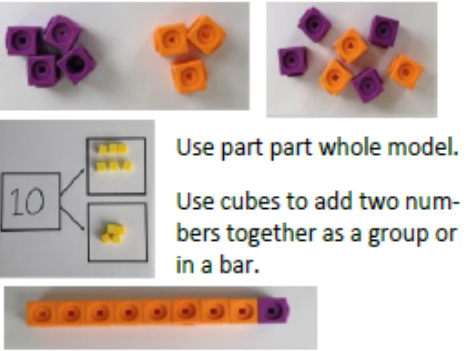
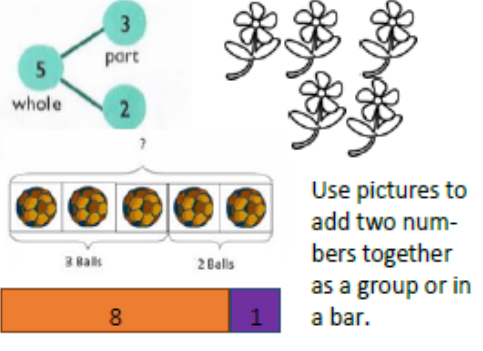
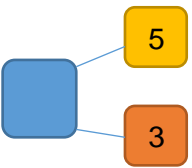

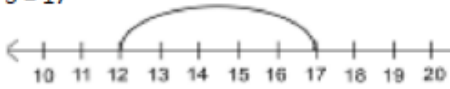
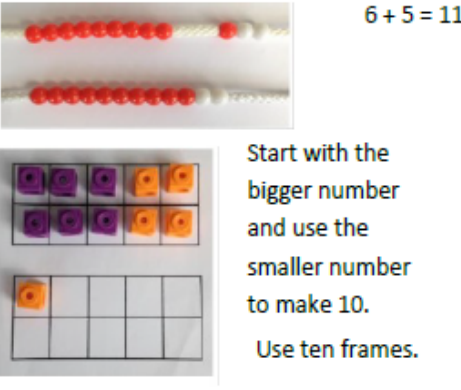
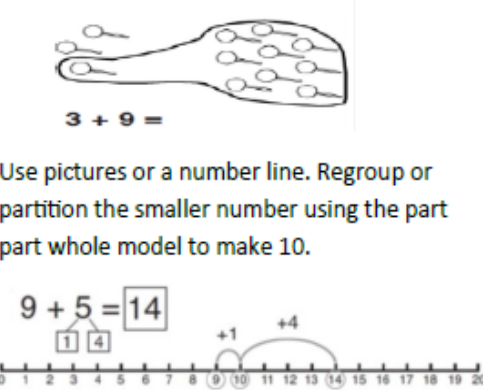

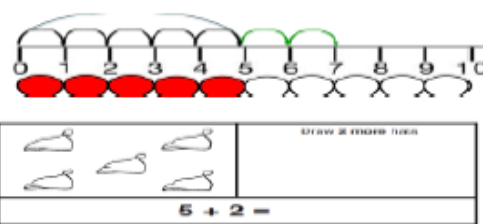
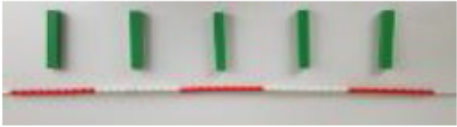

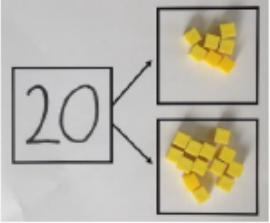
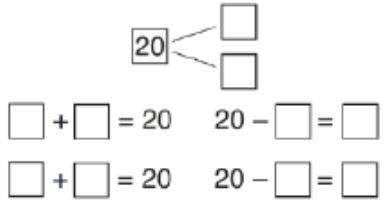
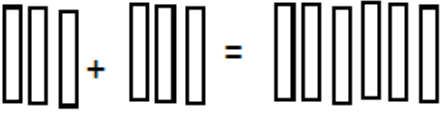
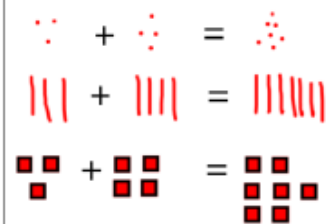





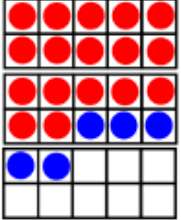
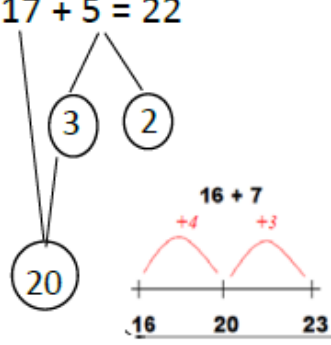
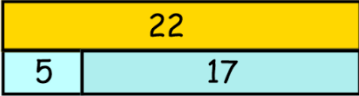

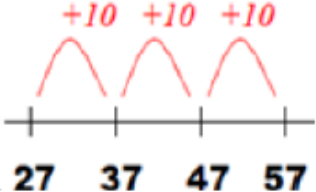

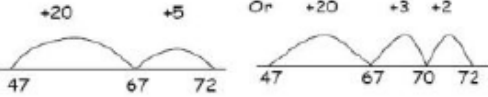
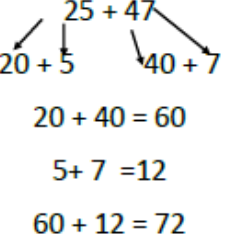

