Unit 6, Lesson 10

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?

```
  1 1
 14000
   700
   350
    56
 ------
 15,106
```

```
   2158
   X   7
 ------
     56
    350
   700
  14000
 ------
 15,106
```

Activity 1

Partial Products, Recorded

1. Tyler uses an algorithm to find the value of 64×87.

$$
\begin{array}{r}
64 \\
\times \quad 87 \\
\hline
28 \\
420 \\
{}^{1}320 \\
4800 \\
\hline
5{,}568
\end{array}
$$

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 31×15. Then draw a diagram to check your answer.

Activity 2

Han's Multiplication Mishap

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

$$\begin{array}{r} 19 \\ \times\ 32 \\ \hline \end{array} \qquad\qquad \begin{array}{r} 32 \\ \times\ 19 \\ \hline \end{array}$$

2. Here is Han's computation of 81×47.

$$\begin{array}{r} 81 \\ \times\ 47 \\ \hline {}^{1}7 \\ 56 \\ {}^{1}40 \\ 320 \\ \hline 423 \end{array}$$

a. What error or errors did Han make?

b. Show the correct computation for finding the value of 81×47.

$$\begin{array}{r} 81 \\ \times\ 47 \\ \hline \end{array}$$