, and empirical questions	
Identification *or* critique of methodology	Unable to critique a method(s) or select the appropriate methods/experiment	Minimally or inaccurately critiques method(s), or uses inappropriate methods/experiments	Appropriately critiques method(s), or uses appropriate methods/experiments	Accurately critiques method(s) or uses appropriate methods/experiments Provides a logical justification for methodology	
Analysis of results	Analysis does not include any consideration of the context, limitations of the method, or underlying assumptions	Analysis includes partial or flawed consideration of: the context of results, limitations of the method, or underlying assumptions	Analysis includes appropriate consideration of the context of results, limitations of the method, and underlying assumptions	Analysis includes a comprehensive consideration of the context of results, limitations of the method, and underlying assumptions	
Presentation of Conclusions	Conclusions are invalid, logically inconsistent with analysis, and communicated ineffectively	Conclusions are unclear or, inconsistent with analysis or are not communicated effectively	Conclusions are valid, logically consistent with analysis and communicated effectively	Conclusions are valid, reasoned from evidence, and communicated effectively using the appropriate disciplinary conventions	
				Average Rating	

RIT **Benchmark:** 70% of students will achieve a rubric score of Competent (3) or higher.

Perspective – Natural Science Inquiry

Science is more than a collection of facts and theories, so students will be expected to understand and participate in the process of science inquiry. Courses in this category focus on the basic principles and concepts of one or more of the natural sciences. In these classes, students apply methods of scientific inquiry and problem solving in a laboratory or field experience.

Perspective – Scientific Principles

The courses in this category will focus on the foundational principles of one or more of the natural sciences or will provide an opportunity to apply methods of scientific inquiry in the natural or social sciences. Courses in this category may or may not include a laboratory experience.

Framing Language

This rubric is intended to measure a student's ability to apply key elements of scientific inquiry and problem solving within a specific course and discipline. Assessment of this outcome could be completed using a variety of methods (e.g., lab reports, exams, case studies), but each assignment must include the following components:

1. **Identification of important elements of problems** includes identification of applicable concepts, hypotheses, theories, and empirical questions.

2. **Identification of the appropriate methodology** used to address the problem. This step could include critiquing a method of analysis, designing an experiment, choosing and implementing an appropriate method, or applying appropriate problem solving techniques.

3. **Analysis of results** may include data representation, interpretation, or critical evaluation of results. A quality analysis includes consideration of the context of results, the limitations of the method, and underlying assumptions.

4. Presentation of **conclusions** reasoned from evidence, data, or theories. The communication is appropriate for the discipline and the context.

Assignment Design / Evaluation of Student Learning

Applications of these components may vary in different classroom environments. For lab courses, applications could include: hypothesis generation and testing, data collection and experimentation. For lecture courses, applications could include: analysis of case studies, interpretation and critique of literature and/or experiments.