Writing Checklist

Did I write the correct answer in a complete sentence?

☺ Luis has 38 tokens.

☹ 38.

Did I describe the strategy I used?

☺ Since Luis needs more tokens, the number he has must less than 50. So I subtracted to find the answer.

☹ I knew how to do it in my head.

Did I use math terms in my writing?

☺ I subtracted 50 – 12.

☹ I did take away.

Did I use a math sentence to help explain how I solve the problem?

☺ 50 – 12 = 38

☹ I got 38 when I did the math.

Did I check that my answer makes sense?

☺ My answer is less than 50 so it makes sense. I checked the math by adding. 38 + 12 = 50

☹ I know I got it right.

K-2

2

Writing Checklist

Did I write the correct answer in a complete sentence?

☺ Luis has 38 tokens.

☹ 38.

Did I describe the strategy I used?

☺ Since Luis needs more tokens, the number he has must be less than 50. So I subtracted to find the answer.

☹ I knew how to do it in my head.

Did I use math terms in my writing?

☺ I subtracted 50 - 12.

☹ I did take away.

Did I use a math sentence to help explain how I solved the problem?

☺ 50 - 12 = 38

☹ I got 38 when I did the math.

Did I check that my answer makes sense?

☺ My answer is less than 50 so it makes sense.
I checked the math by adding. 38 + 12 = 50

☹ I know I got it right.

Did I read over what I wrote to find and fix any mistakes?

☺ Luis has 38 tokens.

☹ Luis 38 tokens.

Mathematics Problem Solving Scoring Guide

	Emerging 1	Developing 2	Proficient 3	Exemplary 4
Conceptual Understanding **Key Question**: *Does the student's interpretation of the problem using mathematical representations and procedures accurately reflect the important mathematics in the problem?*	1. Your mathematical representations of the problem were incorrect. 2. You used the wrong information in trying to solve the problem. 3. The mathematical procedures you used would not lead to a correct solution. 4. You used mathematical terminology incorrectly.	1. Your choice of forms to represent the problem was inefficient or inaccurate. 2. You used some but not all of the relevant information from the problem. 3. The mathematical procedures you used would lead to a partially correct solution. 4. You used mathematical terminology imprecisely.	1. Your choices of mathematical representations of the problem were appropriate. 2. You used all relevant information from the problem in your solution. 3. The mathematical procedures you chose would lead to a correct solution. 4. You used mathematical terminology correctly.	1. Your choice of mathematical representations helped clarify the problem's meaning. 2. You uncovered hidden or implied information not readily apparent. 3. You chose mathematical procedures that would lead to an elegant solution. 4. You used mathematical terminology precisely.
Strategies and Reasoning **Key Question**: *Is there evidence that the student proceeded from a plan, applied appropriate strategies, and followed a logical and verifiable process toward a solution?*	1. Your strategies were not appropriate for the problem. 2. You didn't seem to know where to begin. 3. Your reasoning did not support your work. 4. There was no apparent relationship between your representations and the task 5. There was no apparent logic to your solution. 6. Your approach to the problem would not lead to a correct solution.	1. You used an oversimplified approach to the problem. 2. You offered little or no explanation of your strategies. 3. Some of your representations accurately depicted aspects of the problem. 4. You sometimes made leaps in your logic that were hard to follow. 5. Your process led to a partially complete solution.	1. You chose appropriate, efficient strategies for solving the problem. 2. You justified each step of your work. 3. Your representation(s) fit the task. 4. The logic of your solution was apparent. 5. Your process would lead to a complete, correct solution of the problem.	1. You chose innovative and insightful strategies for solving the problem. 2. You proved that your solution was correct and that your approach was valid. 3. You provided examples and/or counterexamples to support your solution. 4. You used a sophisticated approach to solve the problem.

