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Making Good Choices

Addendum for Elementary Education: Literacy with Mathematics Task 4

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Candidate Support Resource

Version 01

- *Planning*
- *Instruction*
- *Assessment*
- *Analysis of Teaching*
- *Academic Language*

SCALE
Stanford Center for Assessment, Learning, & Equity

MGC_ELE_ v01

Mathematics Task 4: Assessing Students' Mathematics Learning

For the Mathematics Task 4, you will develop or adapt a relevant formative assessment of student learning, analyze student work samples, and design and teach a re-engagement lesson focused on student needs. This task is completed only by candidates using the **Elementary Education: Literacy with Mathematics Task 4** Handbook.

Key Decisions

Mathematics Task 4— Setting the Context	• Does Mathematics Task 4 need to be completed in the same classroom that I use for the Literacy tasks? • How do I choose the central focus for Mathematics Task 4? • Do I need to teach the learning segment for Mathematics Task 4? • What kind of student formative assessment should I choose for my assessment? • What kind of evaluation criteria do I need for the formative assessment? • How detailed does my lesson segment overview need to be?
Analysis of Student Work—Whole Class	• What is the focus of the whole class analysis from the formative assessment? • How detailed should the whole class analysis be?
Analysis of Student Work—Focus Students	• How do I choose the students to include as the focus students for the re-engagement lesson? • What am I looking for when I analyze the student work of the three focus students from the original learning segment?

Re-engagement	[What does it mean to re-engage students?](#) [What should I think about when planning the re-engagement lesson?](#) [How much detail do I need to include for the lesson plan for the re-engagement lesson?](#) [How do I design and/or choose the assessment for the re-engagement lesson?](#) [How will I use the work samples for the re-engagement lesson?](#) [How do I determine the effectiveness of my re-engagement lesson?](#)

Mathematics Task 4—Setting the Context

Does Mathematics Task 4 need to be completed in the same classroom that I use for the Literacy tasks?

Mathematics Task 4 can be completed in the same classroom as the Literacy tasks **OR** can be completed in a different classroom or fieldwork setting. Regardless of where you complete Mathematics Task 4, you must complete the Task 4 Elementary Mathematics Context for Learning Information. Be sure to read the handbook for elaborated directions on completing Mathematics Task 4.

NOTE: The order in which you complete the Literacy tasks (Tasks 1–3) and Mathematics Task 4 does not matter, but **the entire Elementary Education: Literacy with Mathematics edTPA (Tasks 1–4)** must be submitted at the same time for official scoring during the same scoring/submission window.

[Back to Mathematics Task 4 Key Decisions Chart](#)

How do I choose the central focus for Mathematics Task 4?

Mathematics Task 4 requires you to describe a learning segment and select a formative assessment based on a specific central focus or mathematics topic, prior to teaching your re-engagement lesson. The learning segment should focus on a specific mathematics topic that students **have not yet mastered**. This mathematics topic can be any topic that relates to your students' learning needs and should reflect a balanced approach to mathematics that will allow students opportunities to demonstrate conceptual understanding, procedural fluency, and mathematical reasoning/problem-solving skills.

Because you will need to identify an area of struggle related to the formative assessment, **it is important that the central focus be one that students have not yet mastered.**

[Back to Mathematics Task 4 Key Decisions Chart](#)

Do I need to teach the learning segment for Mathematics Task 4?

Mathematics Task 4 is designed to occur either when the candidate has primary responsibility for mathematics instruction in the task **OR** when the candidate is only teaching occasional lessons. Therefore, the learning segment can be taught by either you **OR** the cooperating teacher. It should be taught by whoever has the primary responsibility for mathematics instruction at that time. If you are *not* teaching the learning segment and/or lesson, you **must** be involved in choosing and/or adapting the formative assessment that will be used for Mathematics Task 4. Even if you did not teach the lesson in which the formative assessment is given, you **must** teach the re-engagement lesson yourself.

[Back to Mathematics Task 4 Key Decisions Chart](#)

What kind of student formative assessment should I choose for my assessment?

