Guide to Writing Quality Mathematics Work Samples

Effective tasks must provide an opportunity for scoring across all five process dimensions of the Mathematics Problem Solving Official Scoring Guide. Tasks must elicit developmentally appropriate problem solving skills and be tied to grade level content standards. A good task must be a non-familiar application requiring multiple steps and, ideally, have more than one method of solution. When appropriate, work samples should be embedded in the curriculum and may be used as a culminating assessment.

Task Writing Process	
	Select the standard(s) to be addressed. Students working toward a solution may be required to apply standards from earlier grades.
	Determine a real-world context that students have previous experience with. Ideas may come from textbooks, online resources, etc.
	Write a task that provides an opportunity for students to demonstrate proficiency in the selected standard(s).
	Determine the solution.
	Determine if there are implied assumptions or interpretations that may vary between students.
	Consider alternative solution paths; try to solve the task using a variety of different problem solving strategies and approaches.
	Determine what a proficient student response would look like. Determine what a “6” student response would look like.
	Apply the Matrix for Evaluating Mathematics Work Sample Tasks.
	Make edits and re-evaluate.
	Ask a colleague to solve it, and suggest edits as needed.

Matrix for Evaluating Mathematics Work Sample Tasks

In designing a task, writers may consider the following matrix. Task writers may use the matrix to reflect on and revise their work, or as a training tool for use in developing tasks in teams.

Process Dimension	Questions	Yes/No Ideas for Revision
Making Sense of the Task	Does the task ask students to change important information into mathematical ideas?	☐
Representing and Solving the Task	Are there clear math strategies students can use to solve this problem?	☐
Communicating Reasoning	Does the task require a logical chain of reasoning that is robust enough for the student to demonstrate communication?	☐
Accuracy	Is there one answer? Does the task allow students to make their own connections and determine which steps to take?	☐ ☐
Reflecting and Evaluating	Is there a reasonable way for the student to rework the problem by solving with an alternate method, by working backwards or double-checking the result?	☐
Characteristic	**Questions**	**Yes/No Ideas for Revision**
Grade level standards are addressed	Will the task be used to demonstrate Essential Skills? Does the complexity of the task deter students from addressing below grade level standards?	☐ ☐
Non-routine	Does the task deviate from a standard mathematical template? Does the task suggest an approach that is neither automatic nor routine?	☐ ☐
Appropriate level of rigor	Is the task too hard, too easy, not enough steps?	☐
Bias, Sensitivity and Accessibility	Is the language clear and straightforward? Is the task culturally equitable, free of stereotypes, and within the students' realm of experience?	☐ ☐

DRAFT