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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| 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. |
| 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. |