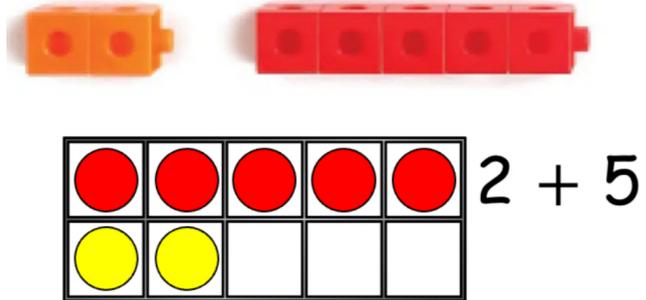
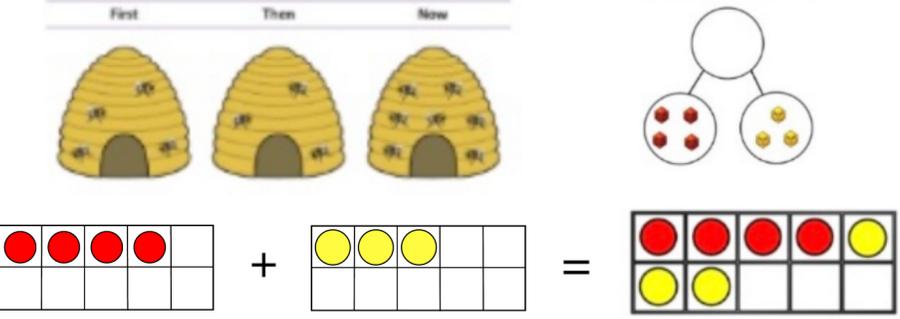
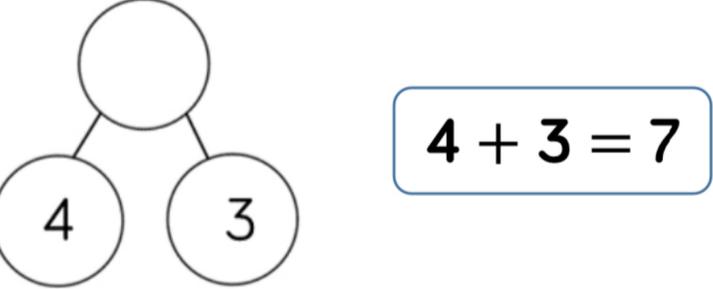
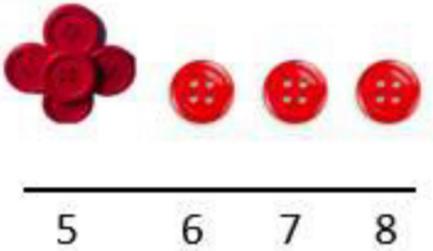
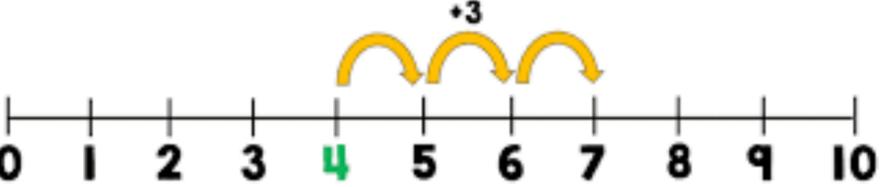
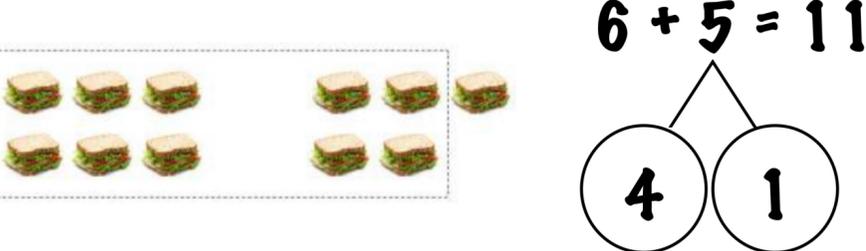




