

The rubrics on the following pages (52–55) can be used by individual teachers or teams of teachers assessing student work. In the left-hand column the teacher records the evidence they see in the student work that justifies placing the work at that particular level. In the right-hand column the teacher would record the action(s) that can be taken to help the student move to the next performance level.

### Exemplars Science Rubric Scientific Tools and Technologies

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> <li>• Did not use appropriate scientific tools or technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather data (via measuring and observing).</li> </ul>	<ul style="list-style-type: none"> <li>• Attempted to use appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather data (via measuring and observing) but some information was inaccurate or incomplete.</li> </ul>	<ul style="list-style-type: none"> <li>• Effectively used some appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather and analyze data, with only minor errors.</li> </ul>	<ul style="list-style-type: none"> <li>• Accurately and proficiently used all appropriate tools and technologies (e.g., rulers, pH paper, hand lens, computer, reference materials, etc.) to gather and analyze data.</li> </ul>

## Exemplars Science Rubric Scientific Procedures and Reasoning Strategies

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> <li>• No evidence of a strategy or procedure, or used a strategy that did not bring about successful completion of task/investigation.</li> <li>• No evidence of scientific reasoning used.</li> <li>• There were so many errors in the process of investigation</li> </ul>	<ul style="list-style-type: none"> <li>• Used a strategy that was somewhat useful, leading to partial completion of task/investigation.</li> <li>• Some evidence of scientific reasoning used.</li> <li>• Attempted but could not completely carry out testing a question, recording all data and stating conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>• Used a strategy that led to completion of the investigation/task.</li> <li>• Recorded all data.</li> <li>• Used effective scientific reasoning.</li> <li>• Framed or used testable questions, conducted experiment, and supported results.</li> </ul>	<ul style="list-style-type: none"> <li>• Used a sophisticated strategy and revised strategy where appropriate to complete the task.</li> <li>• Employed refined and complex reasoning and demonstrated understanding of cause and effect.</li> <li>• Applied scientific method accurately: (framed testable questions, designed experiment, gathered and, gathered and recorded data, analyzed data, and verified results).</li> </ul>

**Exemplars Science Rubric  
Scientific Communications/Using Data**

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> <li>• No explanation, or the explanation could not be understood, or was unrelated to the task/investigation.</li> <li>• Did not use, or inappropriately used scientific representations and notations (e.g. symbols, diagrams, graphs, tables, etc).</li> <li>• No conclusion stated, or no data recorded.</li> </ul>	<ul style="list-style-type: none"> <li>• An incomplete explanation or explanation not clearly presented (e.g. out of sequence, missing step).</li> <li>• Attempted to use appropriate scientific representations and notations, but were incomplete (e.g. no labels on chart).</li> <li>• Conclusions not supported or were only partly supported by data.</li> </ul>	<ul style="list-style-type: none"> <li>• A clear explanation was presented.</li> <li>• Effectively used scientific representations and notations to organize and display information.</li> <li>• Appropriately used data to support conclusions.</li> </ul>	<ul style="list-style-type: none"> <li>• Provided clear, effective explanations detailing how the task was carried out. The reader does not have to infer how and why decisions were made.</li> <li>• Precisely and appropriately used multiple scientific representations and notations to organize and display information.</li> <li>• Interpretation of data supported conclusions, and raised new questions or was applied to new contexts.</li> <li>• Disagreements with data</li> </ul>

**Exemplars Science Rubric  
Scientific Concepts and Content**

Evidence	Action

Novice	Apprentice	Practitioner	Expert
<ul style="list-style-type: none"> <li>• No use, or mostly inappropriate use, of scientific terminology.</li> <li>• No mention or inappropriate references to relevant scientific concepts, principles, or theories (big ideas).</li> <li>• No evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used.</li> </ul>	<ul style="list-style-type: none"> <li>• Used some relevant scientific terminology.</li> <li>• Minimal references to relevant scientific concepts, principles, or theories (big ideas).</li> <li>• Some evidence of understanding observable characteristics and properties of objects, organisms, and/or materials used.</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriately used scientific terminology.</li> <li>• Provided evidence of understanding of relevant scientific concepts, principles or theories (big ideas).</li> <li>• Evidence of understanding observable characteristics and properties of objects, organisms and/or materials used.</li> </ul>	<ul style="list-style-type: none"> <li>• Precisely and appropriately used scientific terminology.</li> <li>• Provided evidence of in depth, sophisticated understanding of relevant scientific concepts, principles or theories (big ideas).</li> <li>• Revised prior misconceptions when appropriate.</li> <li>• Observable characteristics and properties of objects, organisms, and/or materials used went beyond the task/investigation to make other connections or extend thinking.</li> </ul>