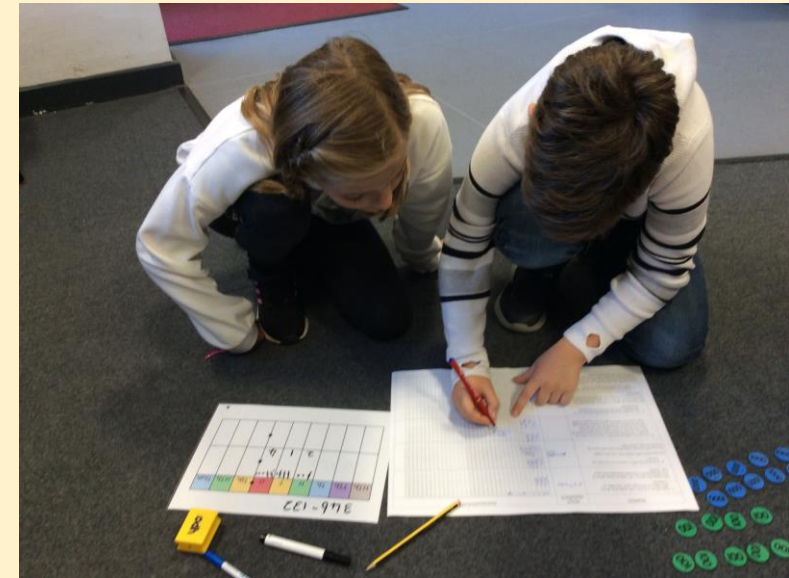




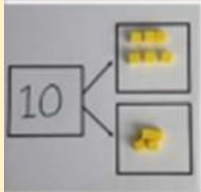
How we teach calculations at Blackrod





Use part, part whole model.

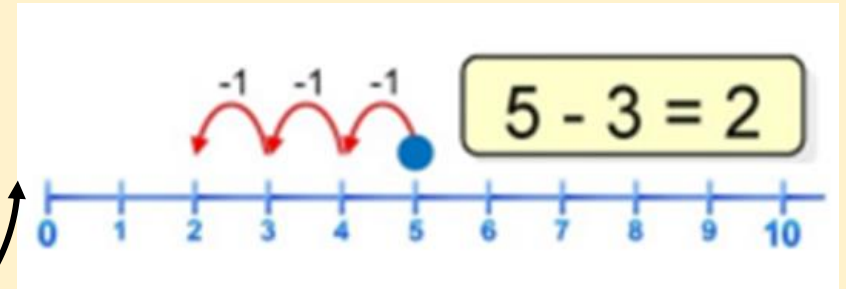
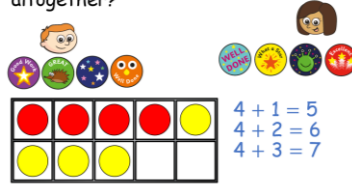
Use cubes to add two numbers together as a group or in a bar.



Addition

Subtraction

Kim has 4 stickers.
Ron has less than 5 stickers.
How many stickers could they have altogether?



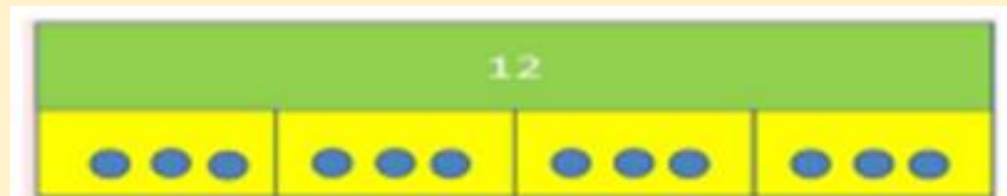
In Key Stage 1 your child will have already used these methods:

Multiplication

Division



$$2 + 2 + 2 + 2 + 2 = 10$$

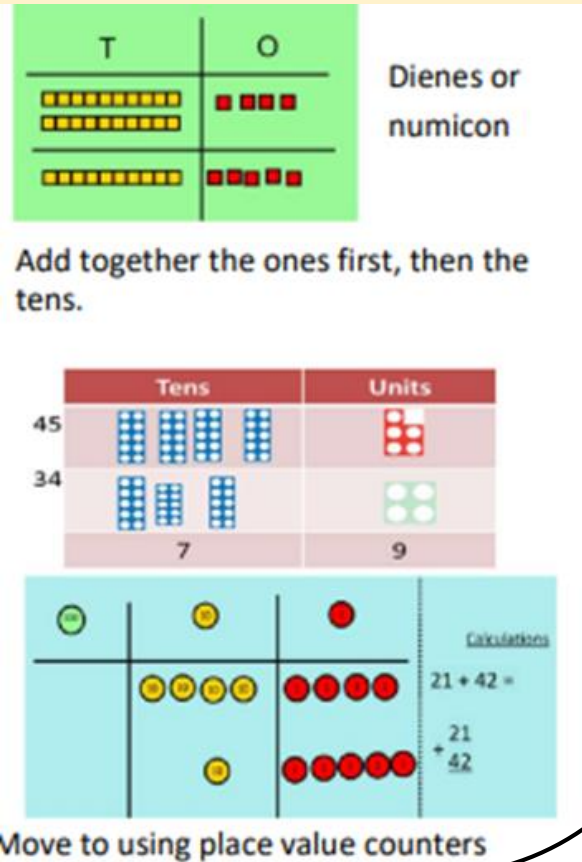


$$12 \div 4 = 3$$

In Key Stage 2, your child will be building on these foundation blocks to develop their understanding of methods to that will enable them to extend their learning further.