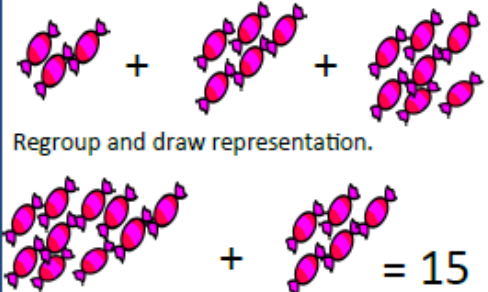
Y1 ADDITION +

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



Y2 ADDITION +

Objective & Strategy	Concrete	Pictorial	Abstract
Adding multiples of ten	$50 = 30 + 20$  Model using dienes and bead strings	 $3 \text{ tens} + 5 \text{ tens} = \underline{\quad} \text{ tens}$ $30 + 50 = \underline{\quad} \text{ tens}$ 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 facts	$\square\square + \square\square = \square\square\square\square$ 	 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	 $3 + 4 = 7$	 $7 + 3 = 10$	 $25 + 21 = 46$

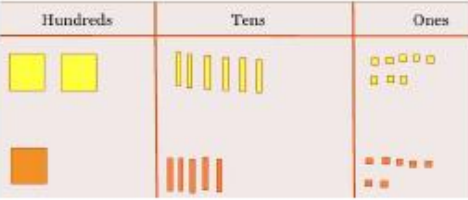
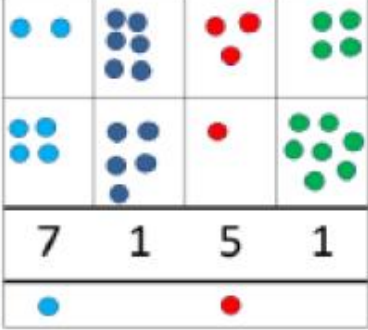
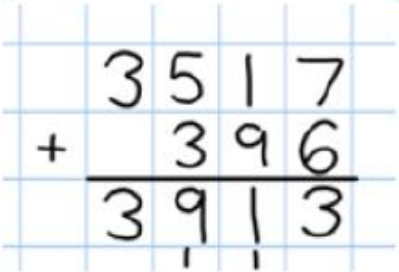
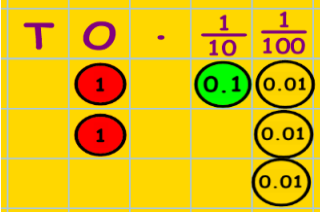
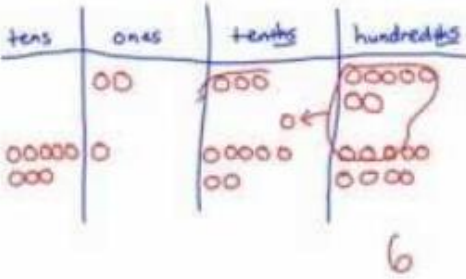

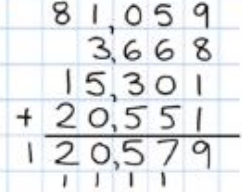

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Add a two digit number and ones</p>	 <p>$17 + 5 = 22$</p> <p>Use ten frame to make 'magic ten'</p> <p>Children explore the pattern.</p> <p>$17 + 5 = 22$</p> <p>$27 + 5 = 32$</p>	<p>Use part part whole and number line to model.</p> <p>$17 + 5 = 22$</p> 	<p>$17 + 5 = 22$</p> <p>Explore related facts</p> <p>$17 + 5 = 22$</p> <p>$5 + 17 = 22$</p> <p>$22 - 17 = 5$</p> <p>$22 - 5 = 17$</p> 
<p>Add a 2 digit number and tens</p>	 <p>$25 + 10 = 35$</p> <p>Explore that the ones digit does not change</p>	<p>$27 + 30$</p> 	<p>$27 + 10 = 37$</p> <p>$27 + 20 = 47$</p> <p>$27 + \square = 57$</p>
<p>Add two 2-digit numbers</p>	 <p>Model using dienes, place value counters and numicon</p>	 <p>Use number line and bridge ten using part whole if necessary.</p>	<p>$25 + 47$</p>  <p>$20 + 40 = 60$</p> <p>$5 + 7 = 12$</p> <p>$60 + 12 = 72$</p>
<p>Add three 1-digit numbers</p>	 <p>Combine to make 10 first if possible, or bridge 10 then add third digit</p>	<p>Regroup and draw representation.</p>  <p>$4 + 7 + 6 = 15$</p>	<p>$4 + 7 + 6 = 10 + 7$</p> <p>$10 + 7 = 17$</p> <p>Combine the two numbers that make/ bridge ten then add on the third.</p>