Knutton St. Mary's Academy

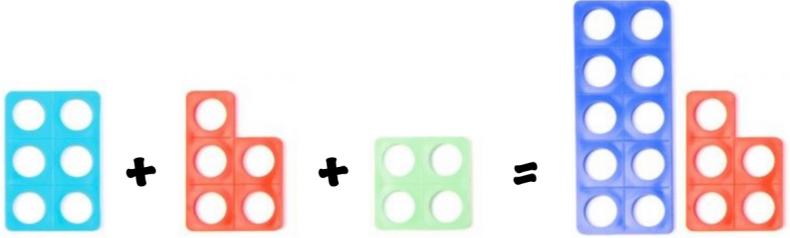
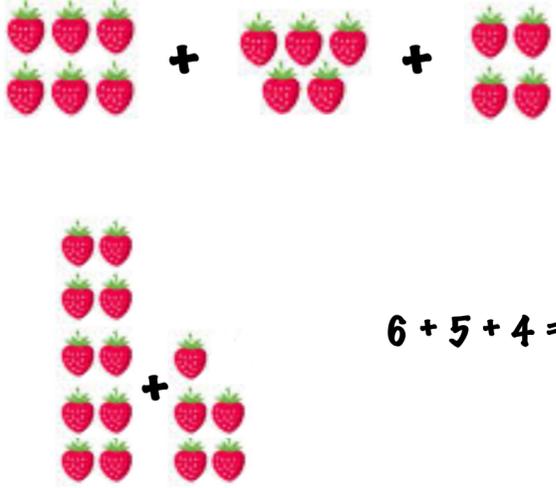
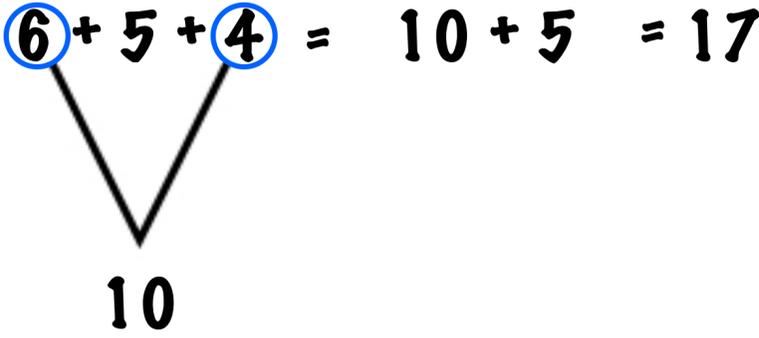
Calculation Policy

Year 1 Addition

Objective	Concrete	Pictorial	Abstract
Number bonds	<p>Use concrete objects to add 2 numbers together</p> 	<p>Use pictures to add 2 numbers together as a group or bar</p> 	<p>Use part - part- whole model to move into abstract</p> 
Counting	<p>Start with larger number and count on to find the answer</p> 	<p>Use a number line to count on in ones</p> 	<p>4 + 3 = 7</p>
Regrouping to make 10	<p>Start with the bigger number and use the smaller number to make 10</p> 		<p>6 + 5 = 11</p>

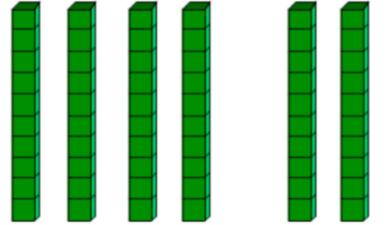
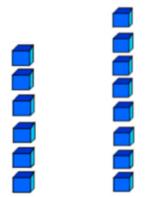
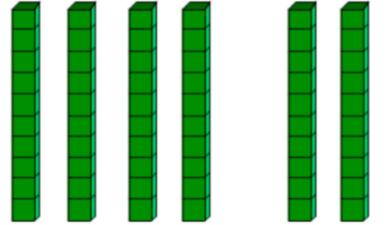
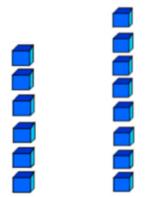
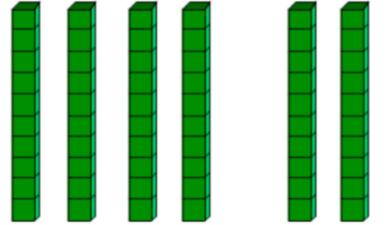
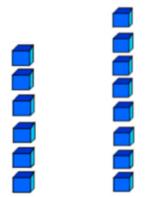
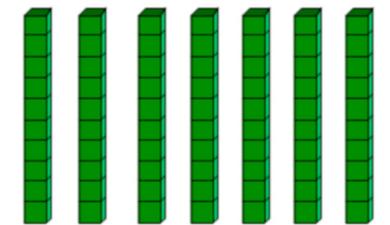
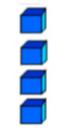
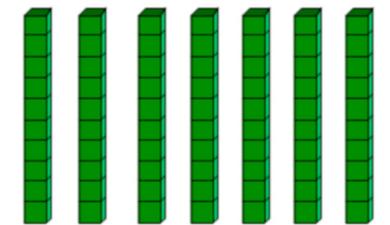
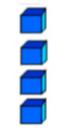
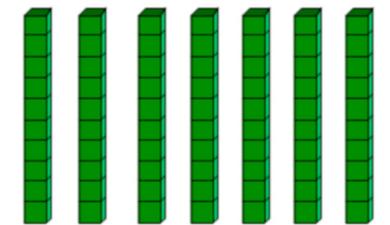
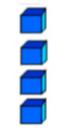
Year 2 Addition