Northwest Regional Educational Laboratory
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	Emerging	Developing	Proficient	Exemplary
Computation & Execution **Key Question:** *Given the approach taken by the student, is the solution performed in an accurate and complete manner?*	1. Errors in computation were serious enough to flaw your solution. 2. Your mathematical representations were inaccurate. 3. You labeled incorrectly. 4. Your solution was incorrect. 5. You gave no evidence of how you arrived at your answer.	1. You made minor computational errors. 2. Your representations were essentially correct but not accurately or completely labeled. 3. Your inefficient choice of procedures impeded your success. 4. The evidence for your solution was inconsistent or unclear.	1. Your computations were essentially accurate. 2. All visual representations were complete and accurate. 3. Your solution was essentially correct. 4. Your work clearly supported your solution.	1. All aspects of your solution were completely accurate. 2. You used multiple representations for verifying your solution. 3. You showed multiple ways to compute your answer.
Communication **Key Question:** *Was I able to easily understand the student's thinking or did I have to make inferences and guesses about what they were trying to do?*	1. I couldn't follow your thinking. 2. Your explanation seemed to ramble. 3. You gave no explanation for your work. 4. You did not seem to have a sense of what your audience needed to know. 5. Your mathematical representations did not help clarify your thinking.	1. Your solution was hard to follow in places. 2. I had to make inferences about what you meant in places. 3. You weren't able to sustain your good beginning. 4. Your explanation was redundant in places. 5. Your mathematical representations were somewhat helpful in clarifying your thinking.	1. I understood what you did and why you did it. 2. Your solution was well organized and easy to follow. 3. Your solution flowed logically from one step to the next. 4. You used an effective format for communicating. 5. Your mathematical representations helped clarify your solution.	1. Your explanation was clear and concise. 2. You communicated concepts with precision. 3. Your mathematical representations expanded on your solution. 4. You gave an in-depth explanation of your reasoning.

Insights **Key Question:** *Does the student grasp the deeper structure of the problem and see how the process used to solve this problem connects it to other problems or "real-world" applications?*	1. You were unable to recognize patterns and relationships. 2. You found a solution and then stopped. 3. You found no connections to other disciplines or mathematical concepts.	1. You recognized some patterns and relationships. 2. You found multiple solutions but not all were correct. 3. Your solution hinted at a connection to an application or another area of mathematics.	1. You recognized important patterns and relationships in the problem. 2. You found multiple solutions using different interpretations of the problem. 3. You connected your solution process to other problems, areas of mathematics or applications.	1. You created a general rule or formula for solving related problems. 2. You related the underlying structure of the problem to other similar problems. 3. You noted possible sources of error or ambiguity in the problem. 4. Your connection to a real-life application was accurate and realistic.

Exemplars® Standards-Based Math Rubric

	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
Novice 1	No strategy is chosen, or a strategy is chosen that will not lead to a solution. Little or no evidence of engagement in the task present.	Arguments are made with no mathematical basis. No correct reasoning nor justification for reasoning is present.	No awareness of audience or purpose is communicated. No formal mathematical terms or symbolic notations are evident.	No connections are made or connections are mathematically or contextually irrelevant.	No attempt is made to construct a mathematical representation.
Apprentice 2	A partially correct strategy is chosen, or a correct strategy for only solving part of the task is chosen. Evidence of drawing on some relevant previous knowledge is present, showing some relevant engagement in the task.	Arguments are made with some mathematical basis. Some correct reasoning or justification for reasoning is present.	Some awareness of audience or purpose is communicated. Some communication of an approach is evident through verbal/written accounts and explanations. An attempt is made to use formal math language. One formal math term or symbolic notation is evident.	A mathematical connection is attempted but is partially incorrect or lacks contextual relevance.	An attempt is made to construct a mathematical representation to record and communicate problem solving but is not accurate.

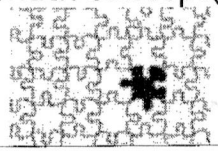
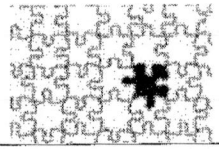
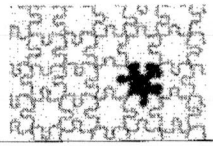
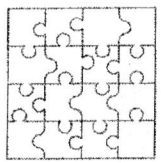
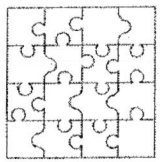
Exemplars® Standards-Based Math Rubric (cont.)