Y2 ADDITION +

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>7 9</p> <p>Calculations 21 + 42 = 21 + 42</p> <p>Move to using place value counters</p>	<p>Children move to drawing the counters using a tens and one frame.</p> <p>tens ones</p>	<table style="margin-left: auto; margin-right: auto;"> <tr><td>H</td><td>T</td><td>O</td></tr> <tr><td>2</td><td>2</td><td>3</td></tr> <tr><td colspan="3"><hr/></td></tr> <tr><td>+</td><td>1</td><td>1</td><td>4</td></tr> <tr><td colspan="3"><hr/></td></tr> <tr><td>3</td><td>3</td><td>7</td></tr> </table> <p>Add the ones first, then the tens, then the hundreds.</p>	H	T	O	2	2	3	<hr/>			+	1	1	4	<hr/>			3	3	7																								
H	T	O																																												
2	2	3																																												
<hr/>																																														
+	1	1	4																																											
<hr/>																																														
3	3	7																																												
<p>Column Addition with regrouping.</p>	<p>5 4</p> <p>Exchange ten ones for a ten. Model using Numicon and pv counters.</p> <p>Calculations 146 + 527</p>	<p>5 1</p> <p>Children can draw a representation of the grid to further support their understanding, carrying the ten <u>underneath</u> the line</p>	<table style="margin-left: auto; margin-right: auto;"> <tr><td>20</td><td>+</td><td>5</td><td></td></tr> <tr><td>40</td><td>+</td><td>8</td><td></td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td>60</td><td>+</td><td>13</td><td>= 73</td></tr> </table> <p>Start by partitioning the numbers before formal column to show the exchange.</p> <table style="margin-left: auto; margin-right: auto;"> <tr><td colspan="3">536 + 85</td></tr> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>5</td><td>3</td><td>6</td></tr> <tr><td>+</td><td></td><td>8</td><td>5</td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td></td><td>6</td><td>2</td><td>1</td></tr> <tr><td></td><td>1</td><td>1</td><td></td></tr> </table>	20	+	5		40	+	8		<hr/>				60	+	13	= 73	536 + 85				H	T	O		5	3	6	+		8	5	<hr/>					6	2	1		1	1	
20	+	5																																												
40	+	8																																												
<hr/>																																														
60	+	13	= 73																																											
536 + 85																																														
	H	T	O																																											
	5	3	6																																											
+		8	5																																											
<hr/>																																														
	6	2	1																																											
	1	1																																												

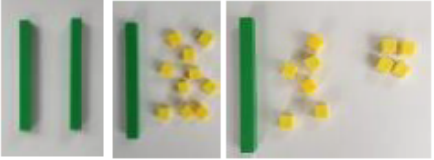
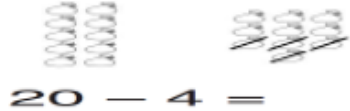

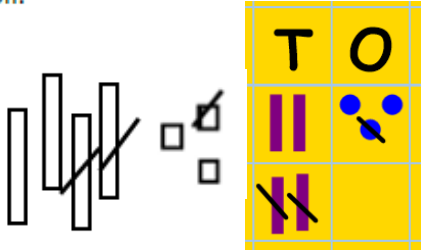
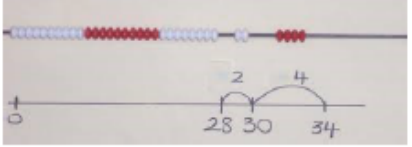
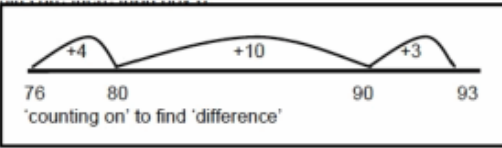
Y3 ADDITION +

Y4-6 ADDITION +

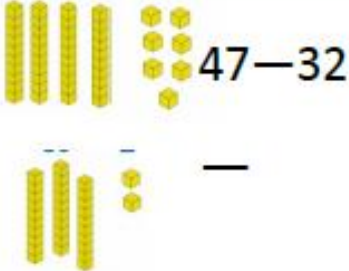
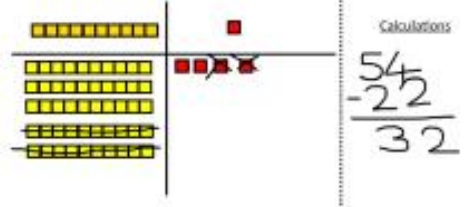
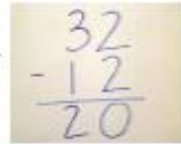
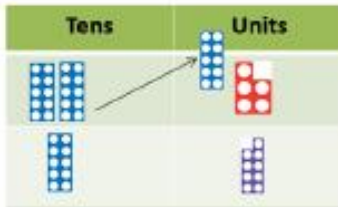
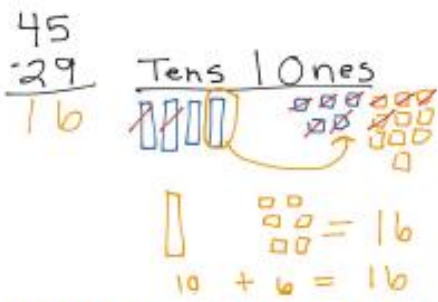


Objective & Strategy	Concrete	Pictorial	Abstract
<p>Y4—add numbers with up to 4 digits</p>	<p>Children continue to use base 10 or PV counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand.</p> 	 <p>Draw representations using pv grid.</p>	 <p>Continue from previous work to carry hundreds as well as tens. Relate to money and measures.</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</p>  <p>Introduce decimal place value counters and model exchange for addition.</p>	<p>2.37 + 81.79</p> 	<p>72.8</p> <p>+ 54.6</p> <p><u>127.4</u></p> <p>11</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 Y5</p>	<p>As Y5</p>	 <p>Insert zeros for place holders.</p> 