Objective	Concrete	Pictorial	Abstract																												
<p>Adding 3 single digit numbers</p>	<p>If possible, identify number bond to 10 and then add third digit</p>  $6 + 5 + 4 = 15$	<p>Regroup to make 10 and draw representation</p>  $6 + 5 + 4 = 15$	<p>Combine the 2 digits that make 10 and then add the third digit</p>  $6 + 5 + 4 = 10 + 5 = 17$																												
<p>Column method without regrouping</p>	<p>Add together the ones first and then add the tens. Use base 10 before moving onto place value counters.</p> <p>$34 + 22 = 56$</p> <table border="1" data-bbox="969 1290 1269 1765"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Tens	Ones							<p>Draw counters to help solve additions</p> $34 + 22 = 56$ <table border="1" data-bbox="1586 1365 2152 1778"> <thead> <tr> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>000</td> <td>0000</td> </tr> <tr> <td>00</td> <td>00</td> </tr> <tr> <td>50</td> <td>6</td> </tr> </tbody> </table>	Tens	Ones	000	0000	00	00	50	6	$34 + 22 = 56$ <table border="1" data-bbox="2558 1309 2902 1759"> <tbody> <tr> <td></td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>3</td> <td>4</td> </tr> <tr> <td>+</td> <td>2</td> <td>2</td> </tr> <tr> <td></td> <td>5</td> <td>6</td> </tr> </tbody> </table>		T	O		3	4	+	2	2		5	6
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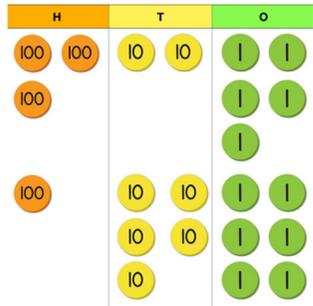
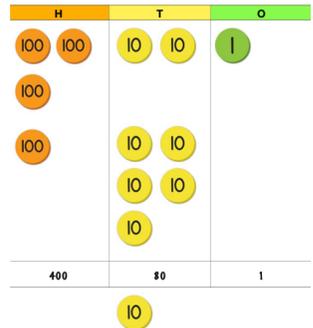
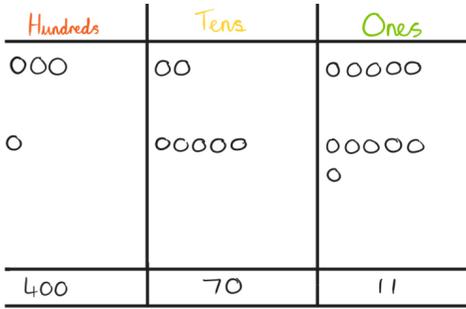
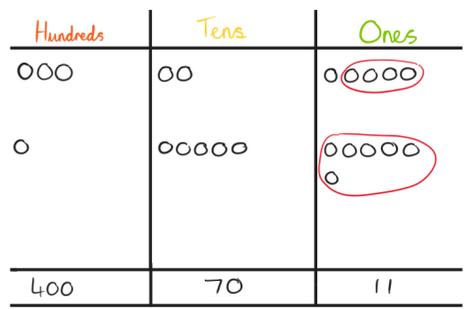


