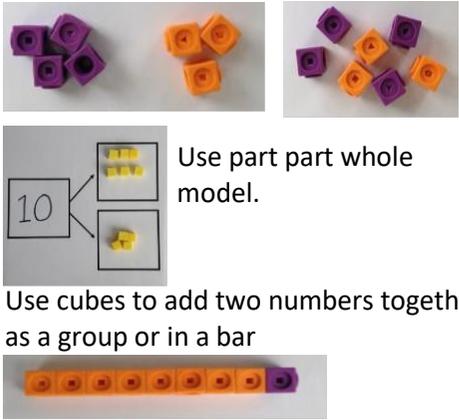
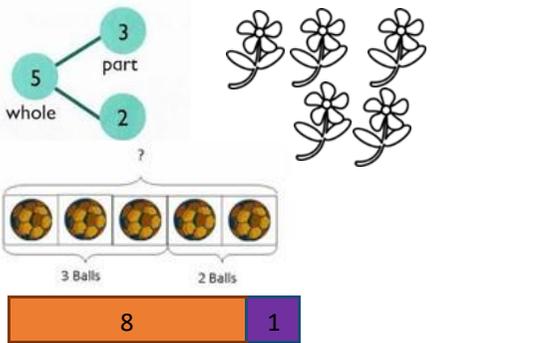
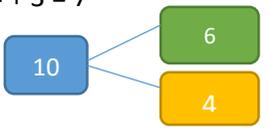
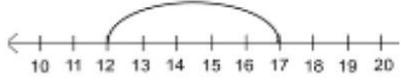
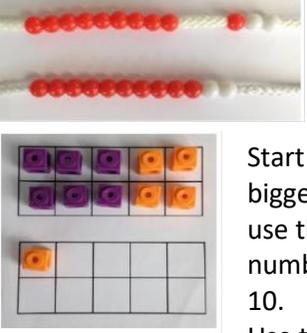
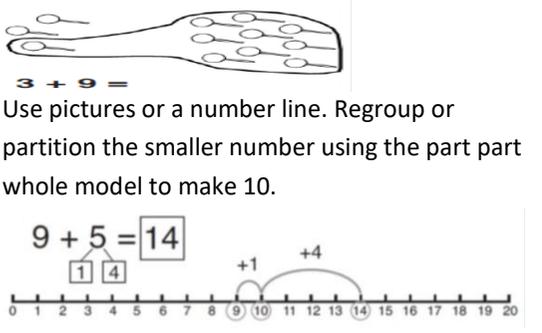
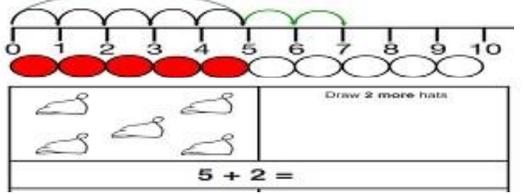
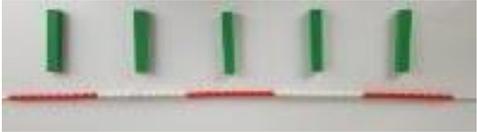
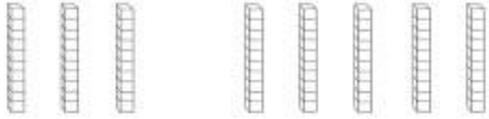
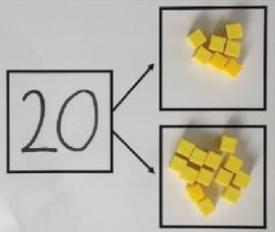
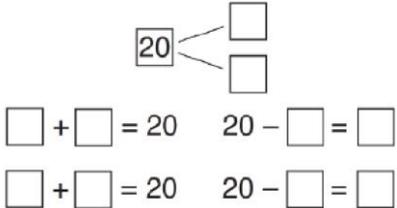
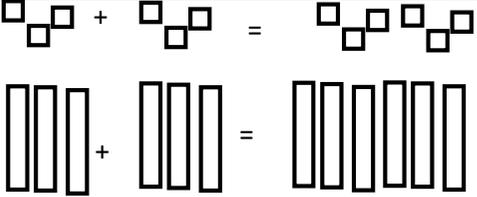
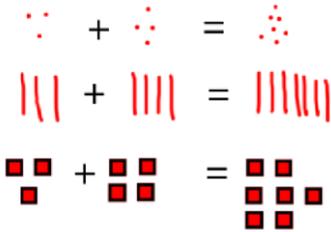
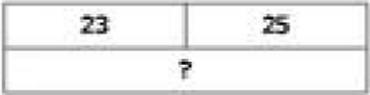


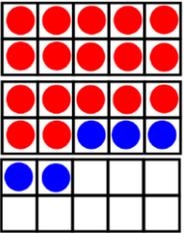
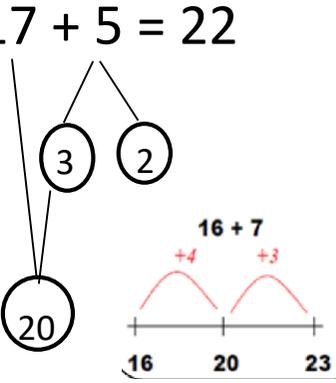
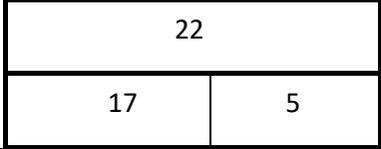
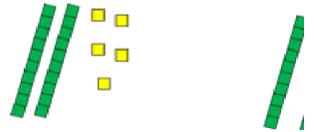
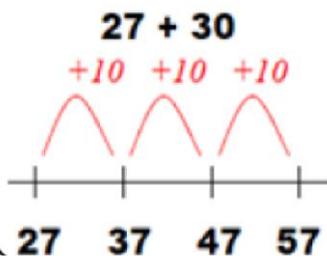
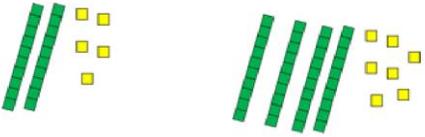
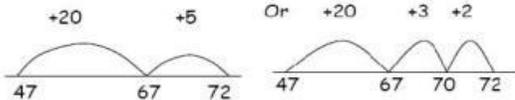
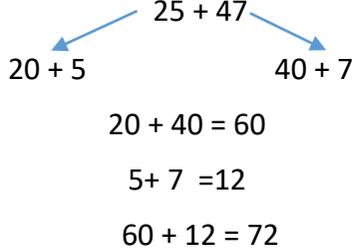
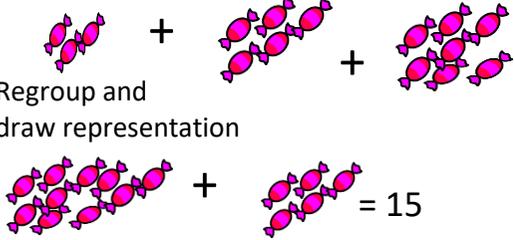
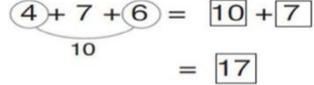


