



Stuck? Scan
for the anchor
chart

MULTI-DIGIT MULTIPLICATION · GRADES 4-5

Area Models: 2-Digit $\times$ 1-Digit

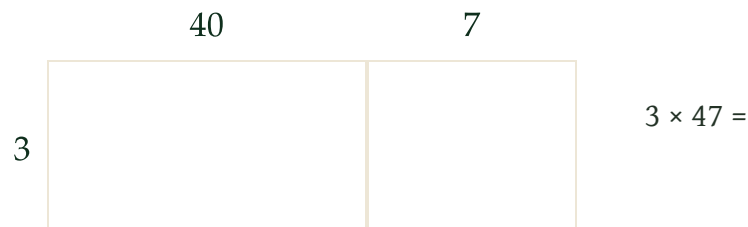
Name _____ Date _____

Example

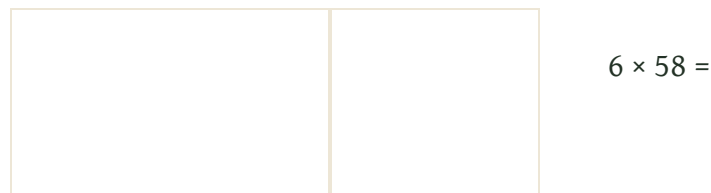
Watch how 4×23 works. Break 23 into $20 + 3$, multiply each part, then add.



1. Solve 3×47 . The parts are done for you: $47 = 40 + 7$. Fill each box, then add.



2. Solve 6×58 . This time break the number apart yourself: write the parts on top, fill the boxes, add.



Roots of Reason

Area Models: 2-Digit $\times$ 2-Digit

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Example **12×34 :** both numbers break apart, so the model gets four boxes. Add all four.

	30	4	
10	300	40	
2	60	8	

$$300 + 40 + 60 + 8 = \mathbf{408}$$

$$\text{so } 12 \times 34 = \mathbf{408}$$

3. Solve 24×36 . The parts are done: $24 = 20 + 4$ and $36 = 30 + 6$. Fill the four boxes, then add.

	30	6	
20			
4			

$$24 \times 36 =$$

4. Solve 47×25 . Break both numbers apart yourself: write the parts on the top and the side.

$$47 \times 25 =$$

Roots of Reason

Area Models: 3-Digit $\times$ 2-Digit

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Example **132×21 :** three parts across, two parts down. Six boxes, one sum.

	100	30	2	
20	2000	600	40	$2000 + 600 + 40$ $+ 100 + 30 + 2 = 2772$
1	100	30	2	

5. Solve 243×15 . Parts done: $243 = 200 + 40 + 3$ and $15 = 10 + 5$. Fill the six boxes, then add.

	200	40	3	
10				$243 \times 15 =$
5				

6. Solve 316×24 . Break both numbers apart yourself, label the model, fill it, add.

 $316 \times 24 =$

Roots of Reason

Area Models: 3-Digit $\times$ 3-Digit

Name _____

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Example **123×111** : nine boxes. Big models are just more of the same move.

	100	20	3
100	10000	2000	300
10	1000	200	30
1	100	20	3

All nine boxes
add to **13653**7. Solve 234×123 . Parts done for you. Fill the nine boxes, then add.

	200	30	4
100			
20			
3			

 $234 \times 123 =$ 8. Solve 312×214 . Yours from the start: label the top and side, fill the boxes, add.

 $312 \times 214 =$



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Area Model Multiplication

2-Digit × 1-Digit

1. $3 \times 40 = 120$, $3 \times 7 = 21$, so $3 \times 47 = 141$

2. $58 = 50 + 8$; $6 \times 50 = 300$, $6 \times 8 = 48$, so $6 \times 58 = 348$

2-Digit × 2-Digit

3. Boxes: 600 , 120 , 120 , 24 , so $24 \times 36 = 864$

4. $47 = 40 + 7$, $25 = 20 + 5$; boxes: 800 , 200 , 140 , 35 , so $47 \times 25 = 1175$

3-Digit × 2-Digit

5. Boxes: 2000 , 400 , 30 , 1000 , 200 , 15 , so $243 \times 15 = 3645$

6. $316 = 300 + 10 + 6$, $24 = 20 + 4$; boxes: 6000 , 200 , 120 , 1200 , 40 , 24 , so $316 \times 24 = 7584$

3-Digit × 3-Digit

7. Boxes: 20000 , 3000 , 400 , 4000 , 600 , 80 , 600 , 90 , 12 , so $234 \times 123 = 28782$

8. $312 = 300 + 10 + 2$, $214 = 200 + 10 + 4$; boxes: 60000 , 2000 , 400 , 3000 , 100 , 20 , 1200 , 40 , 8 , so $312 \times 214 = 66768$

The scaffold fades on purpose: example, then filled labels, then a bare rectangle. A student who can label the bare model owns the strategy. One who can only fill boxes is telling you where to reteach.