In Key Stage 2 these methods are developed further:

Addition



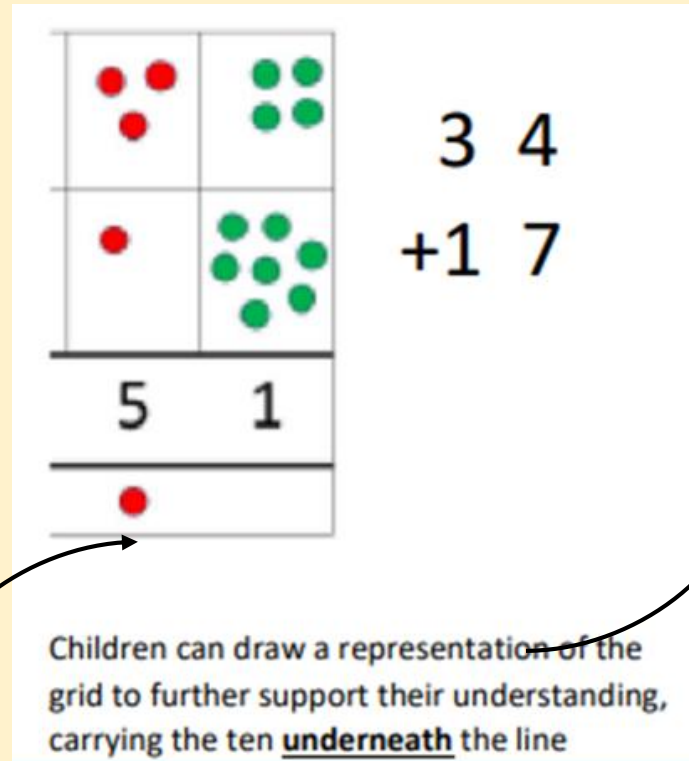
Dienes or numicon

Add together the ones first, then the tens.

	Tens	Units
45		
34		
	7	9

Move to using place value counters

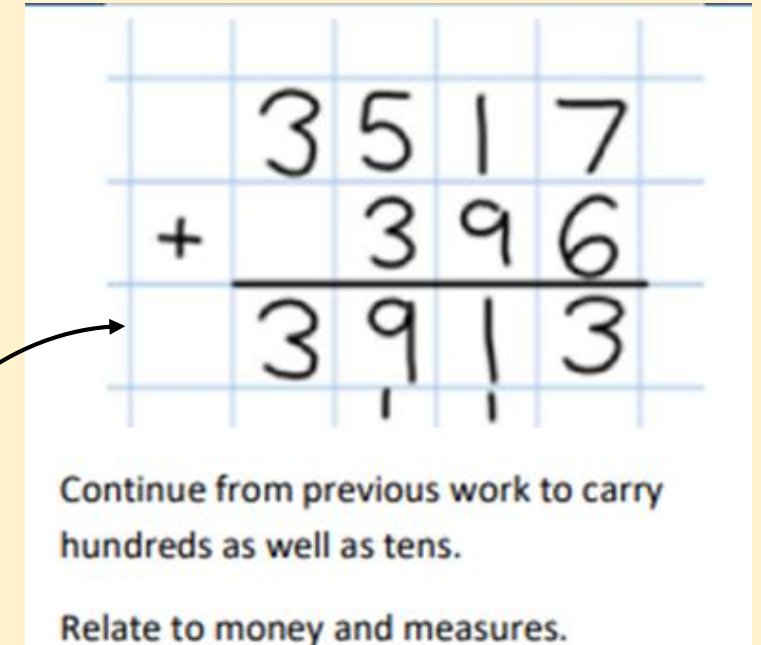
	Tens	Units
21		
42		
21 + 42 =		
21		
+ 42		



5	1
<hr/>	

$$\begin{array}{r} 34 \\ +17 \\ \hline \end{array}$$

Children can draw a representation of the grid to further support their understanding, carrying the ten underneath the line

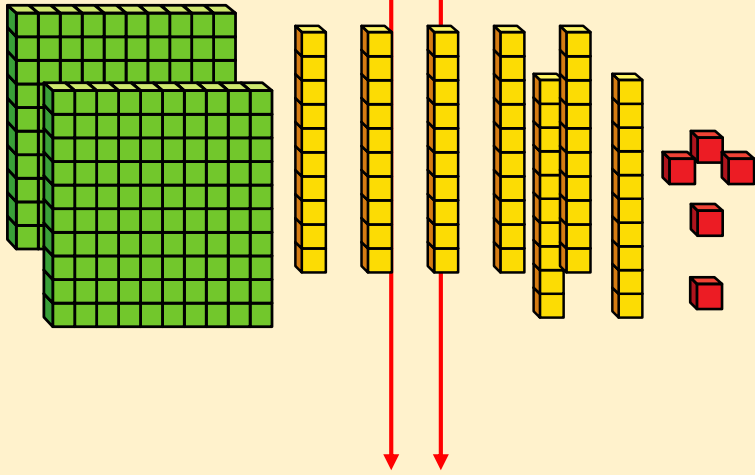


	3	5	1	7
+		3	9	6
	<hr/>			
	3	9	1	3
		1	1	

Continue from previous work to carry hundreds as well as tens.