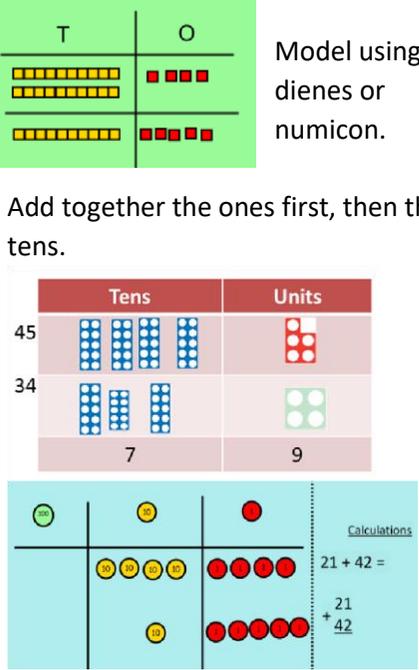
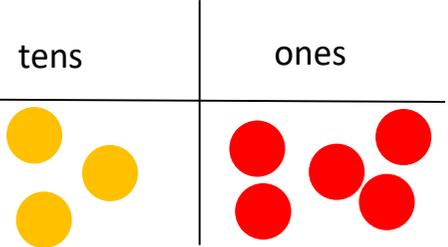
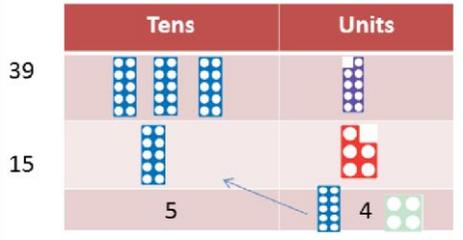
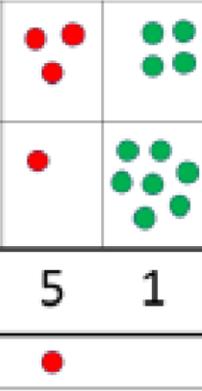
## How do we teach maths?

This policy has been largely adapted from the White Rose Maths Hub Calculation Policy with further material added. It is a working document and will be revised and amended as necessary.

Objective & strategy	Concrete	Pictorial	Abstract
Combining two parts to make a whole: part-whole model	 <p>Use cubes to add two numbers together as a group or in a bar</p> <p>Use part part whole model.</p>	 <p>Use pictures to add two numbers together as a group or in a bar.</p>	$4 + 3 = 7$  $10 = 6 + 4$ Use the part-part whole diagram to move into the abstract
Starting at the bigger number and counting on	 <p>Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.</p>	 $12 + 5 = 17$ Start at the larger number on the number line and count on in ones or in one jump to find the answer.	$5 + 12 = 17$ Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10 <i>This is an essential skill for column addition later.</i>	 $6 + 5 = 11$ Start with the bigger number and use the smaller number to make 10. Use ten frames	 $3 + 9 =$ Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10. $9 + 5 = 14$	$7 + 4 = 11$ If I am at seven, how many more do I need to make 10. How many more do I add on now?
Represent & use number bonds and related subtraction facts within 20	 <p>2 more than 5.</p>	 $5 + 2 =$	Emphasis should be on the language '1 more than 5 is equal to 6.' '2 more than 5 is 7.' '8 is 3 more than 5.'

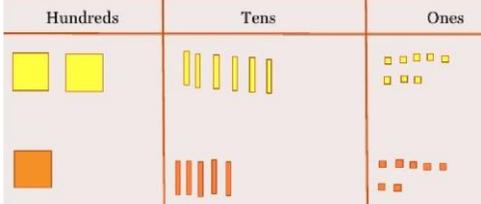
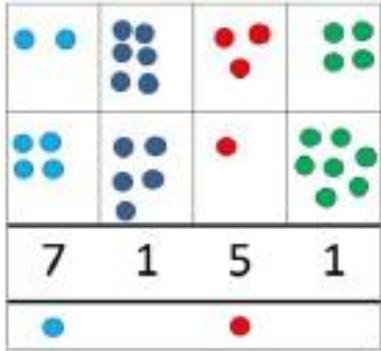
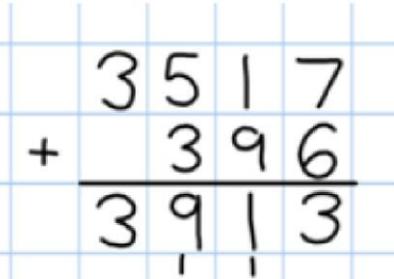
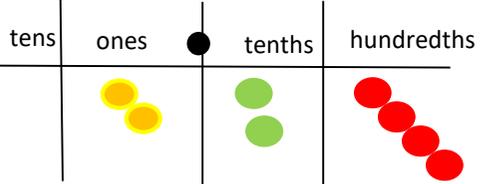
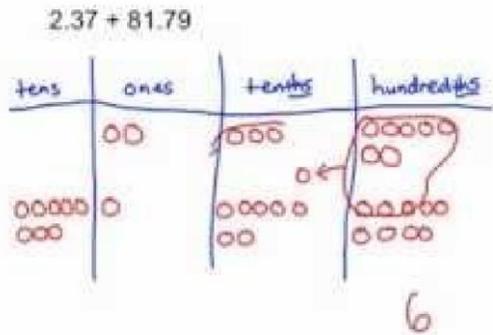
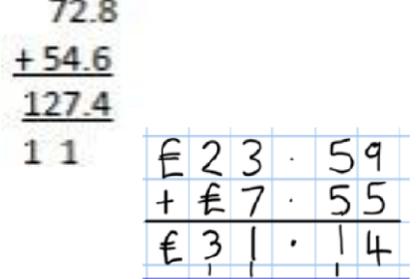
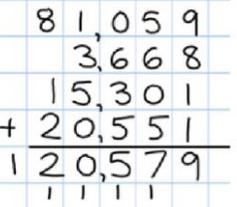
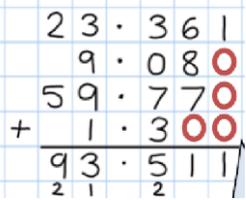
Objective & strategy	Concrete	Pictorial	Abstract
Adding multiples of 10	$50 = 30 + 20$  Model using dienes and bead strings	 $3 \text{ tens} + 5 \text{ tens} = \text{---} \text{ tens}$ $30 + 50 = \text{---}$ Use representations for base ten.	$20 + 30 = 50$ $70 = 50 + 20$ $40 + \square = 60$
Use known number facts  <i>Part part whole</i>	 Children explore ways of making numbers within 20	 $\square + \square = 20$ $20 - \square = \square$ $\square + \square = 20$ $20 - \square = \square$	$\square + 1 = 16$ $16 - 1 = \square$ $1 + \square = 16$ $16 - \square = 1$
Using known number facts	 $\square + \square = \square$ $\square + \square = \square$	 $\dots + \dots = \dots$ $   +     =     $ $\square + \square = \square$ Children draw representations of H,T and O	$3 + 4 = 7$ <i>leads to</i> $30 + 40 = 70$ <i>leads to</i> $300 + 400 = 700$
Bar model	 $3 + 4 = 7$	 $7 + 3 = 10$	 $23 + 25 = 48$