Year 2 Addition

Objective	Concrete	Pictorial	Abstract																																				
<p>Column method with regrouping</p>	<p>Make both numbers on a place value grid.</p> <p style="text-align: center;">$46 + 28 = ?$</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #90EE90; text-align: center;">Tens</td> <td style="background-color: #ADD8E6; text-align: center;">Ones</td> </tr> <tr> <td style="text-align: center;">  </td> <td style="text-align: center;">  </td> </tr> </table>	Tens	Ones			<p>Children can draw place value counters to help them exchange 10 ones for 1 ten</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; color: green;">Tens</td> <td style="text-align: center; color: blue;">Ones</td> </tr> <tr> <td style="text-align: center;">0000</td> <td style="text-align: center;">000 000</td> </tr> <tr> <td style="text-align: center;">00</td> <td style="text-align: center;">0000 0000</td> </tr> <tr> <td style="border-top: 1px solid black; text-align: center;">60</td> <td style="border-top: 1px solid black; text-align: center;">14</td> </tr> </table> <p style="text-align: center;">$46 + 28 = ?$</p>	Tens	Ones	0000	000 000	00	0000 0000	60	14	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">0</td> <td style="text-align: center;">+</td> <td style="text-align: center;">6</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">+</td> <td style="text-align: center;">8</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">0</td> <td style="text-align: center;">+</td> <td style="text-align: center;">1</td> <td style="text-align: center;">4</td> <td style="text-align: center;">=</td> <td style="text-align: center;">7</td> <td style="text-align: center;">4</td> </tr> </table>	4	0	+	6					2	0	+	8					6	0	+	1	4	=	7	4
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Lower KS2 Addition

Objective	Concrete	Pictorial	Abstract																																																								
<p>Column method with regrouping</p>	<p>Make both numbers on a place value grid.</p> <p>$325 + 156 = ?$</p>  <p>Add the ones and then exchange 10 ones for 1 ten.</p>  <p>Place the 1 ten underneath</p> <p>$400 + 80 + 1 = 481$</p> <p>Year 4 children will progress to 4 digit numbers.</p> <p>When adding decimals and money, decimal place value counters can be used to support learning.</p>	<p>Draw pictorial representations of a place value grid and counters</p> <p>$325 + 156 = ?$</p>  <p>Exchange 10 ones for 1 ten</p>  <p>Place the 1 ten underneath</p> <p>$400 + 80 + 1 = 481$</p> <p>When adding money, pounds and pence need to be added separately.</p>	<table border="1" data-bbox="2325 615 3125 900"> <tr><td>3</td><td>0</td><td>0</td><td>+</td><td>2</td><td>0</td><td>+</td><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>1</td><td>0</td><td>0</td><td>+</td><td>5</td><td>0</td><td>+</td><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td>0</td><td>0</td><td>+</td><td>8</td><td>0</td><td>+</td><td>1</td><td>=</td><td>4</td><td>8</td><td>1</td></tr> </table> <p>As children progress, they will move from the expanded method to formal method.</p> <table border="1" data-bbox="2499 1134 2958 1679"> <tr><td></td><td>H</td><td>T</td><td>O</td></tr> <tr><td></td><td>3</td><td>2</td><td>5</td></tr> <tr><td></td><td>1</td><td>5</td><td>6</td></tr> <tr><td>+</td><td>4</td><td>8</td><td>1</td></tr> <tr><td></td><td></td><td>1</td><td></td></tr> </table>	3	0	0	+	2	0	+	5					1	0	0	+	5	0	+	6					4	0	0	+	8	0	+	1	=	4	8	1		H	T	O		3	2	5		1	5	6	+	4	8	1			1	
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Lower KS2 Addition



Objective	Concrete	Pictorial	Abstract
<p>Column method with regrouping</p>	<p>Children continue to use base 10 and place value counters.</p> <p>$2713 + 2539 = ?$</p>	<p>Draw pictorial representations of a place value grid and counters.</p> <p>$2713 + 2539 = ?$</p>	
	<p>Show the necessary exchanges by placing the counter underneath.</p> <p>$5000 + 200 + 50 + 2 = 5252$</p>	<p>Show the necessary exchanges by placing the counter underneath.</p> <p>$5000 + 200 + 50 + 2 = 5252$</p>	<p>Relate to money and measures.</p>

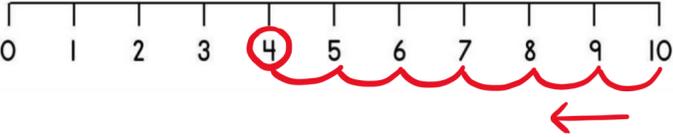
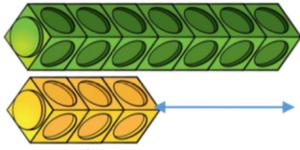
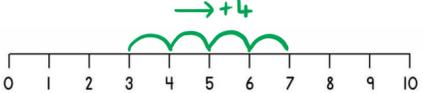
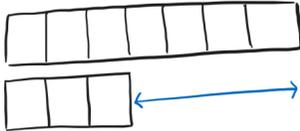


