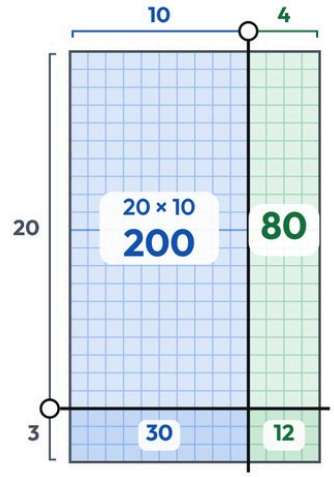
Names (pair) _____ Date _____

Written Multiplication by a Two-Digit Number

Example

$$23 \times 14 = (20 + 3) \times (10 + 4) = 200 + 80 + 30 + 12 = 322$$

The rectangle is cut into 4 parts. The products in the parts add up to the whole product.



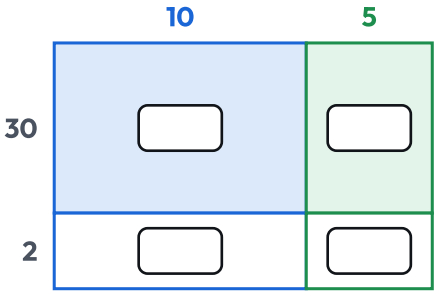
WRITTEN METHOD

$$\begin{array}{r} 23 \\ \times\ 14 \\ \hline 92 \\ 230 \\ \hline 322 \end{array}$$

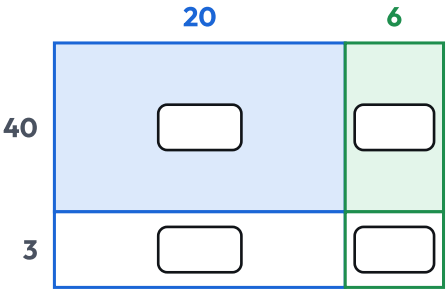
Each line of the written method is one coloured strip of the rectangle.

$23 \times 14 = 23 \times 10 + 23 \times 4 = 230 + 92 = 322$. Each line of the written method is one coloured strip of the rectangle. The line for the tens, $23 \times 10 = 230$, ends in a 0 that holds the place.

1 IN PAIRS Write the products in the parts of the rectangle and add them.



$32 \times 15 =$ ____ $=$ ____



$43 \times 26 =$ ____ $=$ ____

2 ON YOUR OWN Work them out in writing. Estimate first.

$$\begin{array}{r} 3\ 4 \\ \times\ 1\ 2 \\ \hline \square\square \\ \square\square\square \\ \hline \square\square\square \end{array}$$

estimate: ____

$$\begin{array}{r} 5\ 6 \\ \times\ 2\ 3 \\ \hline \square\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

estimate: ____

$$\begin{array}{r} 1\ 2\ 5 \\ \times\ 3\ 1 \\ \hline \square\square\square \\ \square\square\square\square \\ \hline \square\square\square\square \end{array}$$

estimate: ____

Names (pair) _____ Date _____

Remember

When multiplying by a two-digit number, we multiply by each digit of the second factor in turn. Each partial product is lined up by place value, and then we add them: 34×12: $34 \times 2 = 68$, $34 \times 10 = 340$, sum 408.

3 IN PAIRS **Find the mistake.** Luke worked out 34×12 in writing and got 102, because he added $34 + 68$. What did he forget? What is the line 34 really worth?

4 ON YOUR OWN **Without calculating**, circle the answer that can be right. How did you estimate?

49×21	129	1,029	10,290
98×52	50,960	596	5,096

5 IN A GROUP CHALLENGE Find two two-digit numbers whose product is $1{,}000$. Are there more such pairs?

The Multiplication Rectangle app · otooly.com/multiplication-rectangle

Enter 23 rows and 14 columns, press **Split by place value** and turn on **Written method**. Compare the lines of the written method with the coloured strips.

★ ON YOUR OWN **Exit card.** $45 \times 12 =$ ☐ estimate: ☐