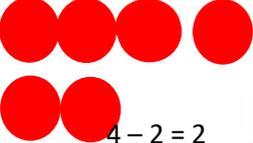
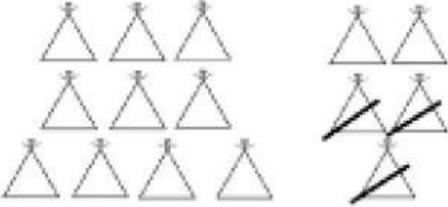
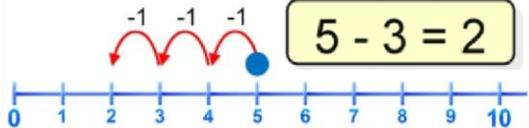
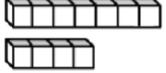
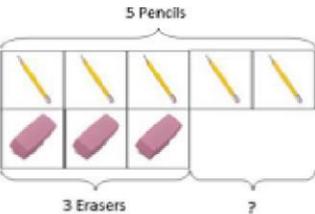
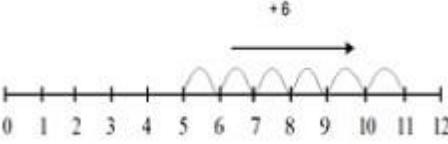
Objective & strategy	Concrete	Pictorial	Abstract
Add a 2-digit number and ones	 <p><math>17 + 5 = 22</math></p> <p>Use ten frame to make 'magic' ten</p> <p>Children explore the pattern:  <math>17 + 5 = 22</math>  <math>27 + 5 = 32</math></p>	<p>Use part part whole and number line to model.</p>  <p><math>17 + 5 = 22</math></p>	<p><math>17 + 5 = 22</math></p> <p>Explore related facts:  <math>17 + 5 = 22</math>  <math>5 + 17 = 22</math>  <math>22 - 17 = 5</math>  <math>22 - 5 = 17</math></p> 
Add a 2-digit number and tens	 <p><math>25 + 10 = 35</math></p> <p>Explore that the ones digit does not change</p>	 <p><math>27 + 30</math></p> <p><math>+10 +10 +10</math></p> <p><math>27 \quad 37 \quad 47 \quad 57</math></p>	<p><math>27 + 10 = 37</math></p> <p><math>27 + 20 = 47</math></p> <p><math>27 + \square = 57</math></p>
Add two 2-digit numbers	 <p>Model using dienes, place value counters and numicon</p>	 <p>Use number line and bridge ten using part whole if necessary</p>	 <p><math>25 + 47</math></p> <p><math>20 + 5</math>      <math>40 + 7</math></p> <p><math>20 + 40 = 60</math></p> <p><math>5 + 7 = 12</math></p> <p><math>60 + 12 = 72</math></p>
Add three 1-digit numbers	 <p>Combine to make 10 first if possible, or bridge 10 then add third digit</p>	 <p>Regroup and draw representation</p> <p><math>4 + 7 + 6 = 17</math></p>	<p>Combine the two numbers that make/bridge ten then add on the third number</p>  <p><math>4 + 7 + 6 = 10 + 7</math></p> <p><math>= 17</math></p>

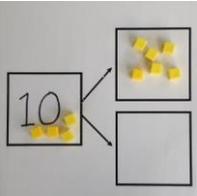
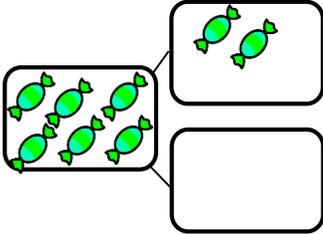
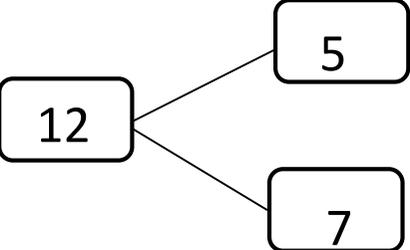
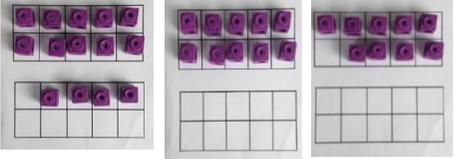
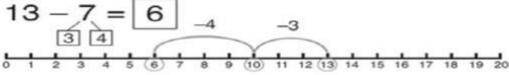
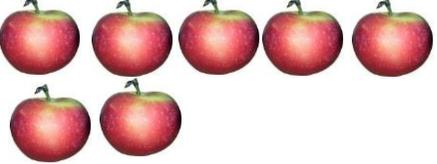
Objective & strategy	Concrete	Pictorial	Abstract
<p>Column addition—no regrouping (friendly numbers)</p> <p>Add two or three 2 or 3-digit numbers.</p>	 <p>Model using dienes or numicon.</p> <p>Add together the ones first, then the tens.</p> <p>Move onto using place value counters.</p>	<p>Children move to drawing the counters using a tens and one frame.</p> 	$\begin{array}{r} 223 \\ + 114 \\ \hline 337 \end{array}$ <p>Add the ones first, then the tens, then the hundreds.</p>
<p>Column addition with regrouping.</p>	 <p>Exchange ten ones for a ten. Model using pv counters, numicon or dienes.</p>	 <p>Children can draw a representation of the grid to further support their understanding, carrying the ten <b>underneath</b> the line</p>	$\begin{array}{r} 20 + 5 \\ 40 + 8 \\ 60 + 13 = 73 \end{array}$ <p>Start by partitioning the numbers before formal column to show the exchange.</p> $\begin{array}{r} 536 \\ + 85 \\ \hline 621 \\ 11 \end{array}$