Upper KS2 Addition

Objective	Concrete	Pictorial	Abstract																																																																													
<p>Column method with regrouping</p>	<p>Consolidate understanding using numbers with more than 4 digits and extend numbers with up to 3 decimal places.</p> <p>$37.38 + 15.13 = ?$</p> <p>Show the necessary exchanges by placing the counter underneath.</p> <p>$50 + 2 + 0.5 + 0.01 = 52.51$</p>	<p>$37.38 + 15.13 = ?$</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Tens</th> <th>Ones</th> <th>Tenths</th> <th>Hundredths</th> </tr> </thead> <tbody> <tr> <td>000</td> <td>0000</td> <td>000</td> <td>0000</td> </tr> <tr> <td>0</td> <td>0000</td> <td>0</td> <td>000</td> </tr> <tr> <td>40</td> <td>12</td> <td>0.4</td> <td>0.11</td> </tr> </tbody> </table> <p>Show the necessary exchanges by placing the counter underneath.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Tens</th> <th>Ones</th> <th>Tenths</th> <th>Hundredths</th> </tr> </thead> <tbody> <tr> <td>000</td> <td>0000</td> <td>000</td> <td>0000</td> </tr> <tr> <td>0</td> <td>0000</td> <td>0</td> <td>000</td> </tr> <tr> <td>40</td> <td>12</td> <td>0.4</td> <td>0.11</td> </tr> </tbody> </table> <p>Show the necessary exchanges by placing the counter underneath.</p> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th>Tens</th> <th>Ones</th> <th>Tenths</th> <th>Hundredths</th> </tr> </thead> <tbody> <tr> <td>000</td> <td>0000</td> <td>000</td> <td>0000</td> </tr> <tr> <td>0</td> <td>0000</td> <td>0</td> <td>000</td> </tr> <tr> <td>50</td> <td>2</td> <td>0.5</td> <td>0.01</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>$50 + 2 + 0.5 + 0.01 = 52.51$</p>	Tens	Ones	Tenths	Hundredths	000	0000	000	0000	0	0000	0	000	40	12	0.4	0.11	Tens	Ones	Tenths	Hundredths	000	0000	000	0000	0	0000	0	000	40	12	0.4	0.11	Tens	Ones	Tenths	Hundredths	000	0000	000	0000	0	0000	0	000	50	2	0.5	0.01	0	0	0	0	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th></th> <th>T</th> <th>O</th> <th>Tth</th> <th>Hth</th> </tr> </thead> <tbody> <tr> <td></td> <td>3</td> <td>7</td> <td>3</td> <td>8</td> </tr> <tr> <td>+</td> <td>1</td> <td>5</td> <td>1</td> <td>3</td> </tr> <tr> <td></td> <td>5</td> <td>2</td> <td>5</td> <td>1</td> </tr> <tr> <td></td> <td>1</td> <td></td> <td>1</td> <td></td> </tr> </tbody> </table>		T	O	Tth	Hth		3	7	3	8	+	1	5	1	3		5	2	5	1		1		1	
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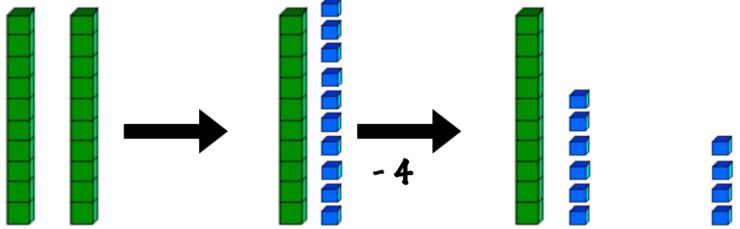
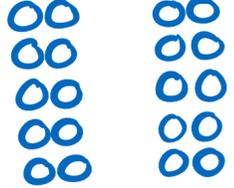
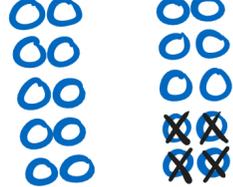
Year 1 Subtraction



