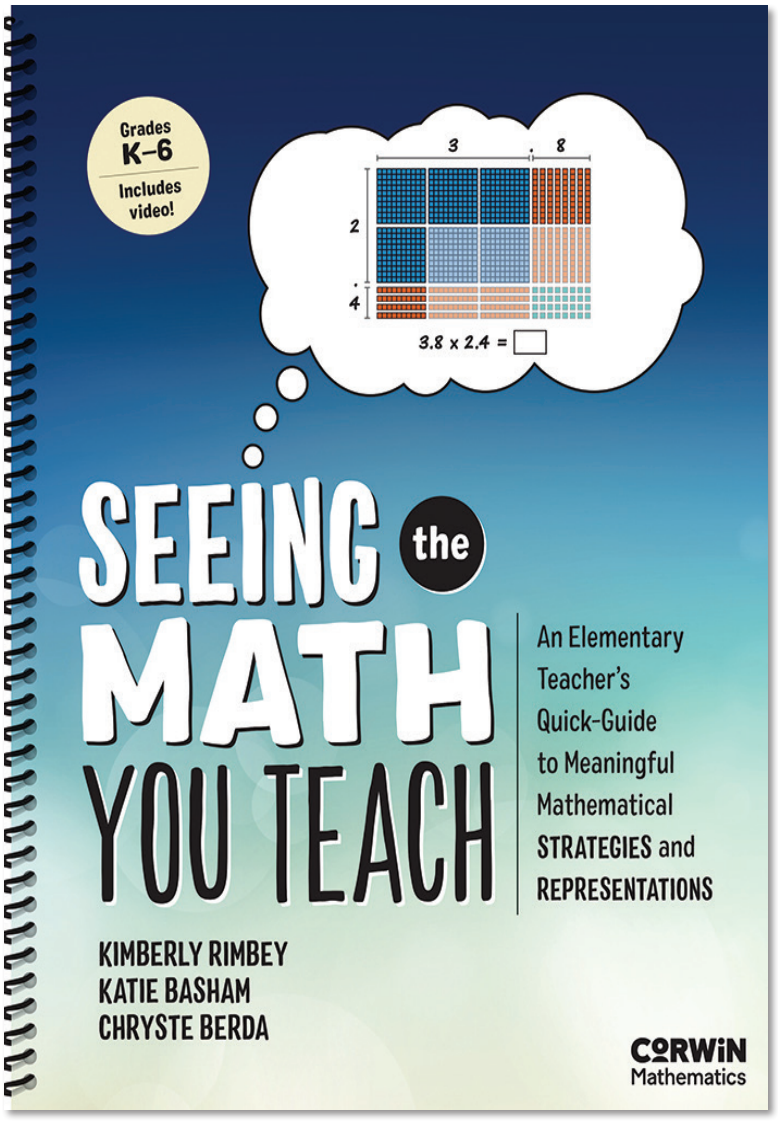


# Thank you

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CORWIN

# Multi-Digit Multiplication Strategies . . . . . .

There are many different strategies for ***multiplication***. Here are a few:

$13 \times 5 = \square$

## Skip Counting

*Count by 13:*

13, 26, 39, 52, 65

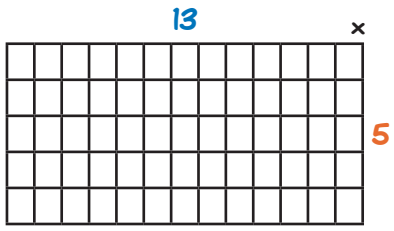
*I'll count by 13, 5 times to get the product.*

*Count by 5:*

5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65

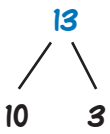
*I'll count by 5, 13 times to get the product.*

## Arrays




5 rows of 13 = 65

## Decomposition/Distributive Property



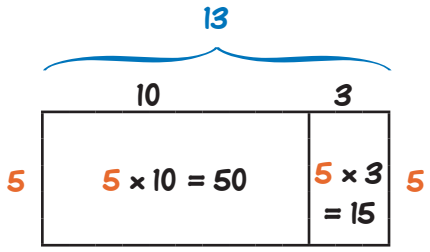

$10 \times 5 = 50$

$3 \times 5 = 15$

$13 \times 5 = 65$

*I'll decompose 13 into 10 and 3, multiply each by 5, then add together to find the product.*

## Area Model




50 + 15 = 65

## Partial Product

$$\begin{array}{rl} 13 & = 10 + 3 \\ \times\ 5 & \\ \hline 15 & = 3 \times 5 \\ +\ 50 & = 10 \times 5 \\ \hline 65 & \end{array}$$

- *Decompose 13 into 1 ten plus 3 ones.*
- *Multiply each part of the decomposed number by 5.*
- *Add together each partial product.*
- *Now you have the product (answer).*



*Seeing the Math You Teach, Grades K-6: An Elementary Teacher's Quick-Guide to Meaningful Mathematical Strategies and Representations* by Kimberly Rimbey, Katie Basham, and Chryste Berda. 

# Multi-Digit Multiplication Strategies (continued) . . . . . .

## Decomposition/Distributive Property

$21 \times 34 = \square$

$20 + 1 \quad\quad 30 + 4$

$(20 \times 30) + (20 \times 4) + (1 \times 30) + (1 \times 4)$

$600 + 80 + 30 + 4$

$680 + 34$

$714$

- Decompose (break apart) each number into tens and ones.
- Multiply each part of the first number by each part of the second number.
- Add together each partial product.
- Now you have the product (answer).

## Working with even bigger numbers!

$439 \times 4 = \square$

$400 \quad 30 \quad 9$

$400 \times 4 = 1{,}600$
$30 \times 4 = 120$
$9 \times 4 = + 36$
$1{,}756$

*I use this same method to solve using partial product!*

## Partial Product

$21 = (20 + 1)$
$\times 34 = (30 + 4)$
$4 = 4 \times 1$
$80 = 4 \times 20$
$30 = 30 \times 1$
$+ 600 = 30 \times 20$
$714$

## Area Model

$81 \times 615 = \square$

| | 600 | 10 | 5 |
|---|---|---|---|
| 80 | $80 \times 600 = 48{,}000$ | $80 \times 10 = 800$ | $80 \times 5 = 400$ |
| 1 | $1 \times 600 = 600$ | $1 \times 10 = 10$ | $1 \times 5 = 5$ |

$^{1}$
$48{,}000$
$800$
$400$
$600$
$10$
$+ \quad 5$
$49{,}815$