# Y 4-6

# Addition +

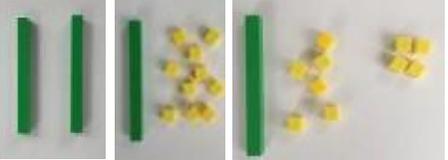
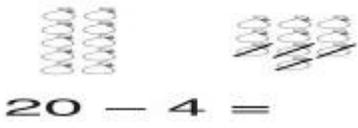
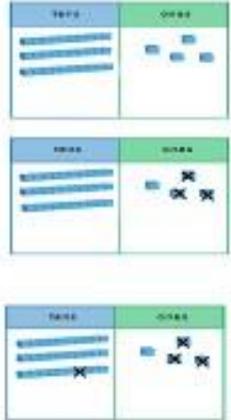
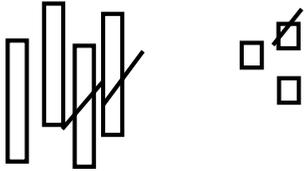
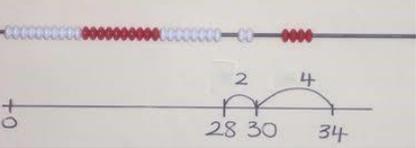
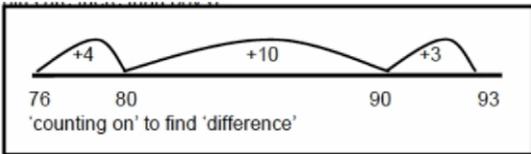
Objective & strategy	Concrete	Pictorial	Abstract
<p>Y4—add numbers with up to 4 digits</p>	 <p>Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand</p>	 <p>Draw representations using a pv grid</p>	 <p>Continue from previous work to carry hundred as well as tens.</p> <p>Relate to money and measure.</p>
<p>Y5—add numbers with more than 4 digits.</p> <p>Add decimals with 2 decimal places, including money.</p>	<p>As year 4 above.</p>  <p>Introduce decimal place value counters and model exchange for addition</p>		
<p>Y6—add several numbers of increasing complexity</p> <p>Including adding money, measure and decimals with different numbers of decimal points.</p>	<p>As year 5</p>	<p>As year 5</p>	 <p>Insert zeros for place holders.</p> 

Objective & strategy	Concrete	Pictorial	Abstract
Taking away ones	<p>Use physical objects, counter, cubes etc to show how objects can be taken away.</p> <p><math>6 - 4 = 2</math></p>  <p><math>4 - 2 = 2</math></p> 	<p>Cross out drawn objects to show what has been taken away.</p>  <p><math>15 - 3 = 12</math></p>	<p><math>7 - 4 = 3</math></p> <p><math>16 - 9 = 7</math></p>
Counting back	<p>Move objects away from the group, counting backwards.</p>   <p>Move the beads along the bead string as you count back.</p>	 <p><math>5 - 3 = 2</math></p> <p>Count back in ones using a number line.</p>	<p>Put 13 in your head, count back 4. What number are you at?</p>
Find the difference	<p>Compare objects and amounts</p>  <p>7 'Seven is 3 more than four'</p> <p>4</p> <p>'I am 2 years older than my sister'</p>  <p>5 Pencils</p> <p>3 Erasers</p> <p>?</p> <p>Lay objects to represent bar model.</p>	<p>Count on using a number line to find the difference.</p>  <p>+6</p>	<p>Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister?</p>

Objective & strategy	Concrete	Pictorial	Abstract		
Represent and use number bonds and related subtraction facts within 20 <b>Part Part Whole model</b>	 <p>Link to addition. Use PPW model to model the inverse.</p> <p>If 10 is the whole and 6 is one of the parts, what is the other part?</p> $10 - 6 = 4$	 <p>Use pictorial representation to show the part.</p>	 <p>Move to using numbers within the part whole model.</p>		
Make 10	$14 - 9$  <p>Make 14 on the ten frame. Take 4 away to make ten, then take one more away so that you have taken 5.</p>	$13 - 7 = 6$  $13 - 7$ <p>Jump back 3 first, then another 4. Use ten as the stopping point.</p>	$16 - 8$ <p>How many do we take off first to get to 10? How many left to take off?</p>		
Bar model	 $5 - 2 = 3$		<table border="1" data-bbox="1464 879 1935 970"> <tr> <td>8</td> <td>2</td> </tr> </table> $10 = 8 + 2$ $10 = 2 + 8$ $10 - 2 = 8$ $10 - 8 = 2$	8	2
8	2				

# Y1

# Subtraction -

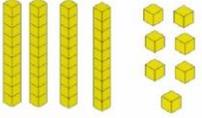
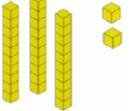
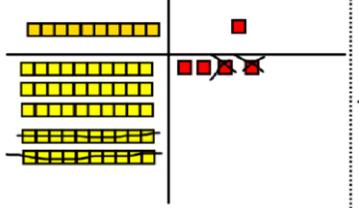
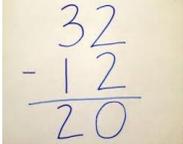
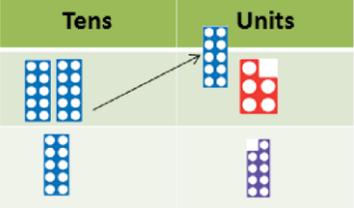
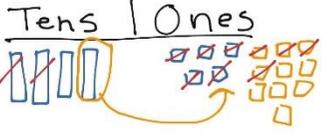
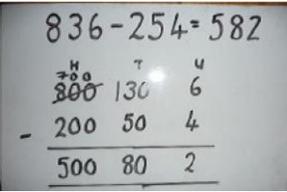
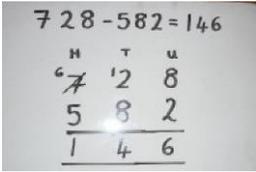
Objective & strategy	Concrete	Pictorial	Abstract
Regroup a ten into ten ones	 <p>Use a pv chart to show how to change a ten into ten ones, use the term 'take and make'</p>	 $20 - 4 =$	$20 - 4 = 16$
Partitioning to subtract without regrouping. <i>'Friendly numbers'</i>	$34 - 13 = 21$  <p>Use dienes to show how to partition the number when subtracting without regrouping</p>	Children draw representations of dienes and cross off.  $43 - 21 = 22$	$43 - 21 = 22$
Make ten strategy <i>Progression should be crossing one ten, crossing more than one ten, crossing the hundreds</i>	 $34 - 28$ <p>Use a bead bar or bead strings to model counting to next ten and the rest.</p>	 <p>Use a number line to count on to next ten and then the rest.</p>	$93 - 76 = 17$

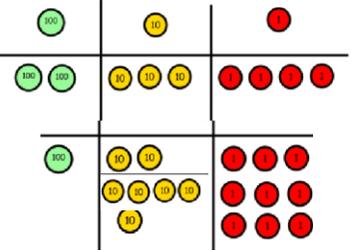
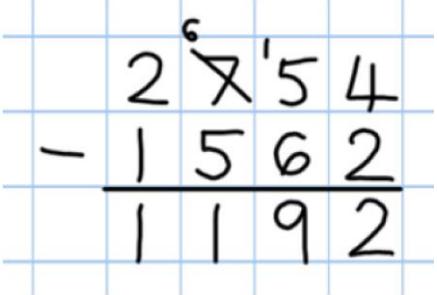
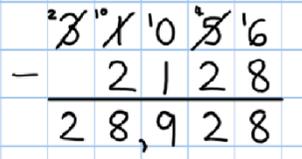
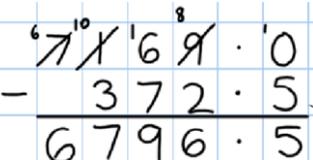
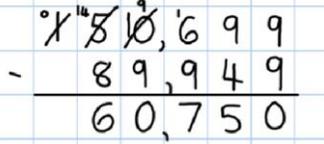
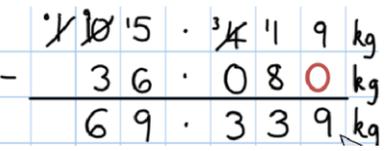
Y2

