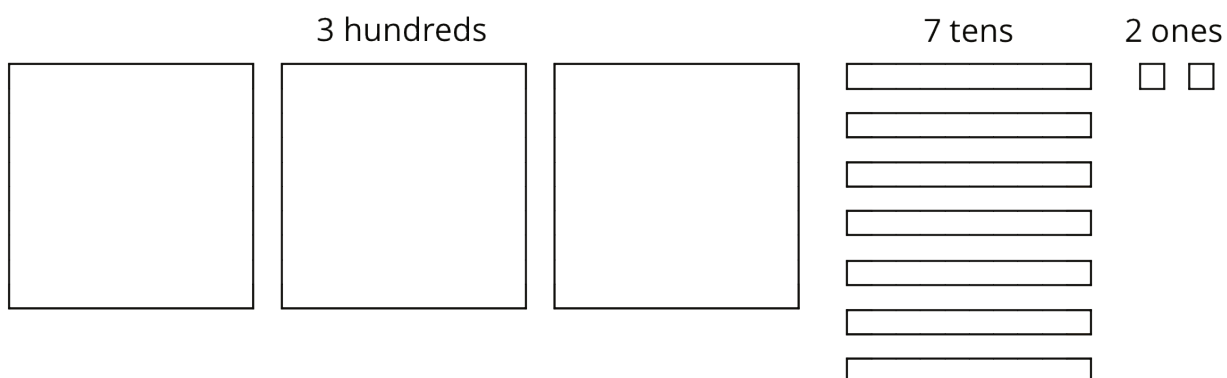


Unit 5 Lesson 9: Using the Partial Quotients Method

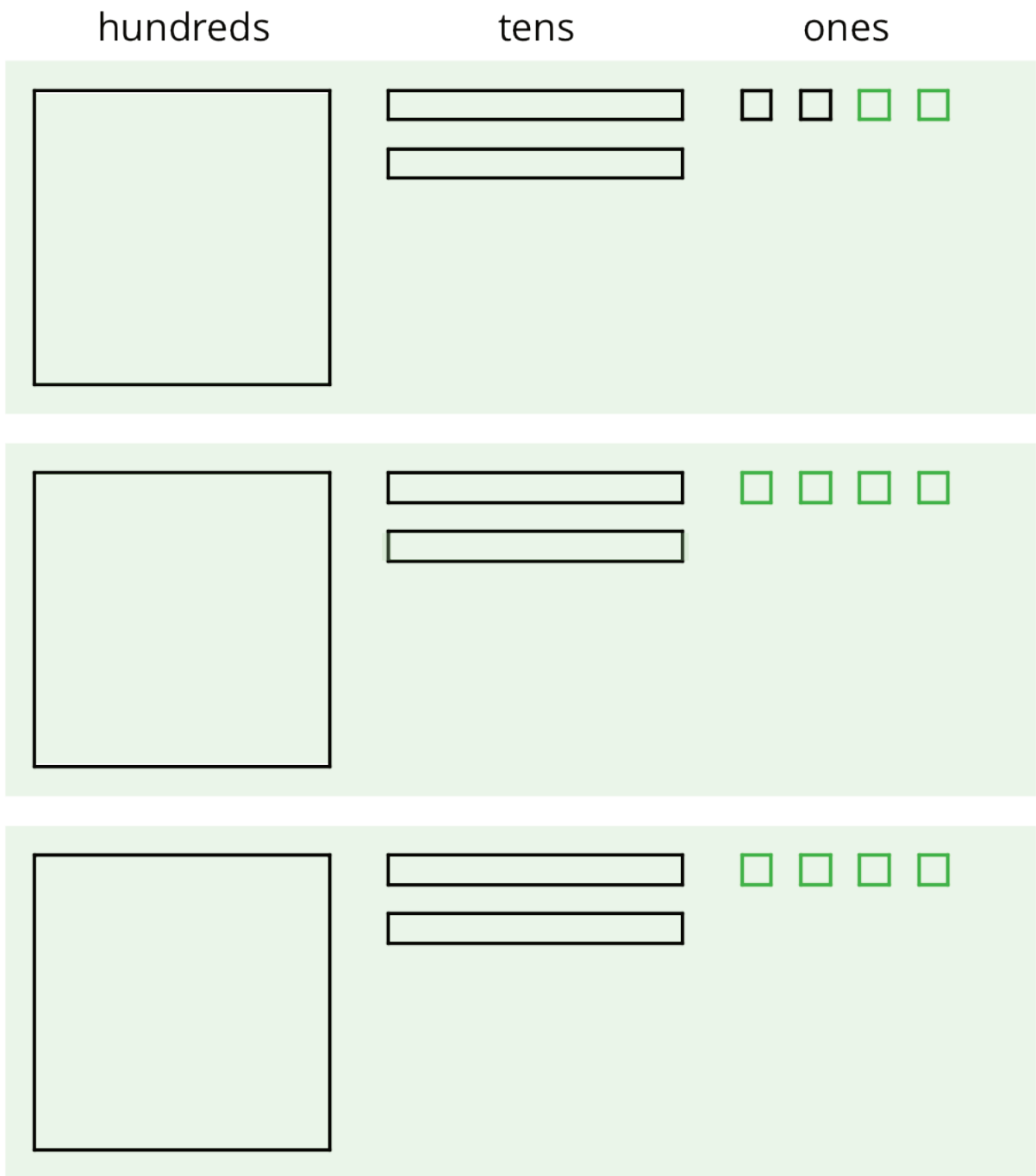
1 Using Base-Ten Diagrams to Calculate Quotients (Warm up)

Student Task Statement

Elena used base-ten diagrams to find $372 \div 3$. 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 $372 \div 3$.



Discuss with a partner:

- Elena's diagram for 372 has 7 tens. The one for $372 \div 3$ 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

The image shows three identical place value charts arranged vertically. Each chart is labeled with 'hundreds', 'tens', and 'ones' at the top. The 'hundreds' and 'tens' columns are represented by two large empty squares each. The 'ones' column is represented by a horizontal bar and a group of five small squares. In the first chart, the hundreds and tens columns are empty, and the ones column has five white squares. In the second chart, the hundreds and tens columns are empty, and the ones column has five green squares. In the third chart, the hundreds and tens columns are empty, and the ones column has five green squares.

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).

$$3 \overline{)657}$$

He then subtracted 3 groups of different amounts from 657, starting with 3 groups of 200...

$$\begin{array}{r} 200 \\ 3 \overline{)657} \\ - 600 \\ \hline 57 \end{array}$$

... then 3 groups of 10, and then 3 groups of 9.

$$\begin{array}{r} 9 \\ 10 \\ 200 \\ 3 \overline{)657} \\ - 600 \\ \hline 57 \\ - 30 \\ \hline 27 \\ - 27 \\ \hline 0 \end{array}$$

Andre calculated $200 + 10 + 9$ and then wrote 219.

$$\begin{array}{r} \boxed{219} \\ 9 \\ 10 \\ 200 \\ 3 \overline{)657} \\ - 600 \\ \hline 57 \\ - 30 \\ \hline 27 \\ - 27 \\ \hline 0 \end{array}$$

- Andre subtracted 600 from 657. What does the 600 represent?
 - Andre wrote 10 above the 200, and then subtracted 30 from 57. How is the 30 related to the 10?
 - What do the numbers 200, 10, and 9 represent?
 - 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. $432 \div 16$