

Grade: 4 Materials: White board, markers, math workbooks, clipboards, worksheet, pencils.	Subject: Mathematics Technology Needed: none				
Instructional Strategies: <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list) </td> <td style="vertical-align: top; width: 50%;"> <input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> PBL <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Modeling </td> </tr> </table>	<input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)	<input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> PBL <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Modeling	Guided Practices and Concrete Application: <table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) </td> <td style="vertical-align: top; width: 50%;"> <input type="checkbox"/> Hands-on <input type="checkbox"/> Technology integration <input type="checkbox"/> Imitation/Repeat/Mimic </td> </tr> </table> <p>Explain: The students will be taught as a whole group how to break down numbers. We will solve a few problems on the board together, they will solve a few on their own, and then will work in pairs: solve on their own, switch, write the story problem, and then we will share and solve these together. Finally, students will complete one page in their workbook to show their understanding.</p>	<input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list)	<input type="checkbox"/> Hands-on <input type="checkbox"/> Technology integration <input type="checkbox"/> Imitation/Repeat/Mimic
<input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list)	<input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> PBL <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Modeling				
<input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list)	<input type="checkbox"/> Hands-on <input type="checkbox"/> Technology integration <input type="checkbox"/> Imitation/Repeat/Mimic				
Standard(s) 4.NBT.5 Using strategies based on place value and the properties of operations, multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	Differentiation <p>Below Proficiency: For those below proficiency, we will be doing example problems on the board. I will have a template/outline of how to write a story problem for students that need it. During partner work, students can also rely on their thinking partners for additional assistance or to brainstorm/recall. I will write story examples on the board.</p> <p>Above Proficiency: For those above proficiency, they will receive more advanced numbers to break down and write story problems for. They will also be given the opportunity to explain their thinking and strategies to their peers and help their thinking partner.</p> <p>Approaching/Emerging Proficiency: For those approaching proficiency, they can be given additional assistance with the outline/template for story problems, or they can tackle more difficult problems and the story problem without a word for word guide.</p> <p>Modalities/Learning Preferences:</p> <p>Verbal Intelligence: The examples will be read through.</p> <p>Visual Intelligence: The examples will be written on the board for the students to refer to.</p> <p>Interpersonal: Students will work in partners to complete the example worksheet.</p>				
Objective(s) By the end of the lesson, students will be able to breakdown two-digit numbers to estimate the solution of 2 two-digit multiplication problems, by writing story problems, showing their work, and discussing/explaining their answers. <p>Bloom's Taxonomy Cognitive Level: Evaluating</p>					
Classroom Management- (grouping(s), movement/transitions, etc.) I will have the students sit in their assigned seats, at the rug. I will transition them from the previous activity just by calling them to their seats and using positive comments to encourage stragglers to get to their spots quicker. Students will also go to different spots around the room, solve the problem, and rotate. <ul style="list-style-type: none"> • Active listening • Voice levels should be around a 0 when listening to the story • Working independently 	Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students are expected to... <ul style="list-style-type: none"> • Be active listeners • Keep voice levels at a 0 while the story is read • Participate in discussions • Work independently (not rely on their neighbors) • Keep voice levels around a 0 or 1 while working on their own 				