Relate to money and measures.

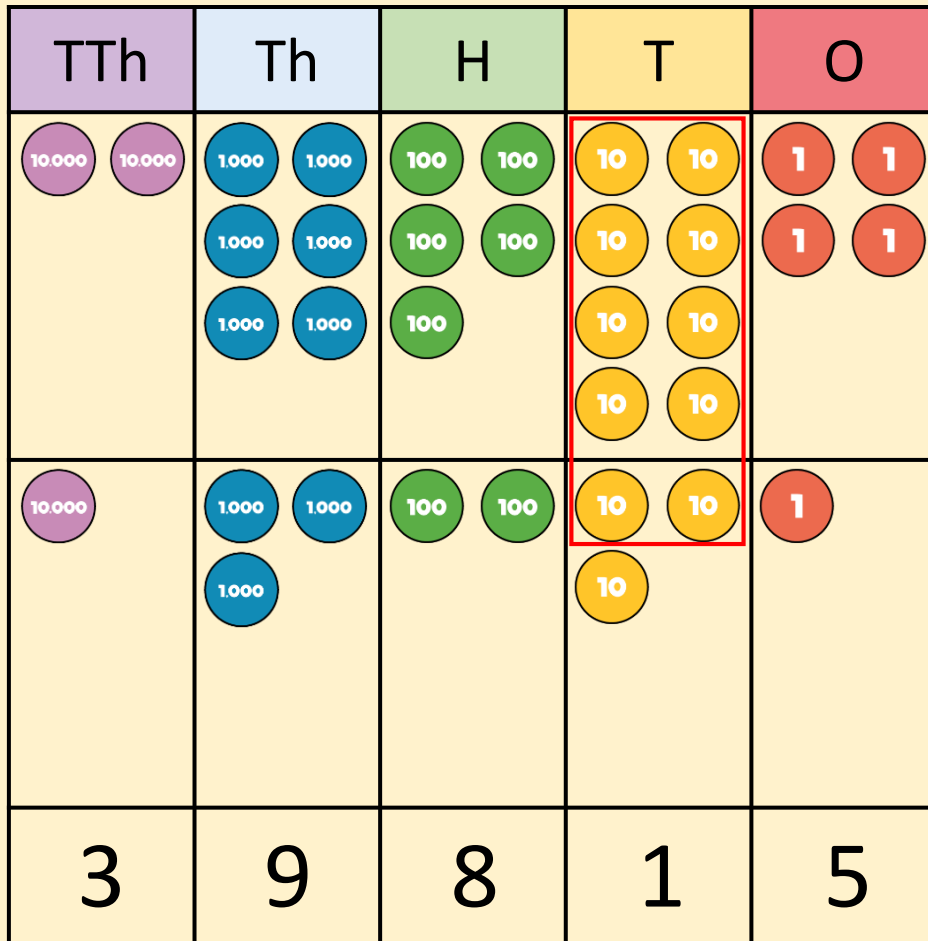
$$\underline{252} + 23 = 275$$




+

H	T	O
2	5	2
	2	3
2	7	5

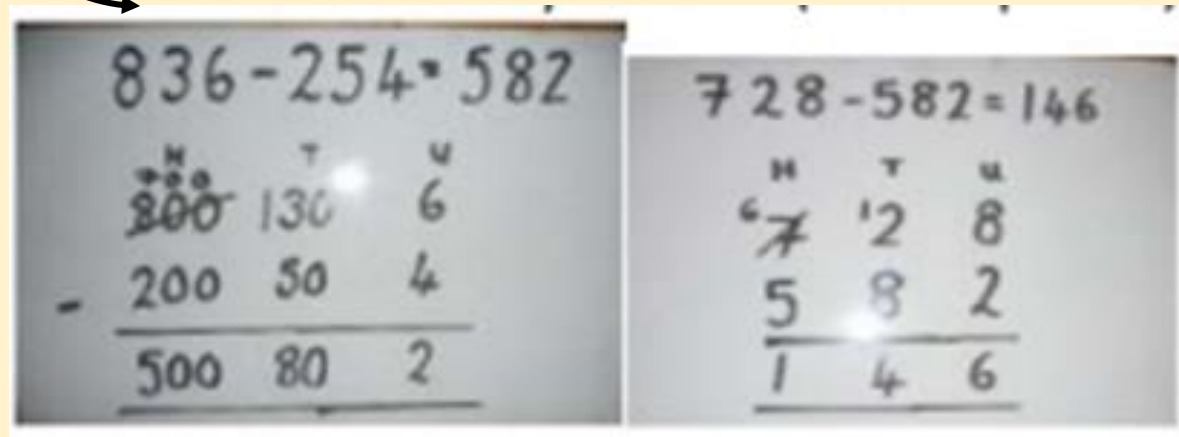
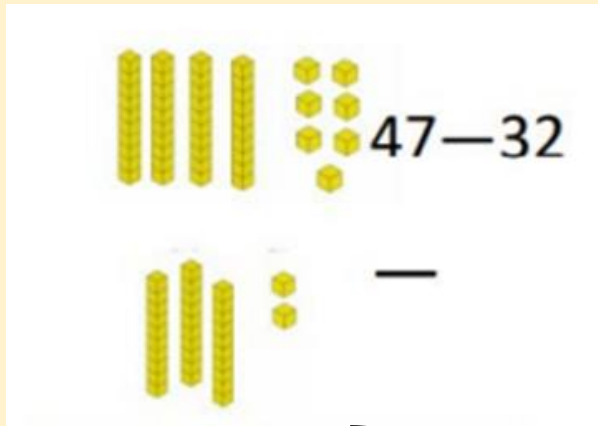
I put 3 in the ones column because it has a value of 30



		2	6	5	8	4	
	+	1	3	2	3	1	
		3	9	8	1	5	
				1			

