Lesson: Multiplying 2x2 digit numbers using partial products	
Standard: 4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and **multiply two two-digit numbers, using strategies based on place value and the properties of operations.**	
Orientation	Connect to prior knowledge - previous models for 1x2,3,4 digit, area models Pair Share: What are partial products? We can separate numbers by place value to multiply their parts. We do this with the standard algorithm also but the partial products are invisible. Today we'll use the same strategy to multiply 2 digits by 2 digits. Objectives ● content: I will multiply 2 by 2 digit numbers using partial products ● language frames: "I separated the dimension of ___ into ___ plus ___." "I multiplied ___ by ___ and the partial product was ___." "I added ___ plus ___ and the product was ___." Do you remember what word we used for the measurement of the borders of an object when we studied area and perimeter? Dimension What are the dimensions of the model on our chart? 43x27 Choral: dimensions are the measurements of the borders of an object Pair share: your estimate of the dimensions of your whiteboard.
Presentation and Highly Structured Practice	We already know how to separate a number by place value and sum the parts. When you multiply 2x2 digits you need to remember the place value. *Review place value names of numbers on the chart* 1. *Model placement of tens and ones on the dimensions of the chart and separating the area model into sections* What word would we use for the dimension that goes up and down? Vertical Sideways? horizontal I label the vertical dimension with 20 + 7 and the horizontal dimension with 40 + 3 2. Now we need to multiply ALL the quadrants of our model. Pair share: what would you guess the word quadrant means? *Model writing the multiplication for the first two quadrants on the chart* Pair share: what multiplication would you write for the other quadrants? How many equations should we have for 2 digits by 2 digits? 4 Now solve the equations with your partner. Remember, if you're not sure how many place values for a tens x tens, what would the most reasonable answer be? In the hundreds place 3. Add the partial products Pair Share: sum the partial products

	Pair Share: What steps did we use to solve this problem?
Collaborative Practice	Create a 2x2 digit problem with your partner by drawing a 2 digit number card and rolling the die twice. Write your equation, then draw your model and follow the steps on the chart. If you draw a card with a 0 like 40, you won't have a 2x2 digit model, so switch it for a different number. Both partners solve the equation and check their work with each other. *Show chart with explanation of steps in student language.* This is how many 4th graders explain their work to their partners. *Read the paragraph together.* Do you see how it can be confusing? It's important to use the correct math vocabulary to make our language clear and easier to understand. *Show math words we've been using this lesson: multiply, tens, ones, product, partial product, model, dimension, quadrant, vertical, horizontal.* Pick 3 words from the vocabulary to replace unclear words in the paragraph. *Then read the new paragraph.*
Independent Practice	For your last problem, create your two digit numbers and model and solve. Then use the math language from the chart to explain your solution clearly to your partner.
Closure	Pair share: Explain to your partner the steps to multiply 2x2 digits using partial products. Then tell your partner how this model is different from the 1x2, 1x3, or 1x4 model.