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Taking away ones.</p>	<p>Use physical objects, counters, cubes etc to show how objects can be taken away.</p>	<p>$15 - 3 = 12$</p> <p>Cross out drawn objects to show what has been taken away.</p>	<p>$7 - 4 = 3$</p> <p>$16 - 9 = 7$</p>
<p>Counting back</p>	<p>Move objects away from the group, counting backwards.</p> <p>Move the beads along the bead string as you count backwards.</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>
<p>Find the Difference</p>	<p>Compare objects and amounts</p> <p>'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>Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister.?</p>

Y1 SUBTRACTION -

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Regroup a ten into ten ones</p>	 <p>Use a PV chart to show how to change a ten into ten ones, use the term 'take and make'</p>	 $20 - 4 =$	$20 - 4 = 16$
<p>Partitioning to subtract without regrouping.</p> <p><i>'Friendly numbers'</i></p>	<p>$34 - 13 = 21$</p>  <p>Use Dienes to show how to partition the number when subtracting without regrouping.</p>	<p>Children draw representations of Dienes and cross off.</p>  $43 - 21 = 22$	$43 - 21 = 22$
<p>Make ten strategy</p> <p><i>Progression should be crossing one ten, crossing more than one ten, crossing the hundreds.</i></p>	 <p>$34 - 28$</p> <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 -

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Column subtraction without regrouping (friendly numbers)</p>	 <p>47-32</p> <p>Use base 10 or Numicon to model</p>	 <p>Calculations</p> $\begin{array}{r} 47 \\ - 32 \\ \hline 15 \\ - 22 \\ \hline 32 \end{array}$ <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> 
<p>Column subtraction with regrouping</p>	 <p>Tens Units</p> <p>Begin with base 10 or Numicon. Move to pv counters, modelling the exchange of a ten into ten ones. Use the phrase 'take and make' for exchange.</p>	 <p>45 -29 --- 16</p> <p>Tens Ones</p> <p>Children may draw base ten or PV counters and cross off.</p>	 $836 - 254 = 582$ <p>Begin by partitioning into pv columns</p>  $728 - 582 = 146$ <p>Then move to formal method.</p>

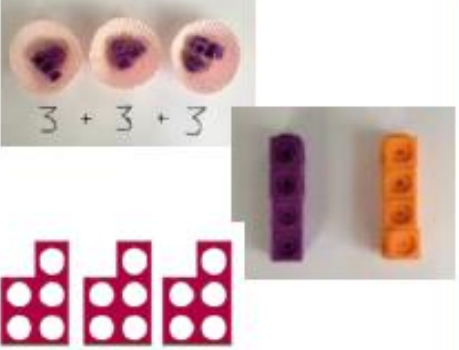
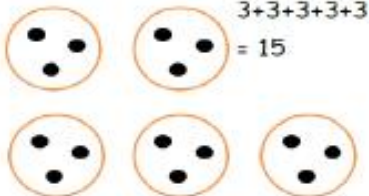
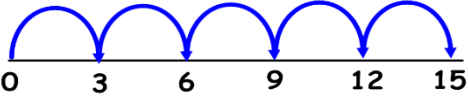

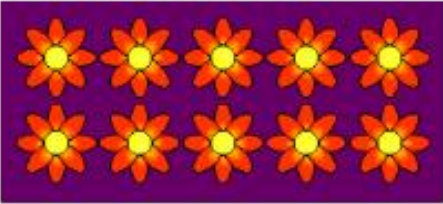
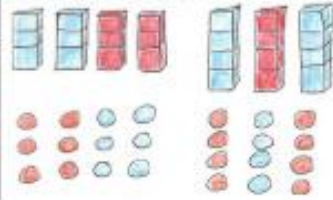
Y3 SUBTRACTION -

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Subtracting tens and ones</p> <p>Year 4 subtract with up to 4 digits.</p> <p><i>Introduce decimal subtraction through context of money</i></p>	<p>234 - 179</p> <p>Model process of exchange using Numicon, base ten and then move to PV counters.</p>	<p>Children to draw pv counters and show their exchange—see Y3</p> <p>143 - 26</p>	<p>Use the phrase 'take and make' for exchange</p>
<p>Year 5- Subtract with at least 4 digits, including money and measures.</p> <p><i>Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal</i></p>	<p>As Year 4</p>	<p>Children to draw pv counters and show their exchange—see Y3</p>	<p>Use zeros for place-holders.</p>
<p>Year 6—Subtract with increasingly large and more complex numbers and decimal values.</p>			

Y4-6 SUBTRACTION -

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Doubling</p>	<p>Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling</p> <p>double 4 is 8 $4 \times 2 = 8$</p>	<p>Draw pictures to show how to double numbers</p> <p>Double 4 is 8</p>	<p>Partition a number and then double each part before recombining it back together.</p>
<p>Counting in multiples</p>	<p>Count the groups as children are skip counting, children may use their fingers as they are skip counting.</p>	<p>Children make representations to show counting in multiples.</p>	<p>Count in multiples of a number aloud.</p> <p>Write sequences with multiples of numbers.</p> <p>2, 4, 6, 8, 10</p> <p>5, 10, 15, 20, 25, 30</p>
<p>Making equal groups and counting the total</p>	<p>$\square \times \square = 8$</p> <p>Use manipulatives to create equal groups.</p>	<p>Draw to show $2 \times 3 = 6$</p> <p>Draw and make representations</p>	<p>$2 \times 4 = 8$</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Children should still be drawing pictorial to support their understanding.</p> </div>