If there are  10 or more counters in a column we can make an exchange

In Key Stage 2 these methods develop further: Subtraction

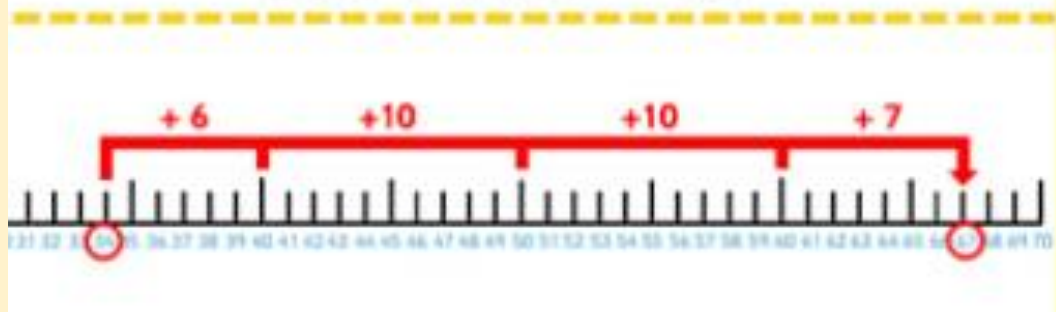


Thousands	Hundreds	Tens	Ones



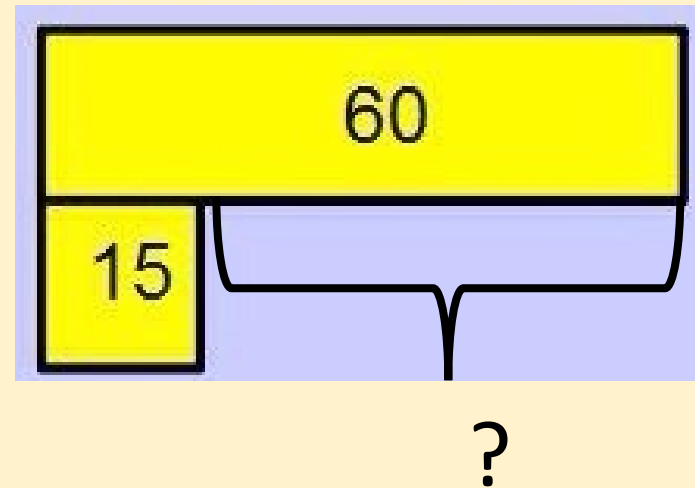
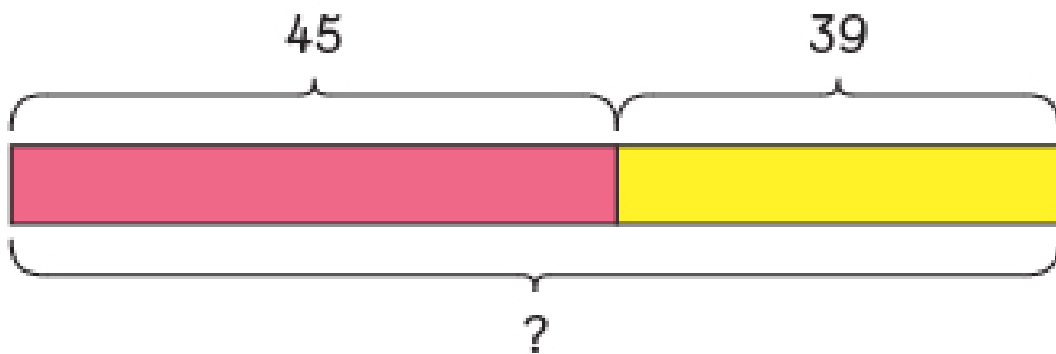
Addition:

$$34 + 33 = 67$$



Subtraction:

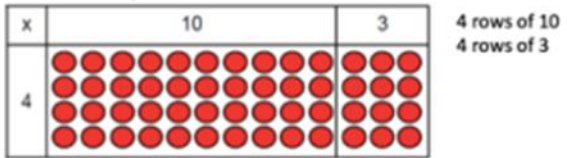
$$517 - 392 =$$



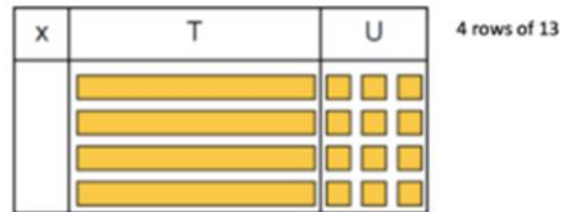
In Key Stage 2 these methods develop further: Multiplication

x	300	20	7
4	1200	80	28

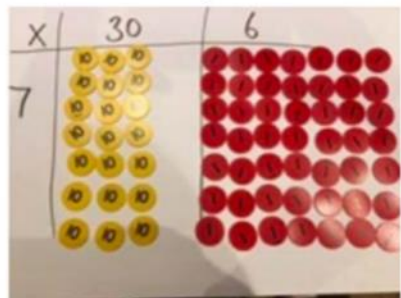
Show the link with arrays to first introduce the grid method.



Move on to using Base 10 to move towards a more compact method.



Move on to place value counters to show how we are finding groups of a number.



$$\begin{array}{r}
 327 \\
 \times 4 \\
 \hline
 28 \\
 80 \\
 1200 \\
 \hline
 1308
 \end{array}$$

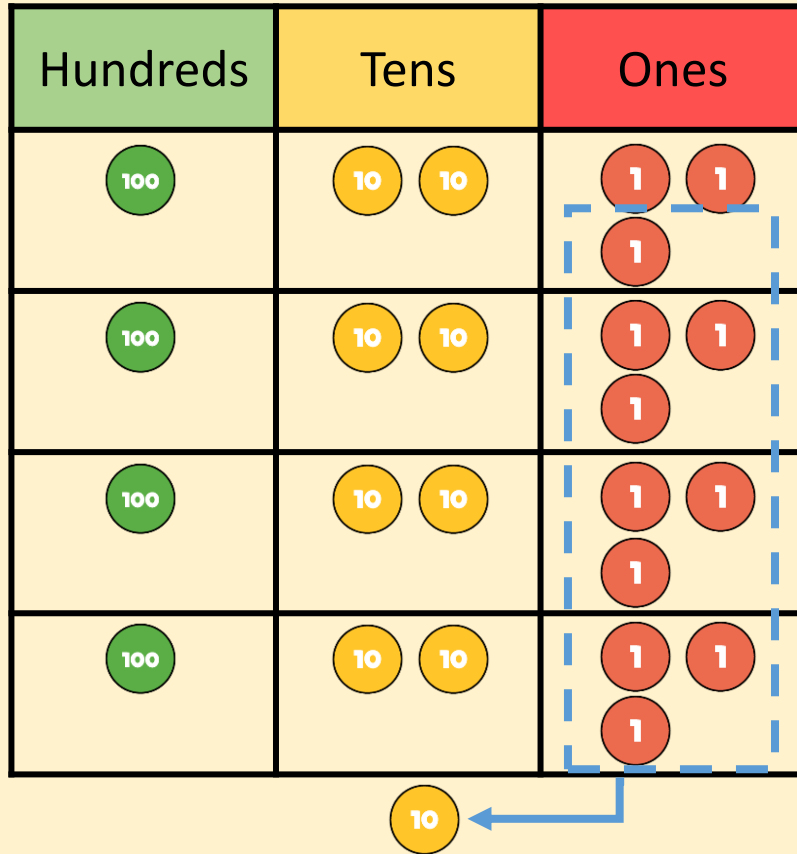
(7 x 4)

(20 x 4)

(300 x 4)

	3	2	7
x			4
<hr/>			
	1	3	0
		1	2

$$123 \times 4 = 492$$



	H	T	O
×	1	2	3
			4
	4	9	2
		1	

$$3 \text{ ones} \times 4 = 12 \text{ ones}$$

$$2 \text{ tens} \times 4 = 8 \text{ tens}$$

$$8 \text{ tens} + 1 \text{ ten} = 9 \text{ tens}$$

$$1 \text{ hundred} \times 4 = 4 \text{ hundreds}$$

$$1,207 \times 36$$

		1	2	0	7	
	×			3	6	
		7	2	4	2	(1,207 × 6)
		₁		₄		

The diagram shows a grid-based multiplication of 1,207 by 36. The numbers 1, 2, 0, 7 and 3, 6 are circled in blue. The result 7, 2, 4, 2 is shown with carry values 1 and 4. A red line is at the bottom.

