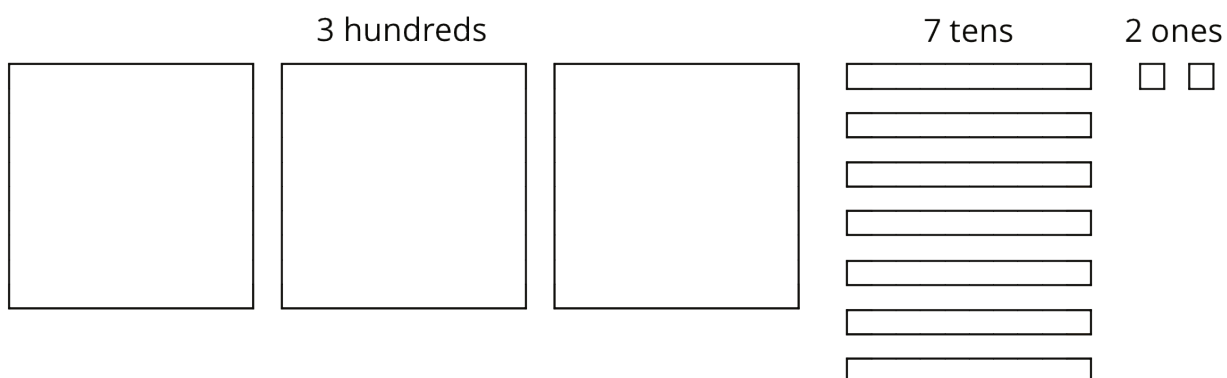# Unit 5 Lesson 9: Using the Partial Quotients Method
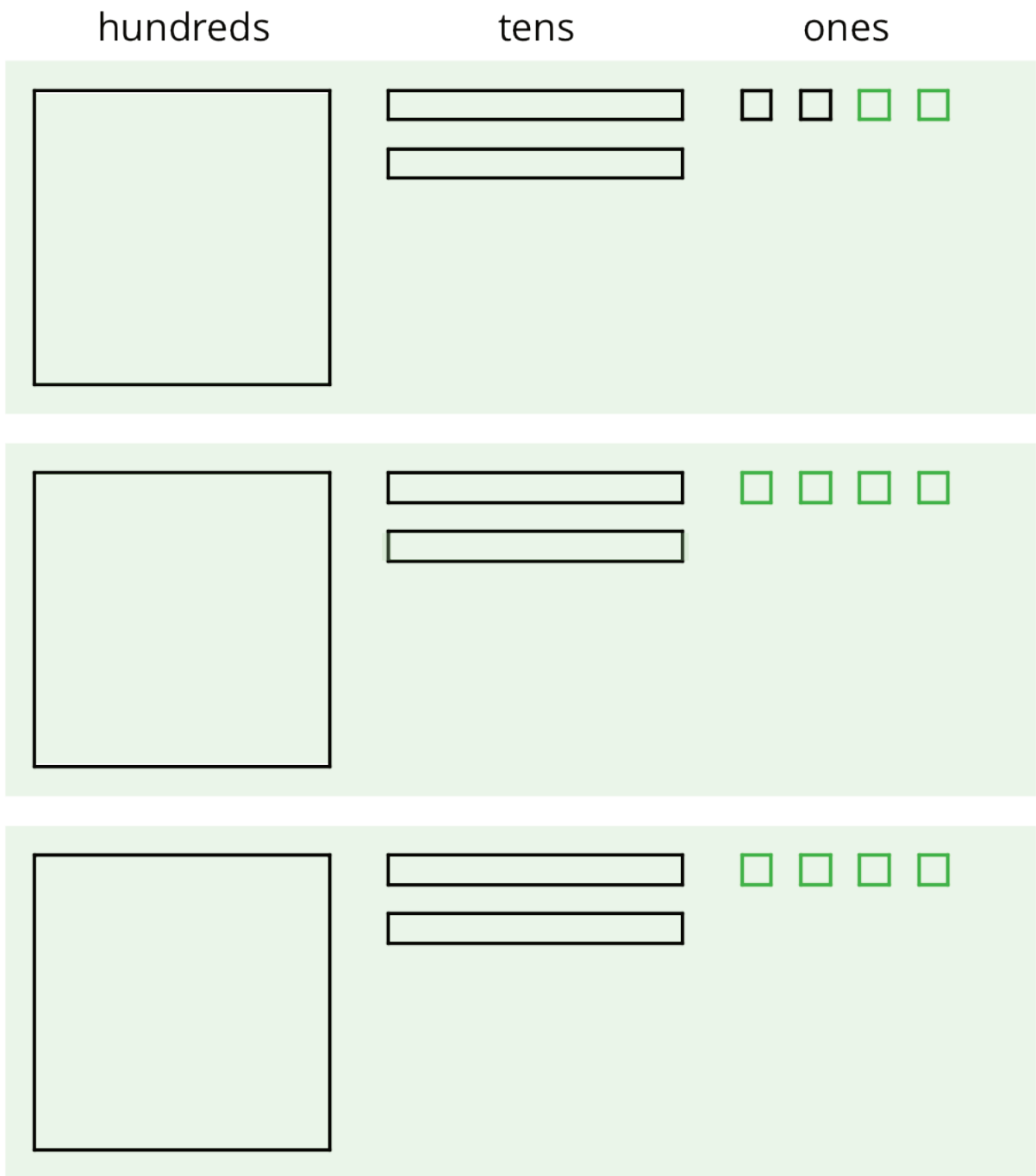
1 Using Base-Ten Diagrams to Calculate Quotients (Warm up)