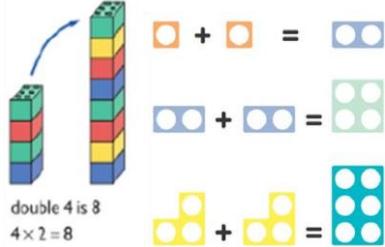
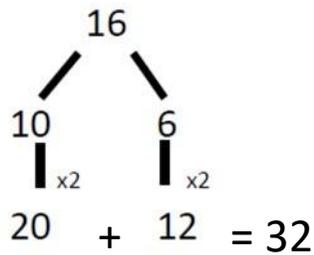
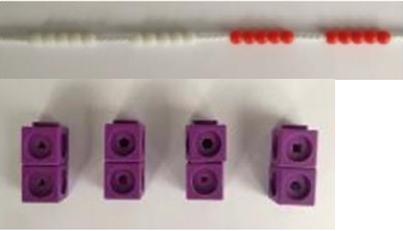
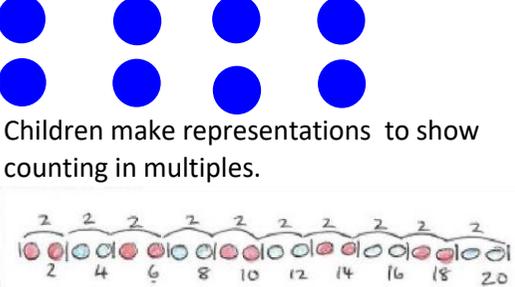
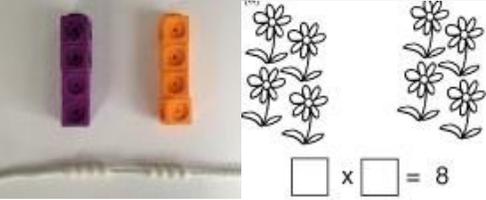
Subtraction -

# Y3

# Subtraction -

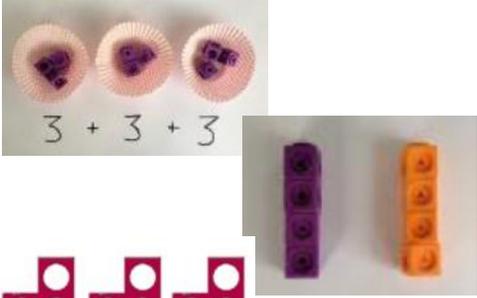
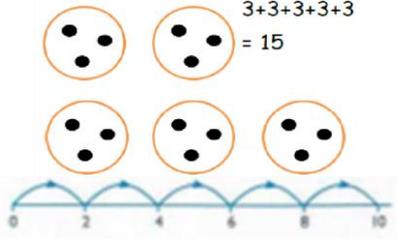
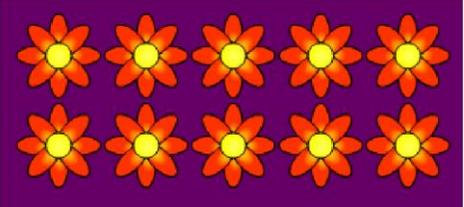
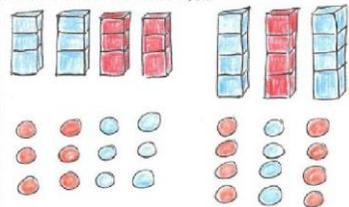
Objective & strategy	Concrete	Pictorial	Abstract
Column subtraction without regrouping (friendly numbers)	 $47 - 32$  <p>Use base 10 or Numicon to model</p>	 <p>Calculations</p> $\begin{array}{r} 54 \\ - 22 \\ \hline 32 \end{array}$ <p>Draw representations to support understanding</p>	$47 - 24 = 23$ $\begin{array}{r} 40 + 7 \\ - 20 + 4 \\ \hline 20 + 3 \end{array}$ <p>Intermediate step may be needed to lead to clear subtraction understanding</p> 
Column subtraction with regrouping	 <p>Begin with dienes or numicon. Move to pv counters, modelling the exchange of a ten into ten ones. Use the phrase 'take and make' for exchange.</p>	$\begin{array}{r} 45 \\ - 29 \\ \hline 16 \end{array}$  $10 + 6 = 16$ <p>Children may draw base ten or PV counters and cross off.</p>	 <p>Begin by partitioning into pv columns.</p>  <p>Then move to formal method.</p>

Objective & strategy	Concrete	Pictorial	Abstract	<p style="text-align: center; font-size: 2em; font-weight: bold;">Y</p> <p style="text-align: center; font-size: 3em; font-weight: bold;">4-6</p> <p style="text-align: center; font-size: 4em; font-weight: bold; color: red;">Subtraction -</p>
Subtracting tens and ones  Year 4 subtract with up to 4 digits.  <i>Introduce decimal subtraction through context of money</i>	<p style="text-align: center;">234 - 179</p>  <p style="text-align: center;">Model process of exchange using numicon, dienes and then move to PV counters.</p>	Children to draw pv counters and show their exchange—see Y3.	 <p style="text-align: center;">Use the phrase 'take and make' for exchange.</p>	
Year 5- Subtract with at least 4 digits, including money and measures.  <i>Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal</i>	As year 4	Children to draw pv counters and show their exchange – see Y3.	 <p style="text-align: center;">Use zeros for place holders</p> 	
Year 6—Subtract with increasingly large and more complex numbers and decimal values			 	

Objective & strategy	Concrete	Pictorial	Abstract
Doubling	Use practical activities using manipulatives including cubes and numicon to demonstrate doubling. 	Double 4 is 8  Draw pictures to show how to double numbers.	 Partition a number and then double each part before recombining it back together.
Counting in multiples	Count the groups as children are skip counting, children may use their fingers as they are skip counting. 	 Children make representations to show counting in multiples.	Count in multiples of a number aloud. Write sequences with multiples of numbers. 2, 4, 6, 8, 10 5, 10, 15, 20, 25, 30
Making equal groups and counting the total	 Use manipulatives to create equal groups.	Draw  to show $2 \times 3 = 6$ Draw and make representations.	$2 \times 4 = 8$

# Y1

# Multiplication X

Objective & strategy	Concrete	Pictorial	Abstract	<b>Y1</b> <b>Multiplication</b>
Repeated addition	 <p>Use different objects to add equal groups.</p>	<p>There are 3 sweets in one bag. How many sweets are in 5 bags altogether?</p>  <p>Use pictorials including number lines to solve problems.</p>	<p>Write addition sentences to describe objects and pictures.</p> 	
Understanding arrays	<p>Use objects laid out in arrays to find the answers to 2 lots of 5, 3 lots of 2 etc</p> 	<p>Draw representations of arrays to show understanding.</p> 	$3 \times 2 = 6$ $2 \times 5 = 10$	





# Y3

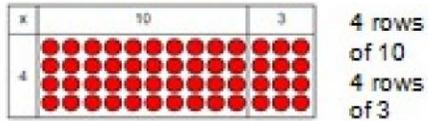
# Multiplication x

## Objective & strategy

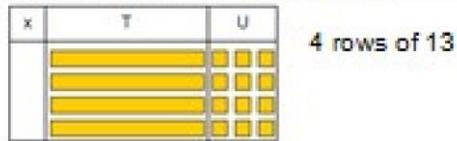
Grid method

## Concrete

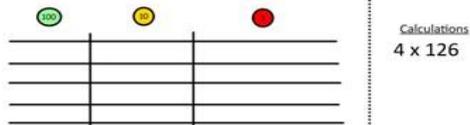
Show the links with arrays to first introduce the grid method.