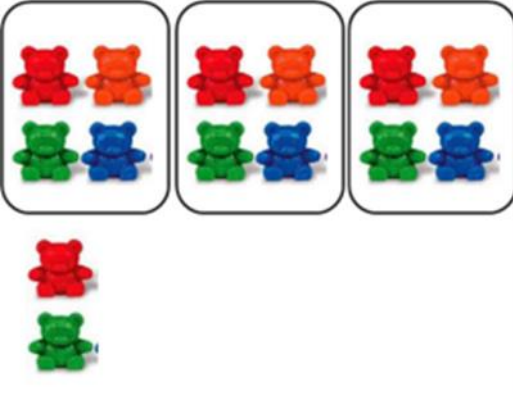
$$1,207 \times 36$$

		1	2	0	7	
	×			3	6	
	<hr/>					
+		7	2	4	2	(1,207 × 6)
		¹ 6	⁴ 2	1	0	(1,207 × 30)
	<hr/>					
		4	3	4	5	2
		1				
	<hr/>					

In Key Stage 2 these methods develop further: Division

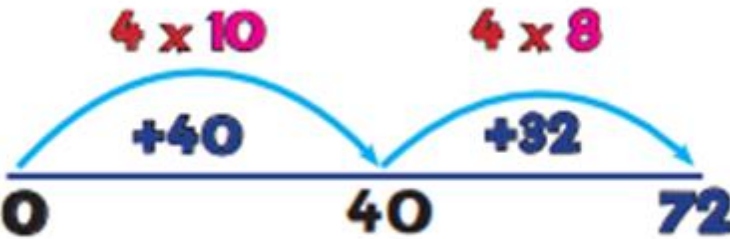
$14 \div 3 =$

Divide objects between groups and see how much is left over



The diagram shows 14 teddy bears (7 red, 7 blue) divided into 3 groups of 4 bears each. Two bears (one red, one blue) are left over.

D7: Chunking Jump

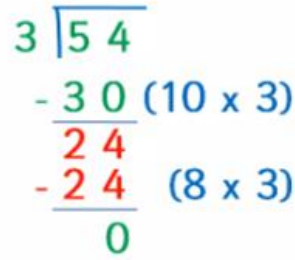


A number line from 0 to 72. A blue arc from 0 to 40 is labeled 4×10 and $+40$. A second blue arc from 40 to 72 is labeled 4×8 and $+32$.

$72 \div 4 = 18$

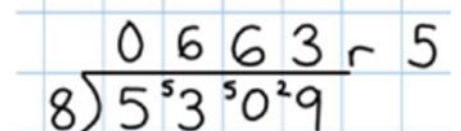
"How many 4s in 72?"
Answer: 18

1) $54 \div 3$



$$\begin{array}{r} 3 \overline{) 54} \\ - 30 \quad (10 \times 3) \\ \hline 24 \\ - 24 \quad (8 \times 3) \\ \hline 0 \end{array}$$

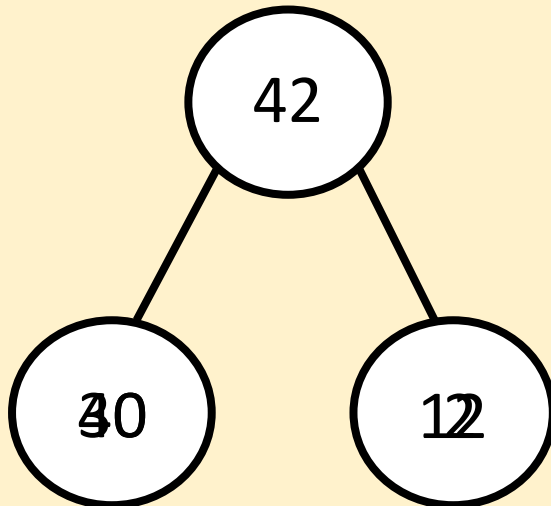
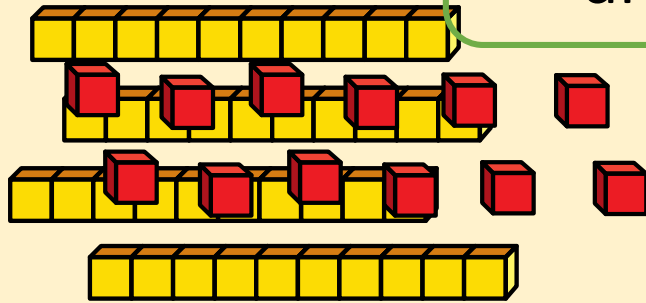
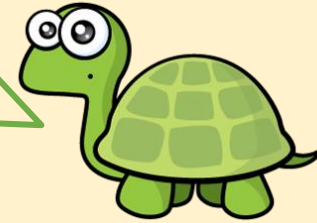
$1 \times 3 = 3$
$2 \times 3 = 6$
$3 \times 3 = 9$
$4 \times 3 = 12$
$5 \times 3 = 15$
$6 \times 3 = 18$
$7 \times 3 = 21$
$8 \times 3 = 24$
$9 \times 3 = 27$
$10 \times 3 = 30$
$11 \times 3 = 33$
$12 \times 3 = 36$
$100 \times 3 = 300$



$$\begin{array}{r} 0663r5 \\ 8 \overline{) 53029} \end{array}$$

$$42 \div 3 = 14$$

But those groups aren't equal!



