

## Exemplars® Standards-Based Math Rubric\*

	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
<b>Novice</b>	<p>No strategy is chosen, or a strategy is chosen that will not lead to a solution.</p> <p>Little or no evidence of engagement in the task present.</p>	<p>Arguments are made with no mathematical basis.</p> <p>No correct reasoning nor justification for reasoning is present.</p>	<p>No awareness of audience or purpose is communicated.</p> <p>or</p> <p>Little or no communication of an approach is evident</p> <p>or</p> <p>Everyday, familiar language is used to communicate ideas.</p>	<p>No connections are made.</p>	<p>No attempt is made to construct mathematical representations.</p>
<b>Apprentice</b>	<p>A partially correct strategy is chosen, or a correct strategy for only solving part of the task is chosen.</p> <p>Evidence of drawing on some previous knowledge is present, showing some relevant engagement in the task.</p>	<p>Arguments are made with some mathematical basis.</p> <p>Some correct reasoning or justification for reasoning is present with trial and error, or unsystematic trying of several cases.</p>	<p>Some awareness of audience or purpose is communicated, and may take place in the form of paraphrasing of the task.</p> <p>or</p> <p>Some communication of an approach is evident through verbal/written accounts and explanations, use of diagrams or objects, writing, and using mathematical symbols.</p> <p>or</p> <p>Some formal math language is used, and examples are provided to communicate ideas.</p>	<p>Some attempt to relate the task to other subjects or to own interests and experiences is made.</p>	<p>An attempt is made to construct mathematical representations to record and communicate problem solving.</p>

\*Based on revised NCTM standards.

## Exemplars® Standards-Based Math Rubric cont.

	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
<b>Practitioner</b>	<p>A correct strategy is chosen based on mathematical situation in the task.</p> <p>Planning or monitoring of strategy is evident.</p> <p>Evidence of solidifying prior knowledge and applying it to the problem solving situation is present.</p> <p>Note: The practitioner must achieve a correct answer.</p>	<p>Arguments are constructed with adequate mathematical basis.</p> <p>A systematic approach and/or justification of correct reasoning is present. This may lead to...</p> <ul style="list-style-type: none"> <li>• clarification of the task.</li> <li>• exploration of mathematical phenomenon.</li> <li>• noting patterns, structures and regularities.</li> </ul>	<p>A sense of audience or purpose is communicated. <b>and/or</b></p> <p>Communication of an approach is evident through a methodical, organized, coherent sequenced and labeled response.</p> <p>Formal math language is used throughout the solution to share and clarify ideas.</p>	<p>Mathematical connections or observations are recognized.</p>	<p>Appropriate and accurate mathematical representations are constructed and refined to solve problems or portray solutions.</p>
<b>Expert</b>	<p>An efficient strategy is chosen and progress towards a solution is evaluated.</p> <p>Adjustments in strategy, if necessary, are made along the way, and / or alternative strategies are considered.</p> <p>Evidence of analyzing the situation in mathematical terms, and extending prior knowledge is present.</p> <p>Note: The expert must achieve a correct answer.</p>	<p>Deductive arguments are used to justify decisions and may result in formal proofs.</p> <p>Evidence is used to justify and support decisions made and conclusions reached. This may lead to...</p> <ul style="list-style-type: none"> <li>• testing and accepting or rejecting of a hypothesis or conjecture.</li> <li>• explanation of phenomenon.</li> <li>• generalizing and extending the solution to other cases.</li> </ul>	<p>A sense of audience and purpose is communicated. <b>and/or</b></p> <p>Communication at the Practitioner level is achieved, and communication of argument is supported by mathematical properties.</p> <p>Precise math language and symbolic notation are used to consolidate math thinking and to communicate ideas.</p>	<p>Mathematical connections or observations are used to extend the solution.</p>	<p>Abstract or symbolic mathematical representations are constructed to analyze relationships, extend thinking, and clarify or interpret phenomenon.</p>