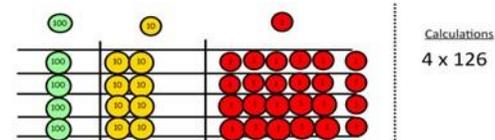
Move onto base ten to move towards a more compact method.



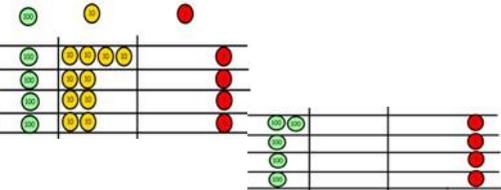
Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows



Fill each row with 126



Add up each column, starting with the ones making any exchanges needed

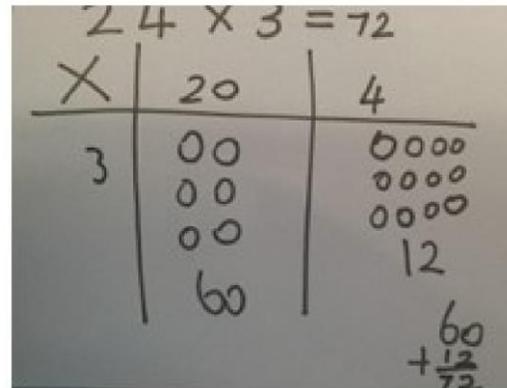


Then you have your answer.

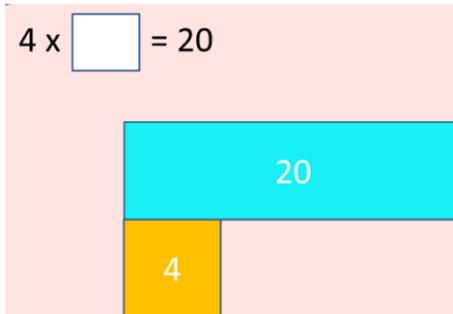
## Pictorial

Children can represent their work with place value counters in a way that they understand.

They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below.



Bar model are used to explore missing numbers.



## Abstract

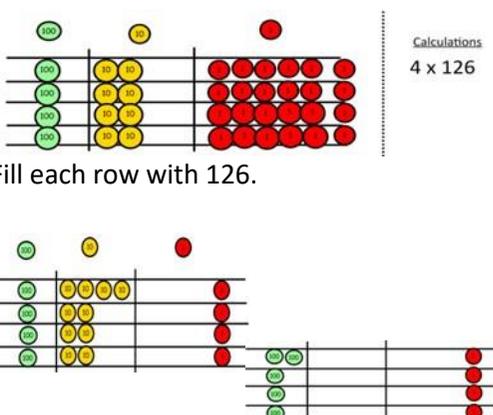
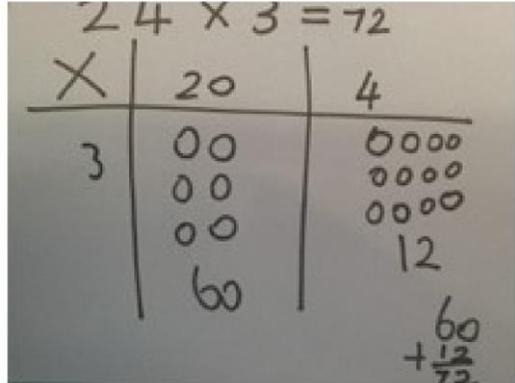
Start with multiplying by one digit numbers and showing the clear addition alongside the grid.

x	30	5
7	210	35

$$210 + 35 = 245$$

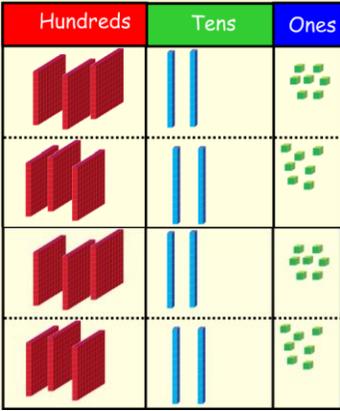
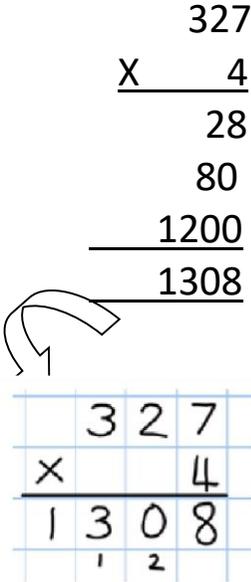
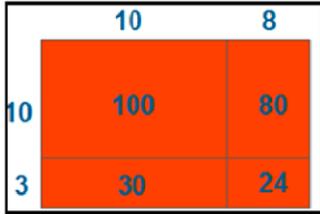
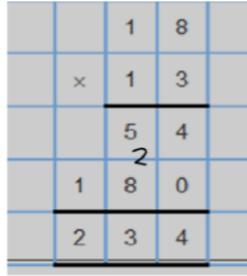
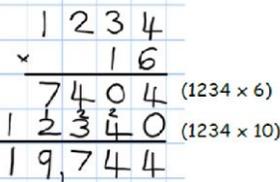
Moving forward, multiply by a 2 digit number showing the different rows within the grid method.

