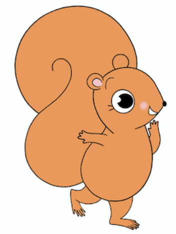
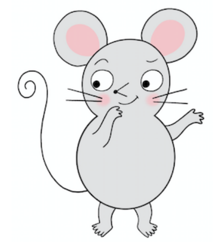


More Ways to Divide!

"Equal Groupings"

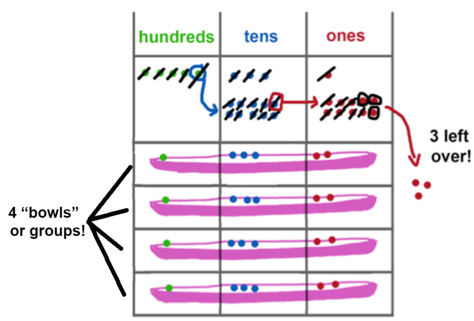


Some books do a similar method to our place value chart from p.199 sometimes called "Equal Groupings" – we still draw a chart, but it looks a little different – *numbers* are used instead of disks, and instead of putting "hundreds, tens, and ones" *above* the groups, those words go *inside* each group, so they repeat.

Check it out:

Place Value Chart

531 ÷ 4 = ?

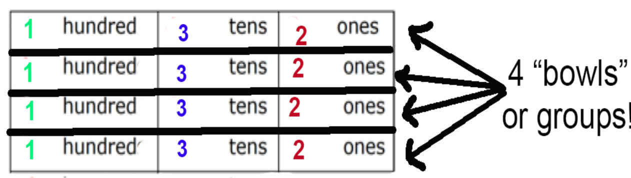


Each long, skinny bowl gets 132 candies with 3 left over.

531 ÷ 4 = 132 R3

Equal Groupings

531 ÷ 4 = ?



Each long, skinny group gets 132 candies and there are 3 left over.

531 ÷ 4 = 132 R3.

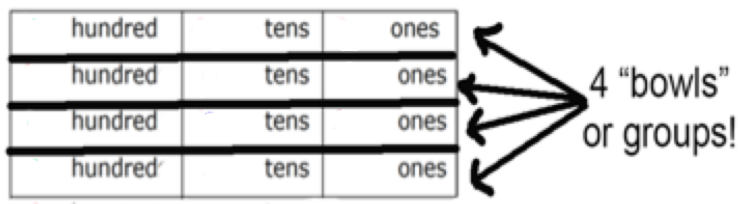
With both methods, we do a lot of work you can't "see" on the charts, asking things like "How many hundreds split evenly among all the groups?" but with Equal Groupings, since we aren't crossing off disks along the way, we have to do subtraction problems to keep track of *how much is left to divide up* at each stage.

For example, after we give 1 hundred to each group, we'd say, "Ok, how many candies are left to divide up? 531 – 400 = **131**," then we'd say "How many of the 13 tens in 131 can I split evenly among the 6 groups?" etc. It's all the same stuff – dividing up candies, the biggest chunks at a time – but it's amazing how many different ways it can look, depending on what your teacher's favorite methods are!

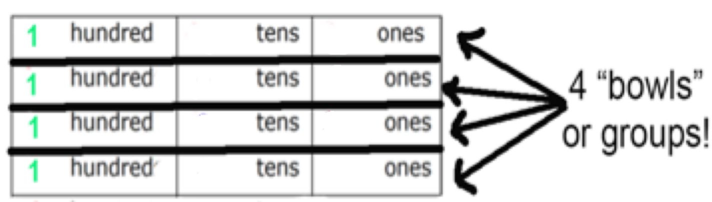
Let's see how this particular example might go in more detail:

531 ÷ 4 = ?

We see hundreds, tens, and ones, so let's set up our "Equal Groupings" chart with those three columns, knowing that the rows represent the groups we'll be dividing the **531** up into:

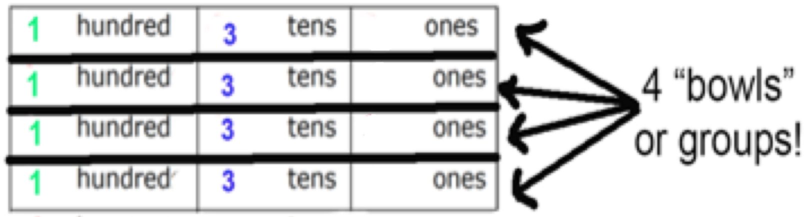


First, we'll ask: <u>How many of the 5 hundreds</u> can be divided up among the 4 groups? Well, we can put 1 hundred in each of the 4 groups, so we'll write "1 hundred" in each row of the hundreds column. How much left is there to divide up now? Well, we just used up 1 hundred, 4 times, right? So we've already divided up 400, and that means there's 531 – 400 = **131** left to divide up.



Since 4 hundreds is 400, we've just divided up 400 into the 4 groups, so we have 531 - 400 = 131 left to divide up!

Next, we ask, <u>how many of the 13 tens</u> in 131 can we divide up into the 4 groups? Since 13 ÷ 4 = 3 R1, we know that we can write "3 tens" in each of the 4 groups. How much is left to divide up now? Well, we just used up 3 tens, 4 times, which is 3 tens X 4, in other words, 30 X 4 = 120, right? That's the amount we've just divided up. So what's left to divide up now? We can subtract is 131 – 120 = **11**, and we see that now 11 is the total amount left we need to divide up. Let's do it!



Since 3 tens is 30, we’ve just divided up 120 into the 4 groups, so we have 131 - 120 = 11 left to divide up!

Next, we ask, <u>how many of the 11 ones</u> can we divide into the 4 groups? Since 11 ÷ 4 = 2 R 3, we can put 2 ones in each of the 4 groups, and we end up with **3** left over, which will be our remainder. Counting up how much is in each group (row), we get 1 hundred, 3 tens and 2 ones – in other words, 132, and with 3 left over, so we’ve discovered that 531 ÷ 4 = **132 R3**. Nice job!

Do you see how all these methods really just boil down to different ways of dividing up numbers, one chunk at a time, starting with the biggest chunks first, and making our way down until we’re dividing up the last little amount? It’s all the same stuff, dressed up differently. How about that!