Objective	Concrete	Pictorial	Abstract
Taking away ones	<p>Use concrete objects to show how objects can be taken away.</p> <p>$6 - 2 = 4$</p> 	<p>Draw total amount of objects.</p>  <p>Cross out objects to show what has been taken away.</p> 	<p>$6 - 2 = 4$</p>
Counting back	<p>Make the larger number. Move the beads along the string and count backwards in ones.</p> <p>$10 - 6 = 4$</p> 	<p>Count back on a number line.</p> <p>$10 - 6 = 4$</p>  <p>Start at the bigger number and count back to the smaller number. Jumps to be shown underneath the number line.</p>	<p>Put the bigger number in your head and count back the number being taken away.</p> <p>What number did you get to?</p>
Find the difference	<p>Compare amounts and objects to find the difference.</p> <p>7</p>  <p>3</p> <p>Use cubes to build bars to find the difference. Use basic bar models with items to find the difference.</p>	<p>Count on to find the difference.</p>  <p>Draw bar models to find the difference between 2 numbers.</p> 	<p>George has 3 stickers. Emily has 7 stickers.</p> <p>Find the difference between the number of stickers that the children have.</p>



Year 1 Subtraction

Objective	Concrete	Pictorial	Abstract
Regroup a ten into ones	<p>Use base 10 to show how to exchange a ten into ten ones. Then continue with the subtraction. $20 - 4 = 16$</p> 	<p>Draw total amount and organise into groups of ten.</p>  <p>Then cross out the amount that is being taken away.</p> 	$20 - 4 = 16$



Year 2 Subtraction

Objective	Concrete	Pictorial	Abstract																								
Partition to subtract without regrouping	<p>Use Base 10 to make the bigger number and take the smaller number away. Show how to partition the number when subtracting without regrouping.</p> <p>$34 - 13 = 21$</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> <table border="1" style="display: inline-table;"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>3</td><td>4</td></tr> <tr><td>1</td><td>3</td></tr> <tr><td>2</td><td>1</td></tr> </tbody> </table>	Tens	Ones							Tens	Ones	3	4	1	3	2	1	<p>Draw representation of Base 10 or place value counters. Then cross out the amount that is being taken away. Show alongside written calculation.</p> <p>$34 - 13 = 21$</p> <table border="1" style="margin-left: 20px;"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>3</td><td>4</td></tr> <tr><td>1</td><td>3</td></tr> <tr><td>2</td><td>1</td></tr> </tbody> </table>	Tens	Ones	3	4	1	3	2	1	<p>$34 - 13 = 21$</p> $\begin{array}{r} 30 + 4 = 34 \\ - 10 + 3 = 13 \\ \hline 20 + 1 = 21 \end{array}$ <p>This will lead to column subtraction.</p>
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2	1																										
Subtraction with regrouping	<p>Use Base 10 to make the bigger number. Exchange 1 ten for 10 ones. Then continue with the subtraction.</p> <p>$55 - 28 = 27$</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table> <table border="1" style="display: inline-table;"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>5</td><td>5</td></tr> <tr><td>2</td><td>8</td></tr> <tr><td>3</td><td>7</td></tr> </tbody> </table>	Tens	Ones							Tens	Ones	5	5	2	8	3	7	<p>Draw representation of Base 10 or place value counters. Exchange 1 ten for 10 ones. Then continue with the subtraction. Show alongside written calculation.</p> <table border="1" style="margin-left: 20px;"> <thead> <tr><th>Tens</th><th>Ones</th></tr> </thead> <tbody> <tr><td>5</td><td>5</td></tr> <tr><td>2</td><td>8</td></tr> <tr><td>3</td><td>7</td></tr> </tbody> </table>	Tens	Ones	5	5	2	8	3	7	<p>$55 - 28 = 27$</p> $\begin{array}{r} 50 + 5 = 55 \\ - 20 + 8 = 28 \\ \hline 30 + 7 = 37 \end{array}$ $\begin{array}{r} 40 + 15 = 55 \\ - 20 + 8 = 28 \\ \hline 20 + 7 = 27 \end{array}$
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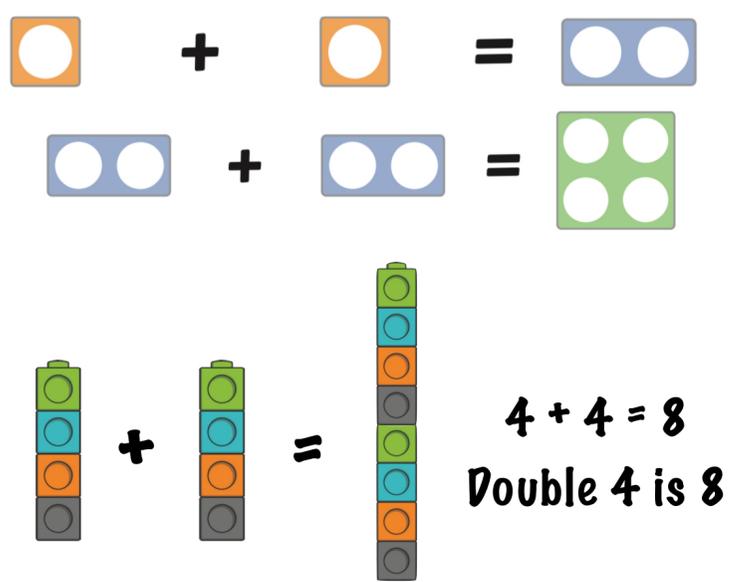
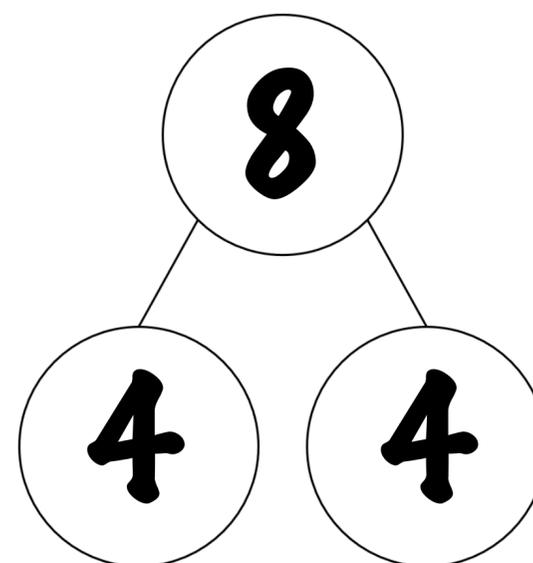
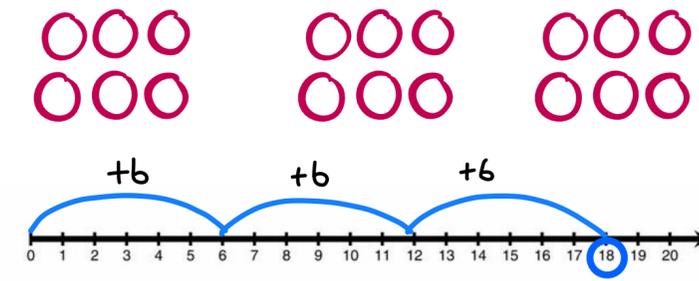
KS2 Subtraction



