

# USING SCORING GUIDES

*For Workshops 2, 4, 6 and 8*

During each In Practice workshop, Learner Teachers learn how to use scoring guides to assess student work — and to strengthen their instruction. Working with colleagues to develop scoring guides is a very powerful way for teachers to deepen their content knowledge. The exercise helps you be very clear with yourself and your students about what's the most important math in each lesson. What core concepts and skills do you expect students to demonstrate? Viewers should keep the following guidelines in mind when using scoring guides:

- In assessing the student work, the key questions are: “Can I understand the student’s solution” and “Can I see how he or she got there?”
- A “4” paper doesn’t need any additional work. A “3” paper can be raised to a “4” by adding a short note from the teacher. A “2” paper needs a teacher intervention, perhaps just interviewing the student. A “1” paper needs reteaching.
- Scoring papers with peers can be an eye-opener. It can help you avoid being too stringent (“I insist on good spelling, even in math work”), too lax (“He didn’t demonstrate it fully, but I know he knows this concept”) or inconsistent (“But how could Johnny outscore Susy? He never knows what’s going on in class!”).
- We use the score to rate an individual piece of work, not to assign a level of ability to a student. A particular piece of work might merit only a “2,” but that doesn’t mean the student is a “2.” Indeed, our job as teachers is to help all students meet high standards and develop their understanding of important mathematical concepts.

## ANALYTIC Versus GENERIC Scoring Guides

**In this series, we refer to three kinds of scoring guides. All of them are used to evaluate student work as a “4,” “3,” “2” or “1.” “4” and “3” papers meet the standards. “2” and “1” papers do not.**

An analytic guide is more precise and allows us to look at various components of a task or problem in greater detail. The analytic guide used in Workshop 6 focused on three distinct components: *Knowledge* (Does the student know the math?), *strategy* or *problem-solving* (Can you see how the student got the answer?) and *communication* (Can the student effectively explain the answer?). This type of guide can be a very effective teaching tool, especially when teachers are able to identify specific weaknesses and target interventions that help to build these skills systematically. This type of guide offers students an “opportunity to learn.”

A generic guide condenses the analytic guide. It still looks at a student’s knowledge, strategy and communication skills but in a more all-encompassing way. It is used mainly as a summative assessment tool, to see whether the student understands the key math concepts and is ready to move on to the next concepts. This kind of guide offers students an “opportunity to perform.”

Sometimes a scoring guide can also be designed as task-specific, stating the actual criteria or student expectations for a particular problem or task. These task-specific scoring guides are used more often when the task or project is “high-stakes” and it is critical to have reliability among scorers. It also can be a powerful teaching tool when the teacher and class together develop a task-specific scoring guide from a generic one. By doing this, teachers can clarify their expectations for themselves and their students.

In all cases, the scoring guides in this series are designed for everyday classroom use. States and districts with high-stakes tests may use very detailed scoring guides, which assign a specific number of points for certain identified responses. It’s important to share analytic and generic scoring guides with students before they start a problem, so they know what is expected of them.

# CREATING A TASK-SPECIFIC SCORING GUIDE FROM STUDENT WORK

*For Workshops 2, 4, 6 and 8*

## **Before Doing the Task**

Think about what a “4” might look like, listing some possible characteristics from a generic scoring guide. Share this tool with your students before they do the assessment. Students must be aware of how they will be scored on a particular item.

## **After Doing the Task**

Do a quick sort of 15 to 20 papers. Sort them into two piles: “meets standards” and “does not meet standards.” Students whose work meets standards show understanding of the problem even if there are errors. Students who have not mastered the standards yet will need some teacher intervention to go on. The purpose of the sorting is to identify typical papers that can be used to create a scoring guide that, when used by others, produces the same results.

## **Sort Through the “Meets Standards” Pile**

Select the best work from this pile, looking for different kinds of correct papers. These will be scored “4.” It is possible that none of the student work really meets your expectations of a “4.” With this kind of scoring, student work is compared to a standard (which you now are setting) and not to other students’ work. If “4s” do not exist, describe these in your task-specific scoring guide. If they do, keep two or three examples that can be used during the scoring process to remind you of your decisions.

## **Describe the “3” Papers**

The rest of the pile will be scored “3.” Describe the common errors included in this work. Try to be clear about the difference between a “4” and a “3.” When does a paper demonstrate enough understanding that the student would be able to revise the task by himself if you put a short question or comment on a Post-It™ note? That’s a “3.” Keep two or three examples that can be used during the scoring process to remind you of your decisions.

## **Sort Through the “Doesn’t Meet Standards” Pile**

Look at the best work in this pile first. Try to pinpoint exactly what separates a “2” from a “3.” If a short conversation with the teacher would prompt the student to improve and/or clarify the work, it’s a “2.” Describe the critical differences between a “2” and a “3” and keep two or three examples of the “2” papers to remind you of your decisions.

## **Look at the Rest of the Papers**

Now concentrate on the lower half of the “doesn’t meet standards” pile. A student must have some success, not just effort, to score a “1.” If a student needs to be retaught to do the math, it is likely to be a “1.” Describe typical papers and keep two or three examples that show common responses.

## **Scoring a “0”**

If a student has shown some work, but the work does not indicate any movement toward a solution or any understanding of the problem, the work rates a “0” response. “No Score” (NS) can be given if the paper is blank or cannot be scored for some other reason.