	10	8
10	100	80
3	30	24

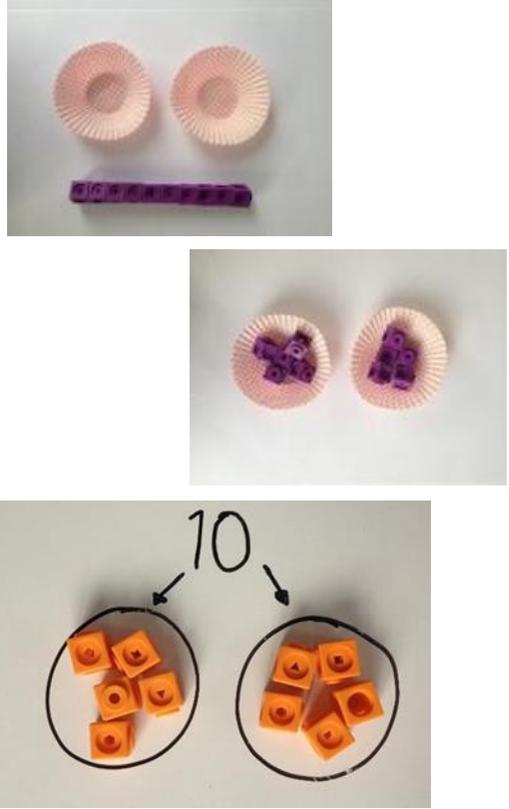
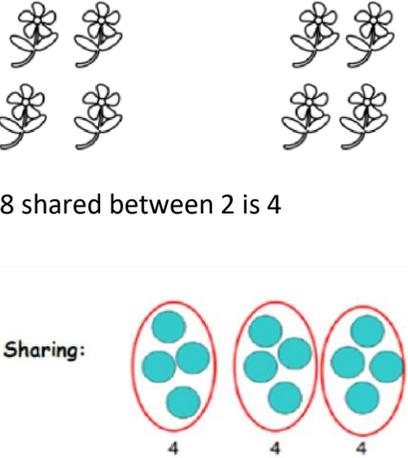
Objective & strategy	Concrete	Pictorial	Abstract																																																													
<p>Grid method recap from Y3 for 2-digits x 1-digit</p> <p>Move to multiplying 3-digit by 1-digit</p>	<p>Use pv counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows.</p>  <p>Calculations <math>4 \times 126</math></p> <p>Fill each row with 126.</p> <p>Add up each column, starting with the ones making any exchanges needed.</p>	<p>Children can represent their work with pv counters in a way they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking.</p> 	<p>Start with multiplying by 1-digit numbers and showing the clear addition alongside the grid.</p> <table border="1" data-bbox="1489 351 1814 446"> <tr> <td>x</td> <td>30</td> <td>5</td> </tr> <tr> <td>7</td> <td>210</td> <td>35</td> </tr> </table> <p><math>210 + 35 = 245</math></p>	x	30	5	7	210	35																																																							
x	30	5																																																														
7	210	35																																																														
<p>Column multiplication</p>	<p>Children can continue to be supported by pv counters at this stage of multiplication. This initially is done where there is no regrouping. Eg <math>321 \times 2 = 642</math></p> <table border="1" data-bbox="358 957 705 1380"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>3 blocks</td> <td>2 rods</td> <td>1 group</td> </tr> </tbody> </table> <p>Corresponding long multiplication is modelled alongside.</p>	Hundreds	Tens	Ones	3 blocks	2 rods	1 group	3 blocks	2 rods	1 group	3 blocks	2 rods	1 group	3 blocks	2 rods	1 group	<table border="1" data-bbox="929 869 1254 933"> <tr> <td>x</td> <td>300</td> <td>20</td> <td>7</td> </tr> <tr> <td>4</td> <td>1200</td> <td>80</td> <td>28</td> </tr> </table> <p style="text-align: center;">→</p>	x	300	20	7	4	1200	80	28	<table style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td></td> <td>327</td> </tr> <tr> <td>X</td> <td></td> <td>4</td> </tr> <tr> <td></td> <td></td> <td>28</td> </tr> <tr> <td></td> <td></td> <td>80</td> </tr> <tr> <td></td> <td></td> <td><u>1200</u></td> </tr> <tr> <td></td> <td></td> <td>1308</td> </tr> </table>  <table border="1" data-bbox="1489 1260 1736 1452"> <tr> <td></td> <td>3</td> <td>2</td> <td>7</td> </tr> <tr> <td>x</td> <td></td> <td></td> <td>4</td> </tr> <tr> <td></td> <td>1</td> <td>3</td> <td>0</td> </tr> <tr> <td></td> <td></td> <td>1</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td></td> <td>8</td> </tr> </table> <p>This may lead to a compact method</p>			327	X		4			28			80			<u>1200</u>			1308		3	2	7	x			4		1	3	0			1	2				8
Hundreds	Tens	Ones																																																														
3 blocks	2 rods	1 group																																																														
3 blocks	2 rods	1 group																																																														
3 blocks	2 rods	1 group																																																														
3 blocks	2 rods	1 group																																																														
x	300	20	7																																																													
4	1200	80	28																																																													
		327																																																														
X		4																																																														
		28																																																														
		80																																																														
		<u>1200</u>																																																														
		1308																																																														
	3	2	7																																																													
x			4																																																													
	1	3	0																																																													
		1	2																																																													
			8																																																													

Y  
5-6

# Multiplication x

Objective & strategy	Concrete	Pictorial	Abstract
<p>Column multiplication for 3 and 4-digits x 1-digit</p>	 <p>It is important at this stage that they always multiply the ones first.</p> <p>Children can continue to be supported by pv counters. This initially is done where there is no regrouping eg <math>321 \times 2 = 642</math></p>	 <p>The grid method may be used to show how this relates to a formal written method.</p> <p>Bar modelling and number lines can also support learners when solving problems with multiplication alongside formal written methods.</p>	 <p>This will lead to a compact method</p>
<p>Column multiplication</p>	<p>Manipulatives may still be used with the corresponding long multiplication modelled alongside.</p>	 <p>Continue to use bar modelling to support problem solving.</p>	 <p>18 x 3 on the 1st row (<math>8 \times 3 = 24</math>, carrying the 2 for 20, then <math>1 \times 3</math>)</p> <p>18 x 10 on the 2<sup>nd</sup> row. Show multiplying by 10 by putting zero in ones first.</p> 

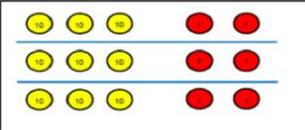
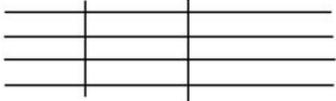
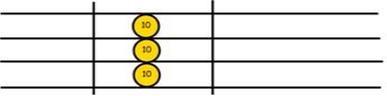
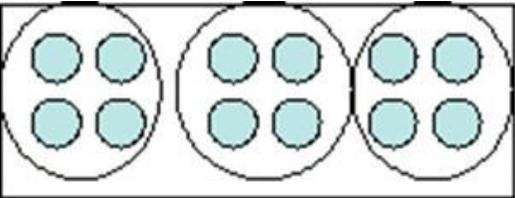
Objective & strategy	Concrete	Pictorial	Abstract	<b>Y6</b> <b>Multiplication x</b>
Multiplying decimals up to 2 decimal places by a single digit			<p>Remind children that the single digit belongs in the ones column. Line up the decimal points in the question and the answer.</p> $  \begin{array}{r}  3.19 \\  \times 8 \\  \hline  25.52  \end{array}  $	

