Unit 3, Lesson 5

Another Addition Algorithm

Let's learn another algorithm to add.

Warm-up

Notice and Wonder: Another Curious Table

What do you notice? What do you wonder?

+	98	99	100	101	102
98		197		199	
99	197		199		201
100		?		?	
101	199		201		203
102		201		203	

Activity 1

A New Addition Algorithm

Here are 2 algorithms for adding $367 + 231$.

Han's algorithm

$$\begin{array}{rr} & 3\ 6\ 7 \\ + & 2\ 3\ 1 \\ \hline & \quad\ 8 \\ & 9\ 0 \\ + & 5\ 0\ 0 \\ \hline & 5\ 9\ 8 \end{array} \quad \begin{array}{l} \\ \\ \text{step 1} \\ \text{step 2} \\ \text{step 3} \\ \text{step 4} \end{array}$$

Elena's algorithm

$$\begin{array}{rr} & 3\ 6\ 7 \\ + & 2\ 3\ 1 \\ \hline & \quad\ 8 \end{array} \quad \text{step 1}$$

$$\begin{array}{rr} & 3\ 6\ 7 \\ + & 2\ 3\ 1 \\ \hline & 9\ 8 \end{array} \quad \text{step 2}$$

$$\begin{array}{rr} & 3\ 6\ 7 \\ + & 2\ 3\ 1 \\ \hline & 5\ 9\ 8 \end{array} \quad \text{step 3}$$

Discuss with your partner:

1. How is Elena's algorithm different from Han's algorithm?

2. Why do both algorithms work?

Activity 2

Compose New Units

Here are 2 algorithms for adding $365 + 182$.

Han's algorithm

$$\begin{array}{rr} & 3\ 6\ 5 \\ +\ & 1\ 8\ 2 \\ \hline & \quad\ 7 \\ & 1\ 4\ 0 \\ +\ & 4\ 0\ 0 \\ \hline & 5\ 4\ 7 \end{array}$$

step 1
step 2
step 3
step 4

Elena's algorithm

$$\begin{array}{rr} & 3\ 6\ 5 \\ +\ & 1\ 8\ 2 \\ \hline & \quad\ 7 \end{array}$$

step 1

$$\begin{array}{rr} & 1\ 0\ 0 \\ & 3\ 6\ 5 \\ +\ & 1\ 8\ 2 \\ \hline & \quad 4\ 7 \end{array}$$

step 2

$$\begin{array}{rr} & 1\ 0\ 0 \\ & 3\ 6\ 5 \\ +\ & 1\ 8\ 2 \\ \hline & 5\ 4\ 7 \end{array}$$

step 3

1. How do the algorithms show the 14 tens differently?

2. Try using Elena's algorithm to find the value of each sum.

   a. $174 + 352$

   b. $273 + 619$

   c. $354 + 198$

   d. $525 + 376$