Science and Engineering Practices Rubric

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| Science and Engineering Practice | Concern Area (AC)15pts. | Approaching Standards (AS)19 pts. | Met Standards (MS)25 pts.  |
| Analyze and Interpret Data | Attempts to analyze data using tools, technologies, and/or models in order to identify patterns, make scientific claims, or to determine an optimal design solution. Analysis or explanation includes MAJOR errors or omissions.  | Attempts to analyze data using tools, technologies, and/or models in order to identify patterns, make scientific claims, or to determine an optimal design solution. Analysis or explanation includes MINOR errors or omissions. | Attempts to analyze data using tools, technologies, and/or models in order to identify patterns, make scientific claims, or to determine an optimal design solution.  |
| Use Mathematical and Computational Thinking | Identifies mathematical concepts or methods (e.g., ratio, percent, rate, basic operations, algebra and functions) relevant to scientific questions or engineering problems, but applies them with major errors or omissions.  | Applies mathematical concepts or methods (e.g., ratio, percent, rate, basic operations, algebra and functions) relevant to scientific questions or engineering problems, but applies them with minor errors or omissions. | Accurately applies mathematical concepts or methods (e.g., ratio, percent, rate, basic operations, algebra and functions) to answer scientific questions or engineering problems. |
| Science and Engineering Practice | Concern Area (AC)15pts. | Approaching Standards (AS)19 pts. | Met Standards (MS)25 pts.  |
| Asking Questions | Asks general, imprecise questions that require greater specificity to be testable.  | Asks testable questions that require sufficient and relevant evidence to answer | Asks precise, testable questions that require sufficient and relevant evidence to answer.  |
| Develop Models | Designs and explains a model that generates data to support explanations, predict phenomena, analyze systems, and/or solve problems. Design or explanation of the model includes major errors or omissions. | Designs and explains a model that generates data to support explanations, predict phenomena, analyze systems, and/or solve problems. Design or explanation of the model includes minor errors or omissions. | Designs and explains a model that generates data to support explanations, predict phenomena, analyze systems, and/or solve problems.  |
| Plan the Investigation | * Designs and investigation that will produce relevant data but with minimal detail about the variables
* Includes incomplete description of data collection procedures that impede replication
* Describes general evidence to be used to answer the question(s) with minimal detail.
 | * Designs an investigation identifying variables (dependent, independent, and controls).
* Includes data collections procedures that are mostly replicable.
* Identifies tools/instrument and type of measurements that will produce relevant data and/or evidence to answer the question(s).
 | * Designs an investigation identifying variables (dependent, independent, and controls).
* Includes sufficiently detailed description of replicable data collection procedures
* Describes tools/instrument and type of measurements that will produce relevant data and/or evidence to answer the question(s)
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| Science and Engineering Practices | Concern Area (AC)15pts. | Approaching Standards (AS)19pts.  | Met Standards (MS)25 pts. |
| Conduct investigation | Uses appropriate scientific methods and collects multiple trials (if appropriate) of relevant data but the data is not consistent within a reasonable range.  | Uses appropriate scientific methods and collects multiple trials (if appropriate) of relevant data consistent within a reasonable range.  | * Uses appropriate scientific methods and systematically collects multiple trials (if appropriate) of relevant data consistent within a reasonable range.
* Evaluates the precision of the data.
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| Obtain, evaluate and communicate information | When conducting independent research, relies on one or two relevant sources without evaluating their credibility.  | When conducting independent research, selects a limited number of relevant sources and evaluates their credibility minimally.  | When conducting independent research, selects multiple relevant scientific sources, and evaluates the evidence and credibility of each source.  |
| Constructing explanations | Use information from observations to construct evidence-based account for natural phenomena | Construct an explanation of observed relationships using supporting evidence | Construct an explanation that includes qualitative or quantitative relationships between variables that predict and/or describe phenomena. |