Y1 MULTIPLICATION X

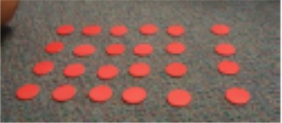


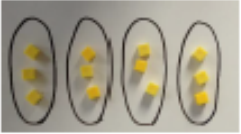

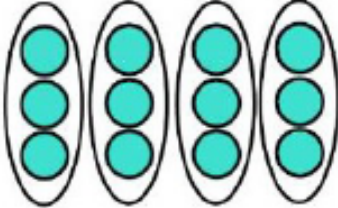
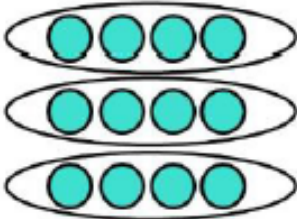


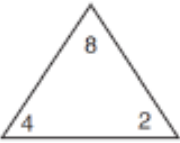
Objective & Strategy	Concrete	Pictorial	Abstract
Repeated addition	 <p>Use different objects to add equal groups</p>	<p>Use pictorial including number lines to solve prob</p> <p>There are 3 sweets in one bag. How many sweets are in 5 bags altogether?</p>  	<p>Write addition sentences to describe objects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

Y1 MULTIPLICATION X

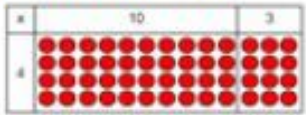
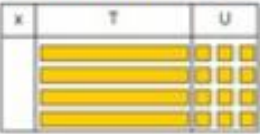

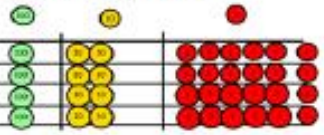
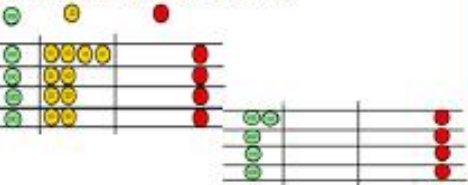
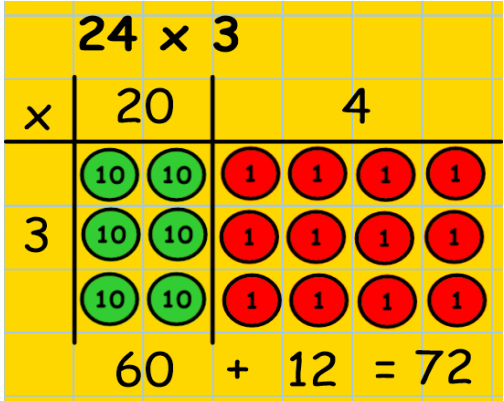
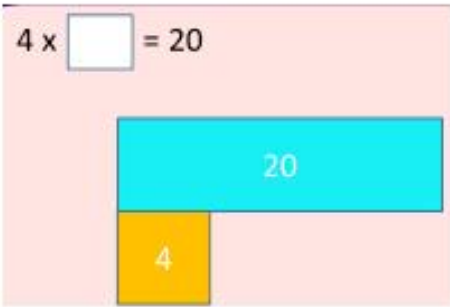
Y2 MULTIPLICATION X

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Doubling</p>	<p>Model doubling using dienes and PV counters.</p> <p>$40 + 12 = 52$</p>	<p>Draw pictures and representations to show how to double numbers</p>	<p>Partition a number and then double each part before recombining it back together.</p> <p>$20 + 12 = 32$</p>
<p>Counting in multiples of 2, 3, 4, 5, 10 from 0 (repeated addition)</p>	<p>Count the groups as children are skip counting, children may use their fingers as they are skip counting. Use bar models.</p> <p>$5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$</p>	<p>Number lines, counting sticks and bar models should be used to show representation of counting in multiples.</p>	<p>Count in multiples of a number aloud.</p> <p>Write sequences with multiples of numbers.</p> <p>0, 2, 4, 6, 8, 10 0, 3, 6, 9, 12, 15 0, 5, 10, 15, 20, 25, 30</p> <p>$4 \times 3 = \square$</p>

Y2 MULTIPLICATION X

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Multiplication is commutative</p>	<p>Create arrays using counters and cubes and Numicon.</p>    <p>Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer.</p>  	<p>Use representations of arrays to show different calculations and explore commutativity.</p>  	<p>$12 = 3 \times 4$ $12 = 4 \times 3$</p> <p>Use an array to write multiplication sentences and reinforce repeated addition.</p>  <p>$5 + 5 + 5 = 15$ $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ $3 \times 5 = 15$</p>
<p>Using the Inverse <i>This should be taught alongside division, so pupils learn how they work alongside each other.</i></p>		 <p><input type="checkbox"/> \times <input type="checkbox"/> = <input type="checkbox"/></p> <p><input type="checkbox"/> \times <input type="checkbox"/> = <input type="checkbox"/></p> <p><input type="checkbox"/> \div <input type="checkbox"/> = <input type="checkbox"/></p> <p><input type="checkbox"/> \div <input type="checkbox"/> = <input type="checkbox"/></p>	<p>$2 \times 4 = 8$ $4 \times 2 = 8$ $8 \div 2 = 4$ $8 \div 4 = 2$ $8 = 2 \times 4$ $8 = 4 \times 2$ $2 = 8 \div 4$ $4 = 8 \div 2$</p> <p>Show all 8 related fact family sentences.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Pupils should understand that these numbers represent the <u>number of groups</u>, the <u>number in each group</u> and the <u>total number</u>.</p> </div>

