



# Using Algorithms with Partial Products: 2 Two-Digit Numbers

Let's try to multiply two-digit numbers with an algorithm that uses partial products.

Warm-up

## Notice and Wonder: Ways to Keep Track

What do you notice? What do you wonder?

$$\begin{array}{r} 14000 \\ 700 \\ 350 \\ 56 \\ \hline 15,106 \end{array}$$

$$\begin{array}{r} 2158 \\ \times 7 \\ \hline 156 \\ 350 \\ 700 \\ 14000 \\ \hline 15,106 \end{array}$$

## Activity 1

### Partial Products, Recorded

1. Tyler uses an algorithm to find the value of  $64 \times 87$ .

$$\begin{array}{r} 64 \\ \times 87 \\ \hline 28 \\ 420 \\ \hline 4800 \\ \hline 5,568 \end{array}$$

Describe each step in Tyler's method. How do you think he arrived at the last five numbers? Record your thinking.

2. Use Tyler's method to find the value of  $31 \times 15$ . Then draw a diagram to check your answer.

## Activity 2

### Han's Multiplication Mishap

- Decide with your partner who will find each product. Show your thinking. Organize it so it can be followed by others.

$$\begin{array}{r} 1 \ 9 \\ \times \ 3 \ 2 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \ 2 \\ \times \ 1 \ 9 \\ \hline \end{array}$$

- Here is Han's computation of  $81 \times 47$ .

$$\begin{array}{r} 8 \ 1 \\ \times \ 4 \ 7 \\ \hline 7 \\ 5 \ 6 \\ 4 \ 0 \\ 3 \ 2 \ 0 \\ \hline 4 \ 2 \ 3 \end{array}$$

- What error or errors did Han make?

- Show the correct computation for finding the value of  $81 \times 47$ .

$$\begin{array}{r} 8 \ 1 \\ \times \ 4 \ 7 \\ \hline \end{array}$$