

Doing and Recording

Summarize in your own words or drawings how you can model division problems like $536 \div 4$ using base-10 blocks. Do not actually use blocks.

Discussion, Suggestions, Possible Solutions

The major purpose of this task is to help students move beyond manipulatives and begin to develop a written division algorithm. Initially, you may want students to draw base-10 blocks, but eventually, you want students to simply use numbers to record their actions. For example, a worksheet with a table like the following may be helpful for some students:

Base-10 blocks	<i>In each group</i>	<i>What you did</i>
□ □ □ □ □ ■■■■■■	□	Give each group 1 hundred block. Exchange the left over hundred block with 10 ten blocks.
■■■■■■		Give each group 3 ten blocks. Exchange the left over ten block with 10 unit blocks.
■■■■■■■■■■■■■■■■■■■■	■■■■	Give each group 4 unit blocks. There is no left over.
	□ ■■■■	The answer is <u>134</u> with <u>0</u> remainder.

Eventually, suggest a notation system like

<i>Give each group:</i>	<i>1</i>	<i>3</i>	<i>4</i>
	<i>Hundreds</i>	<i>Tens</i>	<i>Ones</i>
$536 \div 4$	5	3	6
4×1	4		
5-4, regroup	1	3	
4×3	1	2	
13-12, regroup		1	6

4x4		1	6
16-16			0

then eventually to the standard long division algorithm notation,

$$\begin{array}{r} 134 \\ 4 \overline{)536} \\ \underline{4} \\ 13 \\ \underline{12} \\ 16 \\ \underline{16} \\ 0 \end{array}$$

Extension:

As in the previous task, select your extension problems carefully to make them gradually more challenging.