Source: Adapted from work by New Standards and Washington State by L. Plattner

## SAMPLE ANALYTIC SCORING GUIDE – STUDENT PERSPECTIVE

Performance Tasks and Open-Ended Response Items  
For Workshops 2, 4, 6 and 8

Score Level	Mathematical Knowledge and Understanding	Strategy or Problem-Solving Plan	Explanation or Mathematical Communication
<b>4</b> <b>(mastery of the problem)</b>	<ul style="list-style-type: none"> <li>• I show all my work to get the right answer and label it correctly.</li> <li>• I use the correct terms to show I understand how the math works.</li> </ul>	<ul style="list-style-type: none"> <li>• I show all the steps I used to solve the problem.</li> <li>• I show all diagrams or pictures, if I used them in my plan.</li> </ul>	<ul style="list-style-type: none"> <li>• I write what I did and why I did it.</li> <li>• I explain all parts of diagrams or pictures I used.</li> </ul>
<b>3</b> <b>(requires short note from teacher)</b>	<ul style="list-style-type: none"> <li>• I show work and use most math terms correctly.</li> <li>• I make minor errors in computation.</li> </ul>	<ul style="list-style-type: none"> <li>• I show a reasonable plan and most of the steps I used to solve the problem.</li> </ul>	<ul style="list-style-type: none"> <li>• I write about most of the steps I used.</li> <li>• I write some about why I did it.</li> </ul>
<b>2</b> <b>(requires teacher intervention)</b>	<ul style="list-style-type: none"> <li>• I know how to do parts of the problem, but I make major errors in computation.</li> <li>• I give a partial answer.</li> </ul>	<ul style="list-style-type: none"> <li>• I find some of the important parts of the problem.</li> <li>• I show some of the steps, but my plan is not clear.</li> </ul>	<ul style="list-style-type: none"> <li>• I write some about what I did.</li> <li>• I do not tell why I did certain steps.</li> </ul>
<b>1</b> <b>(requires reteaching)</b>	<ul style="list-style-type: none"> <li>• I try to do the problem but don't understand it.</li> <li>• I don't give an answer.</li> </ul>	<ul style="list-style-type: none"> <li>• I show a plan that is not reasonable or clear.</li> <li>• I may use information that is not necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• I write or draw something that does not go with my answer.</li> <li>• I write an answer that is not clear.</li> <li>• I don't write anything.</li> </ul>

## SAMPLE ANALYTIC SCORING GUIDE – TEACHER PERSPECTIVE

Performance Tasks and Open-Ended Response Items  
For Workshops 2, 4, 6 and 8

Score Level	Mathematical Knowledge and Understanding	Strategy or Problem-Solving Plan	Explanation or Mathematical Communication
<b>4</b> <b>(mastery of the problem)</b>	<ul style="list-style-type: none"> <li>• Demonstrates complete understanding of concepts</li> <li>• Executes computation correctly</li> </ul>	<ul style="list-style-type: none"> <li>• Clear evidence of complete, systematic process to solve problem</li> </ul>	<ul style="list-style-type: none"> <li>• Clear, effective explanation detailing what was done and why it was done</li> </ul>
<b>3</b> <b>(requires short note from teacher)</b>	<ul style="list-style-type: none"> <li>• Demonstrates general understanding of problem</li> <li>• Minor computational errors</li> </ul>	<ul style="list-style-type: none"> <li>• Uses appropriate strategy</li> <li>• Solution lacks evidence or is missing minor steps</li> </ul>	<ul style="list-style-type: none"> <li>• Clear explanation that addresses what was done</li> <li>• May use diagram as part of explanation</li> </ul>
<b>2</b> <b>(requires teacher intervention)</b>	<ul style="list-style-type: none"> <li>• Solution is not complete</li> <li>• Major computational or procedural errors</li> </ul>	<ul style="list-style-type: none"> <li>• Appears to have a strategy</li> <li>• Strategy does not lead to a solution</li> </ul>	<ul style="list-style-type: none"> <li>• Gives some written explanation</li> <li>• Explanation is missing steps or rationale</li> </ul>
<b>1</b> <b>(requires reteaching)</b>	<ul style="list-style-type: none"> <li>• No solution</li> <li>• Solution shows no understanding of mathematical concepts involved in task</li> </ul>	<ul style="list-style-type: none"> <li>• No evidence of a strategy or strategy is incorrect</li> </ul>	<ul style="list-style-type: none"> <li>• No explanation</li> <li>• Explanation is vague or unrelated to the problem</li> </ul>

# GENERIC SCORING GUIDE

## *For Workshops 2, 4, 6 and 8*

A 4-point response represents an effective solution that meets all relevant criteria:

- shows complete understanding of the concept or task
- consistently and correctly uses or addresses all relevant information
- shows logical reasoning and valid conclusions
- communicates effectively and clearly — using words, numbers, pictures or diagrams
- includes correct computations and set-up

A 3-point response shows a mostly effective solution/approach and meets most relevant criteria:

- shows general understanding of the concept or task
- uses most applicable information or addresses most relevant points
- communicates adequately through writing and diagrams
- reaches reasonable conclusions
- may show some flawed or incomplete reasoning
- may have missing, incorrect or incomplete computation
- may neglect some aspect of the task

A 2-point response meets some relevant criteria but shows gaps in understanding and execution:

- shows partial understanding of the concept or task
- shows partial understanding of relevant mathematical procedures
- uses some applicable information and procedures
- demonstrates faulty reasoning or weak conclusions
- uses unclear communication in writing and diagrams

A 1-point response meets few relevant criteria but shows some effort beyond restating the task or copying the given data:

- shows little understanding of the concept or task
- shows little understanding of relevant mathematical procedures
- fails to use applicable information or address most aspects of the task
- demonstrates major flaws in reasoning
- states invalid or unsupported conclusions
- lacks communication or difficult to follow

A 0-point response means no attempt beyond restating the task or copying given data.