Tens	Ones

Tom has £317

Have a think



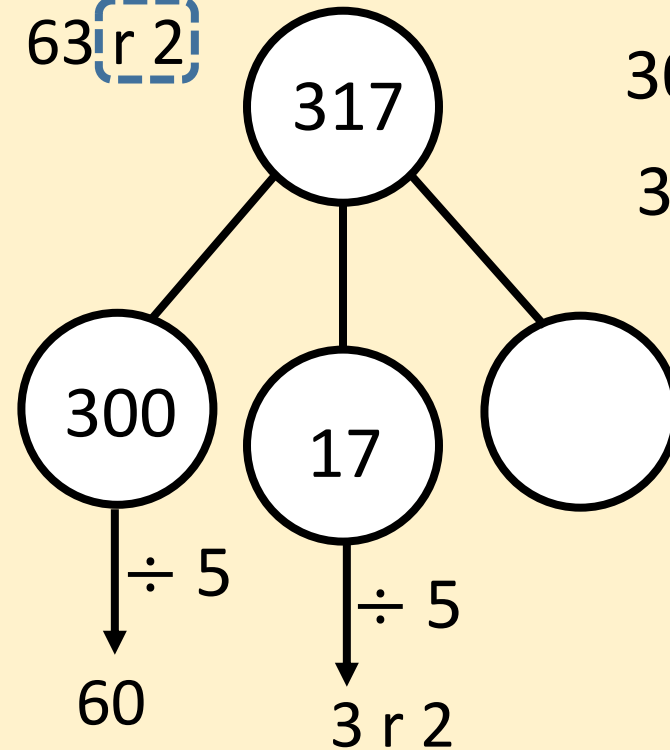
He gives each of his 5 grandchildren an equal amount of whole pounds.