Objective	Concrete	Pictorial	Abstract																																																																																						
<p>Subtracting with regrouping.</p> <p>Column method</p>	<p>Use Base 10 before moving on to place value counters. Show written method alongside place value counters.</p> <p>Start with one exchange.</p> <table border="1" data-bbox="543 771 1102 930"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>100 100 100</td><td>10 10</td><td>1 1 1</td></tr> </table> <p>Exchange 1 ten for 10 ones.</p> <table border="1" data-bbox="543 996 1102 1164"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>100 100 100</td><td>10</td><td>1 1 1 1 1 1 1 1 1 1</td></tr> </table> <table border="1" data-bbox="1126 949 1379 1211"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>3</td><td>2</td><td>3</td></tr> <tr><td>-</td><td>1</td><td>5</td></tr> <tr><td colspan="3"><hr/></td></tr> <tr><td></td><td></td><td></td></tr> </table> <p>Subtract</p> <table border="1" data-bbox="543 1230 1102 1399"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>100 100 100</td><td>10</td><td>1 1 1 1 1 1 1 1 1 1</td></tr> </table>	H	T	O	100 100 100	10 10	1 1 1	H	T	O	100 100 100	10	1 1 1 1 1 1 1 1 1 1	H	T	O	3	2	3	-	1	5	<hr/>						H	T	O	100 100 100	10	1 1 1 1 1 1 1 1 1 1	<p>Draw place value counters</p> <table border="1" data-bbox="1426 714 1975 930"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>000</td><td>00</td><td>000</td></tr> </table> <p>Exchange 1 ten for 10 ones.</p> <table border="1" data-bbox="1426 1014 1975 1249"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>000</td><td>00</td><td>000 00000 00000</td></tr> </table> <table border="1" data-bbox="1985 1005 2239 1268"> <tr><th>H</th><th>T</th><th>O</th></tr> <tr><td>3</td><td>2</td><td>3</td></tr> <tr><td>-</td><td>1</td><td>5</td></tr> <tr><td colspan="3"><hr/></td></tr> <tr><td></td><td></td><td></td></tr> </table> <p>Subtract</p> <table border="1" data-bbox="1426 1333 1975 1568"> <tr><th>Hundreds</th><th>Tens</th><th>Ones</th></tr> <tr><td>000</td><td>00</td><td>000 00000 000000</td></tr> </table>	Hundreds	Tens	Ones	000	00	000	Hundreds	Tens	Ones	000	0 0	000 00000 00000	H	T	O	3	2	3	-	1	5	<hr/>						Hundreds	Tens	Ones	000	0 0	000 00000 0 0 0 0 0 0	<p>Children to move onto formal written method.</p> <table border="1" data-bbox="2425 705 2992 1296"> <tr><th></th><th>H</th><th>T</th><th>O</th></tr> <tr><td></td><td>3</td><td>2¹</td><td>3</td></tr> <tr><td>-</td><td></td><td>1</td><td>5</td></tr> <tr><td colspan="4"><hr/></td></tr> <tr><td></td><td>3</td><td>0</td><td>8</td></tr> </table> <p>This will lead to an understanding of subtracting any number including decimals.</p>		H	T	O		3	2 ¹	3	-		1	5	<hr/>					3	0	8
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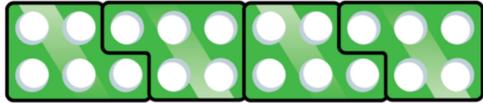
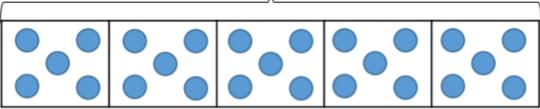
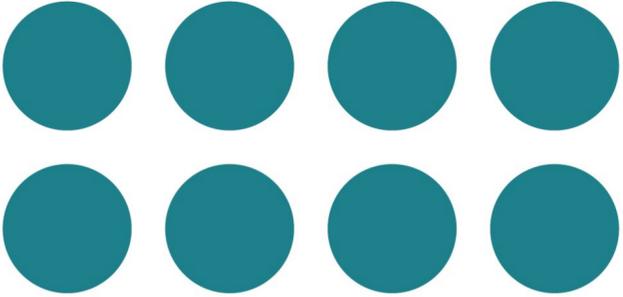
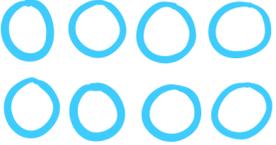
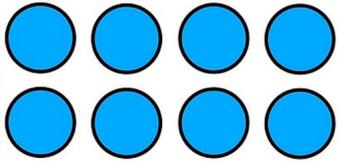
KS1 Multiplication