The formative assessment that you choose should capture the whole class learning related to a specific mathematics topic within the learning segment. You want to make sure that the students have the opportunity to show conceptual understanding, procedural fluency, and mathematical reasoning/problem solving on the assessment. **The formative assessment must show the work of individual students, not groups of students.**

The formative assessment should be challenging enough that it will allow at least some of the students in the class to show areas of need (struggle, misconception, and/or misunderstanding). **Because you will be selecting three focus students who have an area of need related to the topic, make sure that the formative assessment will show differences in student skills and understandings related to the topic.**

Back to Mathematics Task 4 Key Decisions Chart

What kind of evaluation criteria do I need for the formative assessment?

You need to define evaluation criteria **specific** to the mathematical topic and skill that you are assessing. When listing the evaluation criteria, think about the specific **skills and understandings** that students need to have to be successful on the formative assessment. You will analyze the formative assessment results based on the specific evaluation criteria that you identify. The evaluation criteria should go beyond counting the number of correct responses that a student has and should list specific skills and understandings, such as: "*Can draw at least two equivalent fractions for a given fraction; uses counting on to solve a join result unknown problem; names three attributes of a given shape.*"

Back to Mathematics Task 4 Key Decisions Chart

How detailed does my lesson segment overview need to be?

In contrast to the lesson plans you created for the literacy learning segment (Tasks 1–3), your overview of the lesson segment should be **brief,** with just enough detail so that the scorer can understand what the segment entails. You do not submit lesson plans for Mathematics Task 4. However, for Mathematics Task 4 you will need to submit an Elementary Mathematics Context for Learning Information form, along with the Elementary Mathematics Learning Segment Overview template provided in your handbook. **Be sure to address all sections of the overview template,** while making sure that your completed overview is no longer than **2 pages in length**. It is best to **keep your overview simple.**

Back to Mathematics Task 4 Key Decisions Chart

Analysis of Student Work—Whole Class

What is the focus of the whole class analysis from the formative assessment?

The analysis of the whole class will allow you to identify specific mathematics skills and understandings related to the central focus. In this analysis you will **identify a specific mathematical focus area where students struggled** (this can be a whole class struggle or a small group struggle).

Back to Mathematics Task 4 Key Decisions Chart

How detailed should the whole class analysis be?

You are looking for patterns in the evidence—that is, consistencies among student responses both in terms of what students got right and what they got wrong. When describing student work, you will need to go beyond identifying what the class got right or wrong, or listing how many students met a specific criteria and how many did not. **You will need to look at the students' work both for evidence of what they have learned and understand, and evidence of any mathematical errors, confusions, and partial understandings in relation to the central focus**. You are also looking for consistencies within students' errors (e.g., the same types of mistakes being made). There are two types of patterns that you should look for: qualitative patterns and quantitative patterns. Quantitative patterns of learning are patterns (consistencies) in the number of similar correct responses or errors across or within student assessments. Qualitative patterns of learning describe the specific understandings and/or misunderstandings of a mathematical skill or concept, partial understandings, and/or attempts at solution that underlie the quantitative patterns. ***When discussing patterns of learning across the whole class, be sure to provide specific, concrete examples to support your assertions.*** Do not merely cite frequencies of student responses or describe general understandings/ misunderstandings in their responses—always include examples and evidence from the students' work or your whole class data analysis. For example:
- Many students showed that they could . . . as we can see in Student 1's work on problem 2.
- Like most of the class, Students 2 and 3 showed in problem 6 that they could not . . . .

Back to Mathematics Task 4 Key Decisions Chart

Analysis of Student Work—Focus Students

How do I choose the students to include as the focus students for the re-engagement lesson?

From the whole class analysis, identify a specific need (struggle, misconception, and/or misunderstanding) that the whole class or a group of students have. Select three student work samples that provide evidence of this specific struggle (e.g., mathematical errors, confusions, partial understandings), and these three students will be your focus students.

Back to Mathematics Task 4 Key Decisions Chart

What am I looking for when I analyze the student work of the three focus students from the original learning segment?

You will analyze the three focus student work samples, **specifically looking at evidence of their struggle, and explain how their struggle is related to mathematical understanding**. For example, if the identified struggle were with regrouping, you would look at work samples to see what the students' errors tell you about their understanding of regrouping. You would point to a specific example of an error in the student work (student didn't change the number of tens) and relate it to the skills and understanding needed (when regrouping, the number of tens lessens by one if ten is added to the ones place).

Back to Mathematics Task 4 Key Decisions Chart

Re-engagement

What does it mean to re-engage students?

