

“Other Things to Share”

Objective: Understand and interpret the remainder differently depending on context to develop independent thinkers.

	Original TTLP <i>(revision recommendations in bold italics)</i>	Revised TTLP (as a result of the recommended revisions)
Selecting and Setting up a Mathematical Task		
How will you introduce students to the activity...?	Brainstorm a list of things that can and can't be shared exactly. <i>What questions might you pose to students as they share their list?</i>	Questions to ask as students share their lists: <ul style="list-style-type: none"> • What made you think of that item? • Why do you believe it can't be shared? • What might you do with items that can't be shared exactly?
What will you hear that lets you know students understand the task?	I can assess their understanding by listening to their reasonable responses as I circulate and address concerns. <i>“Reasonable – maybe . . . maybe not” What do you think that you may hear? How might you plan to respond?</i>	Questions that I may hear: <ul style="list-style-type: none"> • <i>How can we share the one balloon?</i> Possible response: Is there a way that remainder balloon could be useful to all four people without cutting it? • <i>Could you trade that one balloon for 4 small ones?</i> Possible response: You cannot change the one balloon into anything else. Is there a way that all four people could share it? • <i>Could you have one-fourth of a balloon?</i> Possible response: Would one-fourth of a balloon be fun for someone to play with?
Supporting Students' Exploration of the Task		
What questions will you ask to focus their thinking?	To focus student thinking, I might ask: How would YOU share the brownies, balloons, money? <i>Good question. What other questions might you ask to focus their thinking?</i>	“What is the whole?” “What would you do with any leftover?”
What questions will you ask to assess students' understanding...?	“How did you get that extra brownie?” <i>What questions will help you to know if students understand the ideas/objective of the lesson? What will you ask to know if they understand the MEANING of remainder?</i>	“What is remainder? If you have a brownie that's a remainder, what exactly does that mean?”
What questions will you ask to advance students' understanding....?	“What would you do with that extra brownie?” <i>Is this an advancing question? Consider asking questions/posing tasks such as, “Can you create another problem using different numbers?”</i>	“Why is your answer for the first problem different than your answer to the second problem?”

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<p>What questions will you ask to encourage students to share their thinking with others...?</p>	<p>“Can you think of ways that other students might be solving this?” <i>How else could you get children to assess their understanding of their peers ideas?</i></p>	<p>“What did _____ mean when he said that about how his group solved the first problem? Do you agree with ____ explanation? Why or why not?”</p>
<p>What will you do if a student finishes the task almost immediately...?</p>	<p>“Give students a more challenging set of problems if they finish immediately.” <i>Good idea! Specifically, what would these problems look like? . . . what numbers and/or context would you use?</i></p>	<p>I might keep the items (context) that were mentioned in the original problems, but include larger numbers like 27 people and 12 brownies</p>
<p>Sharing and Discussing the Task</p>		
<p>How will you orchestrate the class discussion so that you accomplish your mathematical goals?</p>	<p>“Day 2 will be spent looking at pre-selected student examples on the overhead.</p> <ul style="list-style-type: none"> • In order to make sure all students have a chance to share something, select groups of students to share problem 1, 2, etc. • Order of presentation will depend on variety of student responses (see examples).” <p><i>I looked through your page of possible student examples. Can you help me understand the order with which you would have them present? If we look specifically at the brownie problem – what are the various ways that students may solve this problem? Then, think about how you would determine the order of sharing. Why would the order that you identified be best to help students achieve understanding of the mathematical goal of the lesson</i></p>	<p>Solution strategies will be shared in a least challenging to more challenging progression:</p> <ol style="list-style-type: none"> 1. BROWNIES: Groups that drew a picture of brownies being divided into 4 equal parts along with a partial quotients algorithm with the remainder posed a fraction. If there happen to be other groups who drew illustrations involving brownies being divided differently (larger divisions progressing to smaller ones) or involving different divisions strategies, these groups will present after the first. 2. MONEY: Groups that show each dollar broken down into four quarters, then shows the quotient in decimal form (dollars and cents). 3. CALCULATOR: the quotient is similar to the money problem 4. BALLOONS: Most challenging for students. I foresee lots of ideas about how to share the remaining balloon
<p>What specific questions will you ask so that students will make sense of the mathematical ideas...?</p>	<p>“Why do we have different answers even though the numbers that we’re working with are always the same?” <i>Good thinking. Consider rewording the question so that it doesn’t lead them so much to the analysis of “different answers” and “same numbers.”</i></p>	<p>“What’s different about the way we solved each problem?”</p>