<ul style="list-style-type: none"> • Voice levels should be around a 0-1 when working on their own • If a student has a question, they can raise their hand • Participation • Voice levels should be around a 1-2 when discussing with their partner 	<ul style="list-style-type: none"> • Raise their hands if they need additional help or if they have questions/want to share.
Minutes	Procedures
2min	<p>Set-up/Prep: I will have the problems printed and posted around the room. I will also have templates/outlines of the story problem printed out for the specific students that need them.</p>
6 min	<p>Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) So, I know you guys are pros at estimating and this is just review but we are going to move to something a little trickier, but I know you guys can do hard things. So, let's take a look at this problem. Here we see $44 \times 78 =$ I know Ms. Geiger taught you guys the trick of underlining the number we are rounding and to look to its neighbor, drawing that arrow, to see if the number goes up or down, right? So, to start with 44, lets underline that first 4 and draw that arrow to the second 4. 44 becomes...40! What about 78? Lets do the same thing. So, 78 becomes 80. Our new problem says: $40 \times 80 = 3200$ Did you guys use a specific strategy to solve this? Did anyone find friendly numbers? For me, I knew that $4 \times 8 = 32$ and then I just put those two zeros on the end to get 3,200. Did you guys have a different strategy? Do we know why estimating helps us? When we use these estimating strategies, we are breaking down numbers to give us a rough idea of what the real equation would be, to see if we are close to the answer.</p>
8 min	<p>Explain: (concepts, procedures, vocabulary, etc.) So, now we are going to apply this knowledge to something new. So, if we look at this same problem: 44×78 let's try to breakdown these numbers so that we can get the accurate answer instead of an estimate. How can we break down these numbers so that this problem is easier to solve? Can we create some friendly numbers? I am going to change my equation to $40 \times 70 + 4 \times 78$ So, I broke my equation into 2 smaller equations and then I am going to solve and add them together. So, let's tackle this first one: $40 \times 78 =$ (I know this because if I multiplied by 0 to 78 it would all equal 0. So, I move on to the 4(0) and I put a zero down first because we are dealing with a 4 in the tens place, right! So, $4 \times 8 = 32$, we add that 3 above the 7. $7 \times 4 = 28 + 3 = 32$. So, our answer is 3120). Onto the next equation! $4 \times 78 = 312$. (I know this because this is the exact same problem but with no zero since we are dealing with a 4 in the ones place, right?) So, now I am going to add these two: $3,120 + 312 = 3,432$. And that is my final, accurate answer! (If we compare to our estimate we can see that we were pretty close! Now, let's see if you guys can do one. Let's try 25×36. We will go over what strategies the students used and write these on the board. Now, let's try to add a story problem to this! If we go back to our original problem 44×78, we can use a story problem to explain how we solved this. I will show you an example. Let's look at 44×78. And we're going to say that $44 =$ bags and $78 =$ cards. My friend, Amanda has 44 bags and 78 cards and needs to organize them. If Amanda has 44 bags of cards, with 78 cards in each bag, how many total cards does she have?</p>
10 min	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) So, I don't know if any of you noticed but there are pieces of paper all around the room. I want each of you to grab your clipboard and find a spot where a piece of paper is. On each piece of paper there is an equation and a space to write a story problem. For the first rotation, I just want you to solve the equation using those friendly numbers to break down the equation. Make sure to show your work!</p>

	<p>When I say rotate, you are going to move to the station to your right and leave the paper you just worked on where you found it. At this next station you are going to write a story problem to go along with the equation. When you are done, find the person that solved your equation (they should be to your left) and discuss how you got your answers.</p> <p>When they are done, I will have the students join me back on the rug with their sheets of paper and students will share a few story problems that we will solve together on the board, breaking down numbers in different ways.</p>
5 min	<p>Review (wrap up and transition to next activity): After we have shared a few of our problems, the students will go back to their desks and solve on their own, in their workbooks. There will be one equation and a story problem to go with it.</p> <p>They will turn these into the math folder, cross their names off, and read while we wait for the rest of the class. I will then transition them to the next subject.</p>
<p>Formative Assessment: (linked to objectives) Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc. My formative assessment will be what the students discuss and have written on their papers during the rotation. This will show if the students understood the lesson but there will be more review before the summative assessment.</p> <p>Consideration for Back-up Plan: I would have the students listen to the lesson, then meet with a partner, solve their equation, pass, then have the other partner write the story problem.</p>	<p>Summative Assessment (linked back to objectives) End of lesson: My summative assessment will be the completion of the worksheet that has the story problem and 2-digit multiplication problem. I will check which methods and how the student broke down their numbers to check for understanding.</p> <p>If applicable- overall unit, chapter, concept, etc.:</p>
<p>Reflection (What went well? What did the students learn? How do you know? What changes would you make?):</p>	

Worksheets for rotations: <file:///Users/haleylope/Downloads/Math%20Worksheets.pdf>