Student Task Statement

Elena used base-ten diagrams to find 372 ÷ 3. She started by representing 372.

She made 3 groups, each with 1 hundred. Then, she put the tens and ones in each of the 3 groups. Here is her diagram for 372 ÷ 3.

hundreds	tens	ones

Discuss with a partner:
- Elena's diagram for 372 has 7 tens. The one for 372 ÷ 3 has only 6 tens. Why?
- Where did the extra ones (small squares) come from?

2 Using the Partial Quotients Method to Calculate Quotients

Images for Launch

hundreds	tens	ones

Student Task Statement

1. Andre calculated $657 \div 3$ using a method that was different from Elena's.

He started by writing the dividend (657) and the divisor (3).	He then subtracted 3 groups of different amounts from 657, starting with 3 groups of 200 . . .	. . . then 3 groups of 10, and then 3 groups of 9.	Andre calculated 200 + 10 + 9 and then wrote 219.

Column 1:

$$3\overline{)657}$$

Column 2:

```
        2 0 0
  3 / 6 5 7
   - 6 0 0
       5 7
```

Column 3:

```
          9
        1 0
        2 0 0
  3 / 6 5 7
   - 6 0 0
       5 7
     - 3 0
       2 7
     - 2 7
        0
```

Column 4:

```
      [2 1 9]
          9
        1 0
        2 0 0
  3 / 6 5 7
   - 6 0 0
       5 7
     - 3 0
       2 7
     - 2 7
        0
```

a. Andre subtracted 600 from 657. What does the 600 represent?

b. Andre wrote 10 above the 200, and then subtracted 30 from 57. How is the 30 related to the 10?

c. What do the numbers 200, 10, and 9 represent?

d. What is the meaning of the 0 at the bottom of Andre's work?

2. How might Andre calculate $896 \div 4$? Explain or show your reasoning.

3 What's the Quotient?

Student Task Statement

1. Find the quotient of $1,332 \div 9$ using one of the methods you have seen so far. Show your reasoning.

2. Find each quotient and show your reasoning. Use the partial quotients method at least once.

    a. $1,115 \div 5$

    b. $665 \div 7$

    c. $432 \div 16$