Y3 MULTIPLICATION X

Objective & Strategy	Concrete	Pictorial	Abstract															
<p>Grid method</p>	<p>Show the links with arrays to first introduce the grid method</p>  <p>4 rows of 10 4 rows of 3</p> <p>Move onto base ten to move towards a more compact method.</p>  <p>4 rows of 13</p> <p>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</p>  <p>Calculations 4×126</p> <p>Fill each row with 126</p>  <p>Calculations 4×126</p> <p>Add up each column, starting with the ones making any exchanges needed</p>  <p>Then you have your answer.</p>	<p>Children can represent their work with place value counters in a way that they understand.</p> <p>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.</p>  <p>Bar model are used to explore missing numbers</p> 	<p>Start with multiplying by one digit numbers and showing the clear addition alongside the grid.</p> <table border="1" data-bbox="1518 399 1836 494"> <tr> <td>x</td> <td>30</td> <td>5</td> </tr> <tr> <td>7</td> <td>210</td> <td>35</td> </tr> </table> <p>$210 + 35 = 245$</p> <p>Moving forward, multiply by a 2 digit number showing the different rows within the grid method.</p> <table border="1" data-bbox="1523 788 1827 986"> <tr> <td></td> <td>10</td> <td>8</td> </tr> <tr> <td>10</td> <td>100</td> <td>80</td> </tr> <tr> <td>3</td> <td>30</td> <td>24</td> </tr> </table>	x	30	5	7	210	35		10	8	10	100	80	3	30	24
x	30	5																
7	210	35																
	10	8																
10	100	80																
3	30	24																

Y5-6 MULTIPLICATION X

Objective & Strategy	Concrete	Pictorial	Abstract																																																																		
<p>Column Multiplication for 3 and 4 digits x 1 digit.</p>	<table border="1" style="display: inline-table; margin-right: 10px;"> <tr> <th style="background-color: red; color: white;">Hundreds</th> <th style="background-color: green; color: white;">Tens</th> <th style="background-color: blue; color: white;">Ones</th> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </table> <p>It is important at this stage that they always multiply the ones first.</p> <p>Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. $321 \times 2 = 642$</p>	Hundreds	Tens	Ones													<table border="1" style="display: inline-table; margin-right: 20px;"> <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>	x	300	20	7	4	1200	80	28	<table style="margin-left: 20px;"> <tr><td>327</td></tr> <tr><td>x 4</td></tr> <tr><td>-----</td></tr> <tr><td>28</td></tr> <tr><td>80</td></tr> <tr><td>1200</td></tr> <tr><td>-----</td></tr> <tr><td>1308</td></tr> </table> <table border="1" style="margin-left: 20px; width: 100px;"> <tr><td>3</td><td>2</td><td>7</td></tr> <tr><td>x</td><td></td><td>4</td></tr> <tr><td>-----</td><td></td><td></td></tr> <tr><td>1</td><td>3</td><td>0</td><td>8</td></tr> <tr><td></td><td>1</td><td>2</td><td></td></tr> </table> <p>This will lead to a compact method.</p>	327	x 4	-----	28	80	1200	-----	1308	3	2	7	x		4	-----			1	3	0	8		1	2																			
Hundreds	Tens	Ones																																																																			
x	300	20	7																																																																		
4	1200	80	28																																																																		
327																																																																					
x 4																																																																					

28																																																																					
80																																																																					
1200																																																																					

1308																																																																					
3	2	7																																																																			
x		4																																																																			


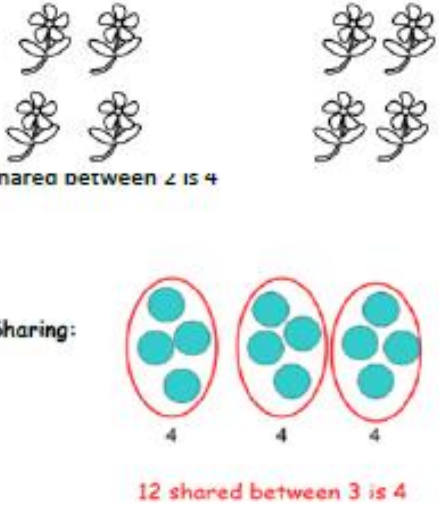
1	3	0	8																																																																		
	1	2																																																																			
<p>Column multiplication</p>	<p>Manipulatives may still be used with the corresponding long multiplication modelled alongside.</p>	<table border="1" style="display: inline-table; margin-right: 20px;"> <tr> <td></td> <td>10</td> <td>8</td> </tr> <tr> <td>10</td> <td>100</td> <td>80</td> </tr> <tr> <td>3</td> <td>30</td> <td>24</td> </tr> </table> <p>Continue to use bar modelling to support problem solving</p>		10	8	10	100	80	3	30	24	<table border="1" style="display: inline-table; margin-right: 20px;"> <tr><td></td><td>1</td><td>8</td></tr> <tr><td>x</td><td>1</td><td>3</td></tr> <tr><td>-----</td><td></td><td></td></tr> <tr><td></td><td>5</td><td>4</td></tr> <tr><td></td><td>2</td><td></td></tr> <tr><td>1</td><td>8</td><td>0</td></tr> <tr><td>-----</td><td></td><td></td></tr> <tr><td>2</td><td>3</td><td>4</td></tr> </table> <p>18 x 3 on the first row (8 x 3 = 24, carrying the 2 for 20, then 1 x 3) 18 x 10 on the 2nd row. Show multiplying by 10 by putting zero in units first</p> <table border="1" style="margin-left: 20px;"> <tr><td>1</td><td>2</td><td>3</td><td>4</td></tr> <tr><td>x</td><td></td><td>1</td><td>6</td></tr> <tr><td>-----</td><td></td><td></td><td></td></tr> <tr><td>7</td><td>4</td><td>0</td><td>4</td></tr> <tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>0</td></tr> <tr><td>-----</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>1</td><td>9</td><td>7</td><td>4</td><td>4</td></tr> </table> <p>(1234 x 6) (1234 x 10)</p>		1	8	x	1	3	-----				5	4		2		1	8	0	-----			2	3	4	1	2	3	4	x		1	6	-----				7	4	0	4		1	2	3	4	0	-----						1	9	7	4	4
	10	8																																																																			
10	100	80																																																																			
3	30	24																																																																			
	1	8																																																																			
x	1	3																																																																			