A key aspect of effective teaching involves responding to student needs that surface during instruction. Teachers may respond by building on what students already learned in order to extend/deepen their knowledge or by revisiting a topic taught in the lesson (or a previous lesson) that may not yet be fully understood by the students. When revisiting a topic, effective teachers **use a different approach** with the assumption that the first approach did not work for all the students. Teachers of mathematics re-engage students by implementing different instructional strategies and using different representations while either correcting misconceptions or deepening understandings. For Mathematics Task 4, **you must re-engage the students in the area of struggle that you identified in the analysis** of the focus student work samples.

Back to Mathematics Task 4 Key Decisions Chart

What should I think about when planning the re-engagement lesson?

For Mathematics Task 4, you will **use the student struggles (e.g., misunderstandings, partial understandings) that you identified in your analysis of the three student work samples, set a learning objective/goal, and design a re-engagement lesson,** as described in the handbook, to address those struggles. You will teach the re-engagement lesson to the three students (your focus students) one-on-one, in a small group, or with the whole class. You will then collect work samples from the three students to submit as artifacts (i.e., evidence) that support your analysis of the effectiveness of the re-engagement lesson. **Your instruction during the re-engagement portion of the task must specifically respond to the student needs that surfaced in the original work samples. As you plan your re-engagement lesson, keep in mind how you will demonstrate the focus students' growth as well as explain how your instruction impacted their learning.**

There are a number of approaches for re-engagement, but whatever approach is chosen should be driven by the analysis of student learning depicted in specific examples in the three focus students' original work samples.

[Back to Mathematics Task 4 Key Decisions Chart](#)

How much detail do I need to include for the lesson plan for the re-engagement lesson?

The lesson plan for the re-engagement lesson should provide enough detail that the scorer can see that (1) the lesson deals with the same struggle as identified during the analysis of the focus student work and (2) that it uses a different approach than the original lessons in the Learning Segment Overview. The re-engagement lesson plan must include a learning objective/goal, the related content standards, the strategies and learning tasks to engage students, the representations or materials to be used, and the assessment(s) to monitor student learning during the re-engagement lesson.

[Back to Mathematics Task 4 Key Decisions Chart](#)

How do I design and/or choose the assessment for the re-engagement lesson?

The assessment for the re-engagement lesson must show individual student work (or a video of an individual oral student assessment for primary grades) that relates to the identified area of struggle. Students should have an opportunity to show new learning specifically related to the area of struggle. The assessment should provide opportunities for students to demonstrate

- conceptual understanding;
- computational/procedural fluency; and
- mathematical reasoning/problem-solving skills.

[Back to Mathematics Task 4 Key Decisions Chart](#)

How will I use the work samples for the re-engagement lesson?

You will submit the re-engagement lesson assessment work samples from each of the three focus students. You will analyze the assessments to identify new evidence to determine students' skills and/or understandings related to the identified learning objective/goal. These samples should **provide new evidence of the three students' mathematical understanding in the area in which they were previously struggling.**

[Back to Mathematics Task 4 Key Decisions Chart](#)

How do I determine the effectiveness of my re-engagement lesson?

You will evaluate the effectiveness of the re-engagement lesson and consider its impact on the three focus students' learning. Depending on whether or not there is a change in student learning, you will be able to determine if the re-engagement lesson was successful or not. In your analysis of the three students' work samples from the re-engagement lesson, determine what the students currently understand in comparison to their demonstrated understanding from the original learning segment. Use specific examples from their original work as well as their re-engagement work as evidence of what they knew then and now know. Evaluate the effectiveness of the re-engagement lesson based on the evidence from student learning. Think about whether student learning related to the area of struggle stayed the same or partially improved, or if students mastered the content.

Back to Mathematics Task 4 Key Decisions Chart

Mathematics Task 4 Key Points	
What to Include	**What to Avoid**
• A copy of the actual assessment from the original learning segment • A graphic (table or chart) or narrative summary of the performance of the class on the assessment from the original learning segment • Three student work samples from the original learning segment **AND** three work samples from **the same students** from the re-engagement lesson • Specific evidence from student work to support your evaluation of the re-engagement lesson	• Significant content inaccuracies in your analysis • Targeted learning objective/goal for the re-engagement lesson is not aligned with the identified area of struggle • Citation of evidence of student learning is not aligned with the student work samples • Re-teaching, without any changes, the original lesson as your re-engagement lesson