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	

5.1: A New Addition Algorithm

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

Han's algorithm

```
      3  6  7
   +  2  3  1
   _____
            8     step 1
         9  0     step 2
   +  5  0  0     step 3
   _____
      5  9  8     step 4
```

Elena's algorithm

```
   3  6  7              3  6  7              3  6  7
+  2  3  1           +  2  3  1           +  2  3  1
_____          _____          _____
         8  step 1          9  8  step 2   5  9  8  step 3
```

Discuss with your partner:

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

2. Why do both algorithms work?

5.2: Compose New Units

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

Han's algorithm

```
      3  6  5
   +  1  8  2
   ───────────
            7     step 1
         1  4  0  step 2
   +  4  0  0     step 3
   ───────────
      5  4  7     step 4
```

Elena's algorithm

```
                   1  0  0           1  0  0
   3  6  5         3  6  5           3  6  5
+  1  8  2      +  1  8  2        +  1  8  2
─────────      ──────────        ──────────
        7         4  7               5  4  7
  step 1          step 2             step 3
```

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

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

   a. $174 + 352$

b. $273 + 619$

c. $354 + 198$

d. $525 + 376$