	5	4																																																																			
	2																																																																				
1	8	0																																																																			

2	3	4																																																																			
1	2	3	4																																																																		
x		1	6																																																																		

7	4	0	4																																																																		
	1	2	3	4	0																																																																

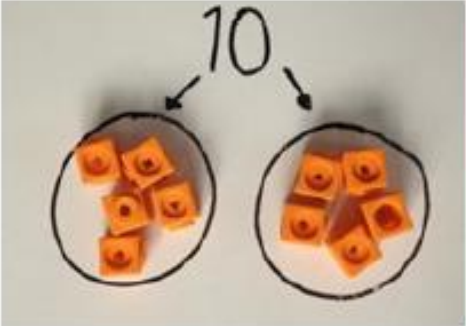

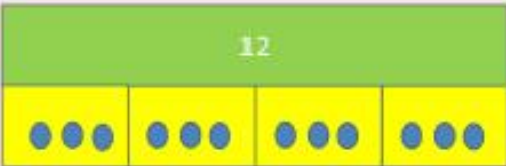
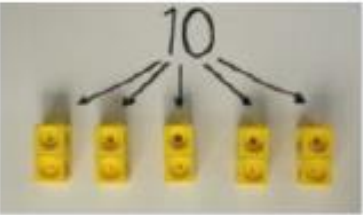
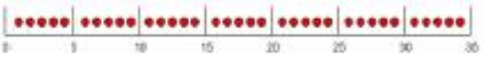
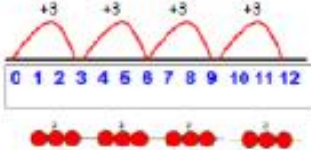

1	9	7	4	4																																																																	

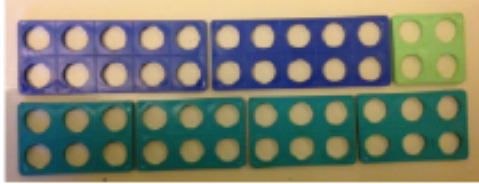

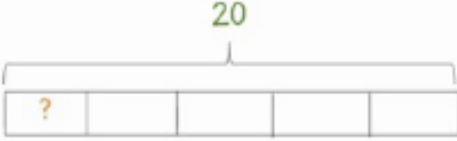
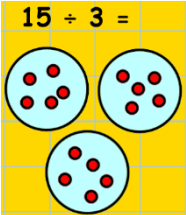

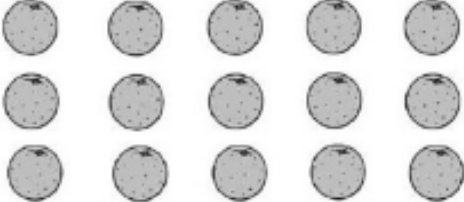
Objective & Strategy	Concrete	Pictorial	Abstract
<p>Division as sharing</p>	 <p>I have 10 cubes, can you share them equally in 2 groups?</p>	<p>Children use pictures or shapes to share quantities.</p>  <p>8 shared between 2 is 4</p> <p>Sharing:</p> <p>12 shared between 3 is 4</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>It is important that children understand what a group is and what is being counted within the group.</p> </div>	<p>12 shared between 3 is</p> <p style="text-align: center;">4</p>

Y1 DIVISION ÷

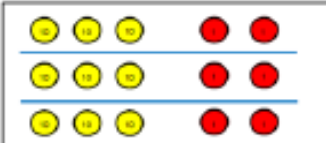

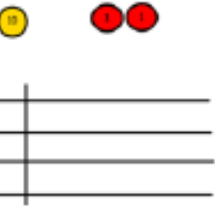
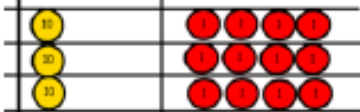
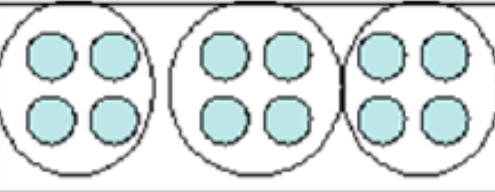
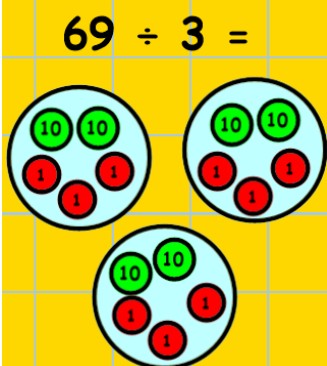
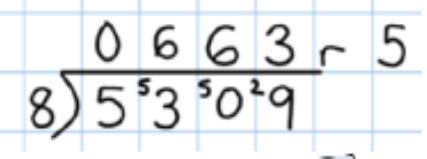
Y2

