**Problem Solving Rubric for Scientific Reasoning in the Natural Sciences**

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|  | ***Proficient*** | ***Apprentice*** | ***Novice*** | ***Deficient*** |
| **Strategic Approach** | Determines appropriate and complete strategies to solve problems independently. | Determines appropriate and complete strategies to solve problems based upon examples. | Chooses the correct strategy to solve a problem from a limited set of options. | Unable to choose the correct strategy to solve a problem. |
| **Implementation** | Employs scientific principles correctly and independently. | Employs scientific principles correctly to solve problems similar to examples. | Employs scientific principles correctly to solve problems identical to examples. | Unable to employ scientific principles correctly. |
| **Calculations**  **(if appropriate)** | Correctly performs complex mathematical manipulation of algebraic equations when required. | Correctly performs simple mathematical manipulation of algebraic equations when required. | Correctly converts units, plugs numbers into equations and calculates quantities. | Unable to perform calculations correctly. |
| **Evaluation of the Solution** | Provides broad interpretations of results independently and can perform advanced checks properly. | Can broaden interpretations of results with some direction and perform checks properly. | Provides narrow but correct interpretations of results and performs basic checks properly. | Unable to interpret solutions or perform basic checks. |
| **Communication of the Solution** | Consistently communicates solutions in an effective format with high quality. | Consistently communicates solutions in an effective format with average quality. | Generally communicates solutions in an effective format with average quality. | Unable to communicate solutions effectively. |