How much money does Tom have left? £2

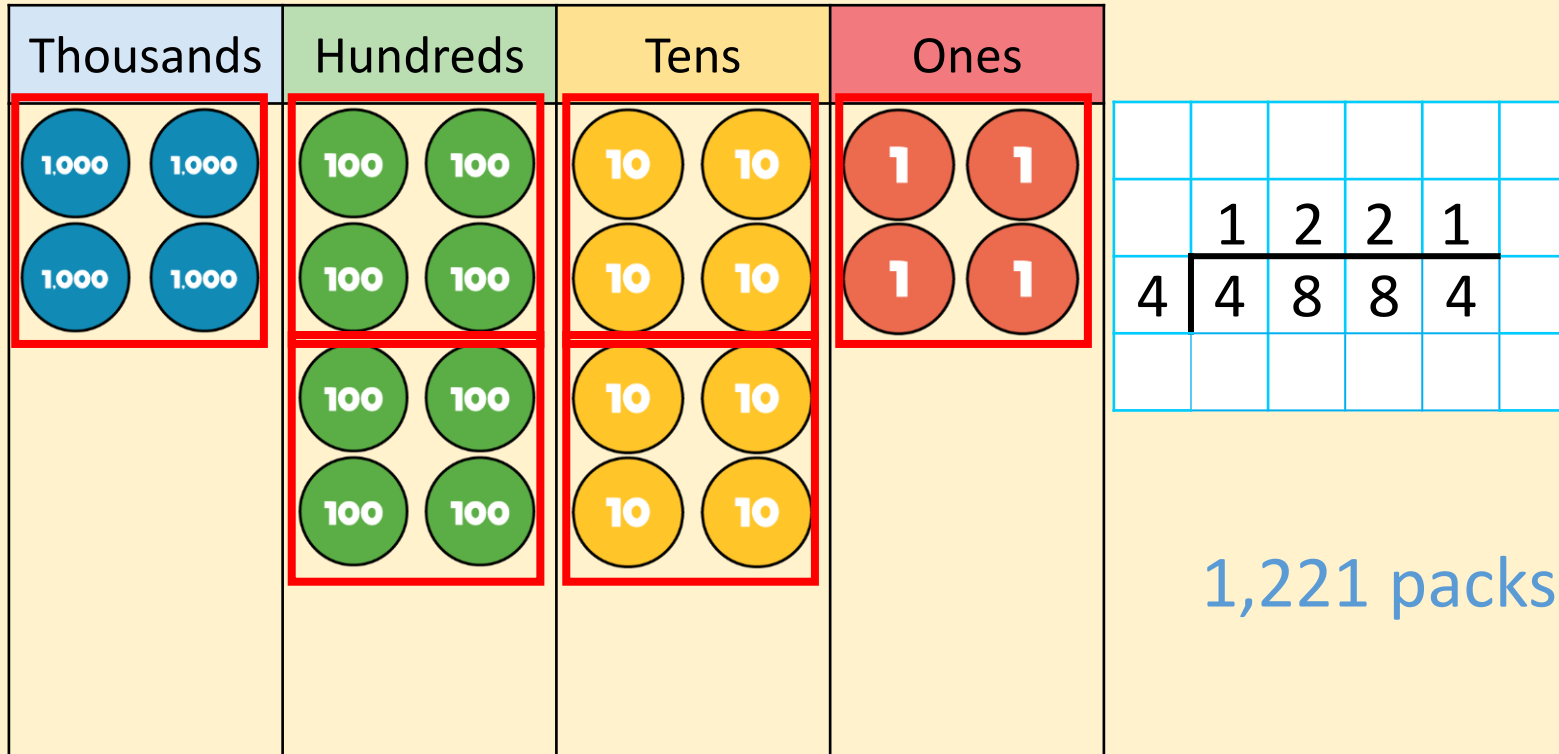
$$317 \div 5 = 63 \text{ r } 2$$

$$300 \div 10 = 30$$

$$30 \times 2 = 60$$



4,884 crayons are grouped into packs of 4
 How many packs are there?



1,221 packs


How many groups of 4 fit into each number in 4,000?

Calculate $359 \div 16 = 22 \text{ r}7$

16	32	48	64	80	96	112	128	144	160
----	----	----	----	----	----	-----	-----	-----	-----



		2	2
16	<u>3</u>	<u>5</u>	9
—	3	2	↓
		<u>3</u>	<u>9</u>
—		3	2
			7

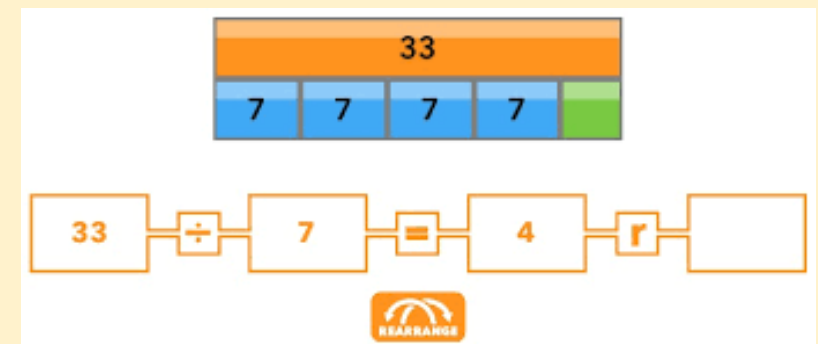
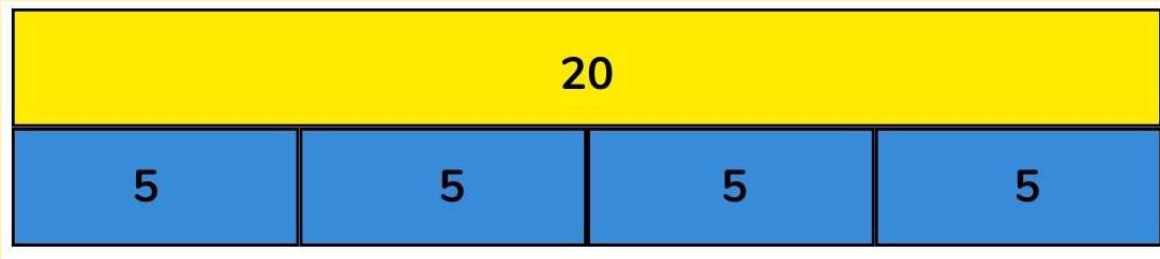
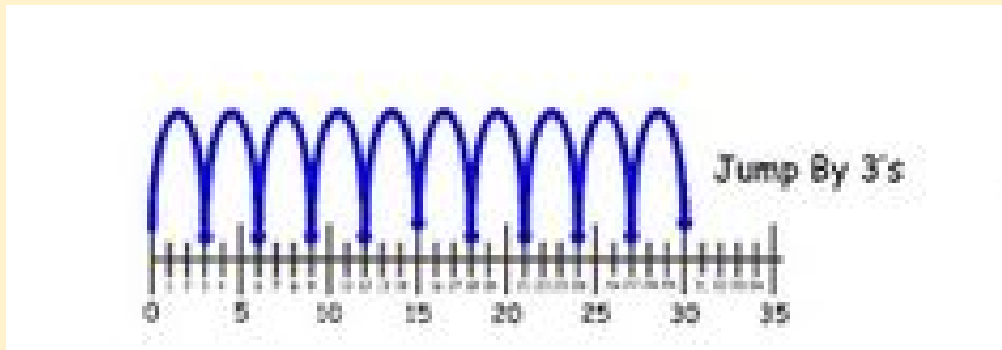
Have a think 

Multiplication:

Thousands	Hundreds	Tens	Ones



Division:



How you can support your child



As well as these platforms, daily and weekly practice of times tables, number bonds and using maths in everyday situations such as at the shop is a fantastic way to consolidate skills.



If you would like to have a go at some of these strategies feel free to explore the tables for the rest of the session, or if you have any questions, please do ask.

Thank you for your time