DIVISION ÷

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Division as sharing</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>  $8 \div 2 = 4$ <p>Children use bar modelling to show and support understanding.</p>  <p>$12 \div 4 = 3$</p>	$12 \div 3 = 4$
<p>Division as grouping</p>	<p>Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.</p>  	<p>Use number lines for grouping</p>  $12 \div 3 = 4$ <p>Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group.</p>  $20 \div 5 = ?$ $5 \times ? = 20$	$28 \div 7 = 4$ <p>Divide 28 into 7 groups. How many are in each group?</p>

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Division as grouping</p>	<p>Use cubes, counters, objects or place value counters to aid understanding.</p>  <p>24 divided into groups of 6 = 4</p> $96 \div 3 = 32$ 	<p>Continue to use bar modelling to aid solving division problems.</p>  $20 \div 5 = ?$ $5 \times ? = 20$  <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>A total of 15 is shared equally between 3 groups.</p> </div>	<p>How many groups of 6 in 24?</p> $24 \div 6 = 4$
<p>Division with arrays</p>	 <p>Link division to multiplication by creating an array and thinking about the number sentences that can be created.</p> <p>Eg $15 \div 3 = 5$ $5 \times 3 = 15$</p> <p> $15 \div 5 = 3$ $3 \times 5 = 15$</p>	<p>Draw an array and use lines to split the array into groups to make multiplication and division sentences</p> 	<p>Find the inverse of multiplication and division sentences by creating eight linking number sentences.</p> $7 \times 4 = 28$ $4 \times 7 = 28$ $28 \div 7 = 4$ $28 \div 4 = 7$ $28 = 7 \times 4$ $28 = 4 \times 7$ $4 = 28 \div 7$ $7 = 28 \div 4$

Y3 DIVISION ÷

Objective & Strategy	Concrete	Pictorial	Abstract
<p>Divide at least 3 digit numbers by 1 digit.</p> <p>Short Division</p>	<p>$96 \div 3$</p> <p>Tens Units</p> <p>3 2</p>  <p>Use place value counters to divide using the bus stop method alongside</p>  <p>42 ÷ 3 =</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>	<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>  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Children sharing out different PV counters to divide larger numbers.</p> </div>	<p>Begin with divisions that divide equally with no remainder.</p> $\begin{array}{r} 218 \\ 3 \overline{) 654} \end{array}$ <p>Move onto divisions with a remainder.</p> $\begin{array}{r} 86 \text{ r } 2 \\ 3 \overline{) 432} \end{array}$ <p>Finally move into decimal places to divide the total accurately.</p> $\begin{array}{r} 14.6 \\ 35 \overline{) 511.0} \end{array}$ 

Y4-6 DIVISION ÷

Long 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

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



Long Division

Step 2—a remainder in the tens

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{4} \\ 18 \end{array}$ <p>Two goes into 5 two times, or 5 tens $\div 2 = 2$ whole tens -- but there is a remainder!</p>	$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{-4} \\ 18 \end{array}$ <p>To find it, multiply $2 \times 2 = 4$, write that 4 under the five, and subtract to find the remainder of 1 ten.</p>	$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{-4} \\ 18 \end{array}$ <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.
$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{-4} \\ 18 \end{array}$ <p>Divide 2 into 18. Place 9 into the quotient.</p>	$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{-4} \\ 18 \\ \underline{-18} \\ 0 \end{array}$ <p>Multiply $9 \times 2 = 18$, write that 18 under the 18, and subtract.</p>	$\begin{array}{r} \text{t o} \\ 2 \overline{) 58} \\ \underline{-4} \\ 18 \\ \underline{-18} \\ 0 \end{array}$ <p>The division is over since there are no more digits in the dividend. The quotient is 29.</p>

Y6
DIVISION
÷



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

Y6
DIVISION
÷



Long Division

Y6

DIVISION ÷

Factorisation

Used to divide when the divisor is a composite number.

$1422 \div 18$

Factors of 18 are 3 and 6. Divide by one of the factors first. Then, take the answer and divide by the other factor.

1422 ÷ 18

6 3

237

6 | 1422

79

3 | 237

The answer is 79.

Chunking

Used to divide when the divisor is a prime number.

$609 \div 29$

Children use their knowledge of division being repeated subtraction. Initially, they subtract larger multiples of the divisor (x10 or x100).

609 ÷ 29

5 ~~6~~ 10 9

- 2 9 0

10 x 29 subtracted

2 ~~3~~ 11 9

- 2 9 0

10 x 29 subtracted

0 2 9

- 2 9

1 x 29 subtracted

0 0

Children record the total number of 29 they have subtracted.

In total 21 lots of 29 have been subtracted.