	Problem Solving	Reasoning and Proof	Communication	Connections	Representation
Practitioner 3	A correct strategy is chosen based on the mathematical situation in the task. Planning or monitoring of strategy is evident. Evidence of solidifying prior knowledge and applying it to the problem-solving situation is present. *Note: The Practitioner must achieve a correct answer.*	Arguments are constructed with adequate mathematical basis. A systematic approach and/or justification of correct reasoning is present.	A sense of audience or purpose is communicated. Communication of an approach is evident through a methodical, organized, coherent, sequenced and labeled response. Formal math language is used to share and clarify ideas. At least two formal math terms or symbolic notations are evident, in any combination.	A mathematical connection is made. Proper contexts are identified that link both the mathematics and the situation in the task. Some examples may include one or more of the following: • clarification of the mathematical or situational context of the task • exploration of mathematical phenomenon in the context of the broader topic in which the task is situated • noting patterns, structures and regularities	An appropriate and accurate mathematical representation is constructed and refined to solve problems or portray solutions.
Expert 4	An efficient strategy is chosen and progress towards a solution is evaluated. Adjustments in strategy, if necessary, are made along the way, and/or alternative strategies are considered. Evidence of analyzing the situation in mathematical terms and extending prior knowledge is present. *Note: The Expert must achieve a correct answer.*	Deductive arguments are used to justify decisions and may result in formal proofs. Evidence is used to justify and support decisions made and conclusions reached.	A sense of audience and purpose is communicated. Communication at the Practitioner level is achieved, and communication of argument is supported by mathematical properties. Formal math language and symbolic notation is used to consolidate math thinking and to communicate ideas. At least one of the math terms or symbolic notations is beyond grade level.	Mathematical connections are used to extend the solution to other mathematics or to a deeper understanding of the mathematics in the task. Some examples may include one or more of the following: • testing and accepting or rejecting of a hypothesis or conjecture • explanation of phenomenon • generalizing and extending the solution to other cases	An appropriate mathematical representation is constructed to analyze relationships, extend thinking and clarify or interpret phenomenon.

Math 6 Unit 6 Performance Task

	Thorough (4)	Adequate (3)	Partial (2)	Minimal (1)
Apply mathematical concepts correctly	Students can accurately apply mathematical concepts.	Students can sufficiently apply mathematical concepts.	Students can partially apply mathematical concepts.	Students can minimally apply mathematical concepts.
Using the correct formula required to solve the situation	*Using the correct formula and applying it correctly.*	*Using the correct formula but making a mistake, i.e. multiply by 2 instead of squaring in area of a circle.*	*Using the incorrect formula, but applied correctly.*	*Needs help in acquiring formula to use.*
Mathematical procedures with precision and fluency.	High precision and fluency.	Sufficient precision and fluency.	Partial precision and fluency.	Limited precision and fluency.
Are the math calculations correct?	No mistakes in the calculations	A few mistakes in the calculations, 75-90% correct	Many mistakes in the calculations, 50-75% correct	Numerous mistakes, missing calculations, incomplete.
Clear and precise language to support their own reasoning.	Students can construct viable arguments with deep clarity and precision.	Students can construct viable arguments with sufficient clarity and precision.	Students can construct viable arguments with partial clarity and precision.	Students can construct simple viable arguments with minimal clarity and precision.
Correct mathematical vocabulary, complete sentences, ability to get your thoughts across.	Clearly written out procedures, steps, thoughts or explanation correctly.	Thoughts written parts, procedures, steps, or explanation lacking small pieces.	Thoughts written parts, procedures, steps, or explanation lacking key pieces.	Incomplete, missing, does not make sense

Problem Solving Rubric

How Well Did You Do This?	Understanding and representing the problem situation	Solving the problem in ways that make sense and are efficient	Computing and explaining with accuracy and precision
No evidence	No attempt	No attempt	No attempt
Good start (You did a piece of it)	Your representation shows that you understood some of the problem situation and the related math concept(s). 	You tried to solve the problem in a way that doesn't make sense for this situation. 	You attempted precision in your work, but still had several errors that impacted the solution. 
Almost There (You have almost all of the pieces)	Your representation shows that you understood most of the problem situation and the related math concept(s). 	You solved the problem in a way that makes sense for this situation but may not be efficient. 	Your work, explanation, and drawings were mostly precise, but you had a minor error OR an idea that was unclear. 
Excellent (You fit all of the pieces together in a great way)	Your representation shows that you completely understood the problem situation and the related math concept(s). 	You solved the problem in a way that makes sense for this situation AND is efficient. 	You were accurate in all of your computation and your choice of precise math language and drawings made your explanation clear.