

Student-friendly Rubrics: Connecting Open Response Tasks to Mathematical Practices

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John Benson: j-benson2@comcast.net

Andy Carter: mac2@uchicago.edu

Amanda Ruch: amandar@uchicago.edu

CENTER FOR ELEMENTARY MATHEMATICS AND SCIENCE
EDUCATION, UNIVERSITY OF CHICAGO

<http://cemse.uchicago.edu>

References

Foster, D., & Poppers, A. (2009, November). Using formative assessment to drive learning. Retrieved from http://www.svmimac.org/images/Using_Formative_Assessment_to_Drive_Learning_Reduced.pdf

Paek, P. L., & Foster, D. (2012, April 15). Improved mathematical teaching practices and student learning using complex performance assessment tasks. Paper presented at the annual meeting of the National Council on Measurement in Education, Vancouver, Canada.

Reengagement Protocol Checklist

* indicates activities that are best done in collaboration with other teachers

Choose a Challenging Open response Task and Plan the Lesson*

- Choose a challenging open-response task that will that will actively engage your students.
- Do the task yourself. Try to do it in a variety of different ways.
- Think about and identify the key mathematical content and the practices that are used in doing the task.
- Consider how students might approach the task. What strategies (correct and incorrect) might they use? What part(s) will many likely have success with? What mathematical misconceptions might impact their work? Where else might they struggle and why? Look at any student work samples that may be available for the task.
- Choose an introductory activity that will frame the content and practices emphasized in the task.
- Plan the logistics (grouping, materials, pacing, etc.)

Teach the Open-Response Lesson

- Give students the introductory activity to preview the mathematical content or practices and help them tap into prior knowledge.
- Introduce the task without teaching them how to solve it.
- Provide adequate time to work on the open-response problem, and allow students to do the bulk of the mathematical sense-making themselves.
- Encourage students to devise their own strategies for solving the problem.
- Monitor student progress and, as needed, ask questions to help students clarify and make their thinking visible.
- Remember that struggle is an important part of learning and develops perseverance.
- Remind students that they will have an opportunity to continue working on the task on another day.

Analyze Student Work and Plan for Reengagement*

- Use the key mathematical content and practices to analyze student performance on the task.
- Look for trends in student work, strengths and understandings, or errors or misconceptions. Use the trends to identify key issues to be addressed in the reengagement discussion.
- Choose 2–4 examples of student work to use during reengagement to address the issues you identified. Examples may include:
 - correct solutions that use different strategies
 - correct solutions that are more or less clearly communicated
 - incorrect solution(s) that illustrate common misconceptions
- Prepare generative discussion questions and prompts that will engage students in making sense of the selected work.
- Plan how to support students in revising their own work.

Use student work to Facilitate Reengagement with the Task

- Review the problem and remind students of the key mathematical practices.
- Establish norms for respectful discussion of student work.
- Facilitate a discussion using the selected student work and guiding questions to reengage students in the task and address the issues you identified.
- Involve students in making suggestions for improving the selected work.
- Have students use what they learned in the reengagement discussion to make corrections and improvements to their original work. Encourage them to add to their original work or write a new copy of the task, but not to erase any of their original work. You may wish to have them make their revisions using colored pencils.