Objective & strategy	Concrete	Pictorial	Abstract	<h1 style="text-align: center;">Y1</h1> <h1 style="text-align: center; color: yellow;">Division ÷</h1>
<p>Division as sharing</p> <p>Search Gordons ITP for interactive resources</p>	 <p>I have 10 cubes, can you share them equally in 2 groups?</p>	<p>Children use pictures or shapes to share quantities.</p>  <p>8 shared between 2 is 4</p> <p>Sharing:</p> <p style="text-align: center;">4      4      4</p> <p style="text-align: center; color: red;">12 shared between 3 is 4</p>	<p>12 shared between 3 is 4</p>	







Objective & strategy	Concrete	Pictorial	Abstract	<p style="text-align: center; font-size: 2em; font-weight: bold;">Y</p> <p style="text-align: center; font-size: 3em; font-weight: bold;">4-6</p> <p style="text-align: center; font-size: 4em; font-weight: bold; color: yellow;">Division ÷</p>			
<p>Divide at least 3 digit numbers by 1 digit.</p> <p>Short Division</p>	<p><math>96 \div 3</math></p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Tens</td> <td style="text-align: center;">Units</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> </tr> </table>  <p>Use place value counters to divide using the bus stop method alongside.</p>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p style="font-size: 0.8em;">Calculations</p> <math display="block">42 \div 3</math> </div>  <p><math>42 \div 3 =</math></p> <p>Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.</p>   <p>We exchange this ten for ten ones and then share the ones equally among the groups.</p>  <p>We look how much in 1 group so the answer is 14.</p>	Tens	Units		3	2	<p>Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.</p>  <p>Encourage them to move towards counting in multiples to divide more efficiently.</p>
Tens	Units						
3	2						

## Long Division

# Y6

# Division ÷

Step 1 – a remainder in the ones

$$\begin{array}{r} \text{h t o} \\ 041\text{ R}1 \\ \hline 4 \overline{) 165} \end{array}$$

4 does not go into 1 (hundred). So combine the 1 hundred with the 6 tens (160).

4 goes into 16 four times.

4 goes into 5 once, leaving a remainder of 1.

$$\begin{array}{r} \text{th h t o} \\ 0400\text{ R}7 \\ \hline 8 \overline{) 3207} \end{array}$$

8 does not go into 3 of the thousands. So combine the 3 thousands with the 2 hundreds (3,200).

8 goes into 32 four times ( $3,200 \div 8 = 400$ )

8 goes into 0 zero times (tens).

8 goes into 7 zero times, and leaves a remainder of 7.

## Long Division

Y6

Step 1 – continued

$$\begin{array}{r} \text{h t o} \\ 061 \\ 4 \overline{) 247} \\ \underline{-4} \\ 3 \end{array}$$

When dividing the ones, 4 goes into 7 one time. Multiply  $1 \times 4 = 4$ , write that four under the 7, and subtract. This finds us the remainder of 3.

Check:  $4 \times 61 + 3 = 247$

$$\begin{array}{r} \text{th h t o} \\ 0402 \\ 4 \overline{) 1609} \\ \underline{-8} \\ 1 \end{array}$$

When dividing the ones, 4 goes into 9 two times. Multiply  $2 \times 4 = 8$ , write that eight under the 9, and subtract. This finds us the remainder of 1.

Check:  $4 \times 402 + 1 = 1,609$

Division ÷

## Long Division

# Y6

# Division ÷

Step 2 – a remainder in the tens

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{4} \phantom{0} \\ 18 \end{array}$ <p>Two goes into 5 two times, or 5 tens ÷ 2 = 2 whole tens -- but there is a remainder!</p>	$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{-4} \phantom{0} \\ 18 \end{array}$ <p>To find it, multiply <math>2 \times 2 = 4</math>, write that 4 under the five, and subtract to find the remainder of 1 ten.</p>	$\begin{array}{r} \text{t o} \\ 29 \\ 2 \overline{) 58} \\ \underline{-4} \downarrow \\ 18 \end{array}$ <p>Next, drop down the 8 of the ones next to the leftover 1 ten. You combine the remainder ten with 8 ones, and get 18.</p>

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
$\begin{array}{r} \text{t o} \\ 29 \\ 2 \overline{) 58} \\ \underline{-4} \phantom{0} \\ 18 \end{array}$ <p>Divide 2 into 18. Place 9 into the quotient.</p>	$\begin{array}{r} \text{t o} \\ 29 \\ 2 \overline{) 58} \\ \underline{-4} \phantom{0} \\ 18 \\ \underline{-18} \\ 0 \end{array}$ <p>Multiply <math>9 \times 2 = 18</math>, write that 18 under the 18, and subtract.</p>	$\begin{array}{r} \text{t o} \\ 29 \\ 2 \overline{) 58} \\ \underline{-4} \phantom{0} \\ 18 \\ \underline{-18} \\ 0 \end{array}$ <p>The division is over since there are no more digits in the dividend. The quotient is 29.</p>

## Long Division

# Y6

# Division ÷

Step 2 – a remainder in any of the place values

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
$\begin{array}{r} \text{h t o} \\ 1 \\ 2 \overline{) 278} \end{array}$ <p>Two goes into 2 one time, or 2 hundreds ÷ 2 = 1 hundred.</p>	$\begin{array}{r} \text{h t o} \\ 1 \\ 2 \overline{) 278} \\ -2 \\ \hline 0 \end{array}$ <p>Multiply <math>1 \times 2 = 2</math>, write that 2 under the two, and subtract to find the remainder of zero.</p>	$\begin{array}{r} \text{h t o} \\ 18 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \end{array}$ <p>Next, drop down the 7 of the tens next to the zero.</p>
Divide.	Multiply & subtract.	Drop down the next digit.
$\begin{array}{r} \text{h t o} \\ 13 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \end{array}$ <p>Divide 2 into 7. Place 3 into the quotient.</p>	$\begin{array}{r} \text{h t o} \\ 13 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \\ -6 \\ \hline 1 \end{array}$ <p>Multiply <math>3 \times 2 = 6</math>, write that 6 under the 7, and subtract to find the remainder of 1 ten.</p>	$\begin{array}{r} \text{h t o} \\ 13 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \\ -6 \\ \hline 18 \end{array}$ <p>Next, drop down the 8 of the ones next to the 1 leftover ten.</p>
1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
$\begin{array}{r} \text{h t o} \\ 139 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \\ -6 \\ \hline 18 \end{array}$ <p>Divide 2 into 18. Place 9 into the quotient.</p>	$\begin{array}{r} \text{h t o} \\ 139 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \\ -6 \\ \hline 18 \\ -18 \\ \hline 0 \end{array}$ <p>Multiply <math>9 \times 2 = 18</math>, write that 18 under the 18, and subtract to find the remainder of zero.</p>	$\begin{array}{r} \text{h t o} \\ 139 \\ 2 \overline{) 278} \\ -2 \\ \hline 07 \\ -6 \\ \hline 18 \\ -18 \\ \hline 0 \end{array}$ <p>There are no more digits to drop down. The quotient is 139.</p>