Objective	Concrete	Pictorial	Abstract
<p>Doubling</p>	<p>Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling.</p>  <p>$4 + 4 = 8$ Double 4 is 8</p>	<p>Draw pictures to show how to double numbers.</p> <p>$4 + 4 = 8$ Double 4 is 8</p> 	<p>Partition a number and then</p> 
<p>Repeated Addition</p>	<p>Use different objects to add equal groups.</p>  <p>$6 + 6 + 6 = 18$</p>	<p>Use pictorials and number lines.</p> <p>$6 + 6 + 6 = 18$</p> 	<p>Write addition sentences to describe objects and pictures.</p>  <p>$6 + 6 + 6 = 18$</p>

KS1 Multiplication



Objective	Concrete	Pictorial	Abstract
<p>Counting in multiples of 2, 5 and 10</p>	<p>Children can use bead string to count forwards and backwards in multiples, moving the beads as they count.</p>  <p>Numicon can support children's understanding of multiplication as repeated addition.</p> 	<p>Labelled number lines and bar models can support children when counting in multiples.</p>  <p>$4 \times 5 = 20$ $5 \times 4 = 20$?</p> 	<p>Count in multiples of a number aloud.</p> <p>2, 4, 6, 8 ...</p> <p>5, 10, 15, 20, 25 ...</p>
<p>Arrays - showing commutative multiplication</p>	<p>Create arrays using counters or cubes to show multiplication sentences.</p> 	<p>Draw arrays in different rotations to find commutative multiplication sentences.</p> <p>$2 \times 4 = 8$</p>  <p>$4 \times 2 = 8$</p> 	<p>Use arrays to write multiplication sentences and reinforce repeated addition.</p>  <p>$4 \times 2 = 8$ $2 \times 4 = 8$ $2 + 2 + 2 + 2 = 8$ $4 + 4 = 8$</p>

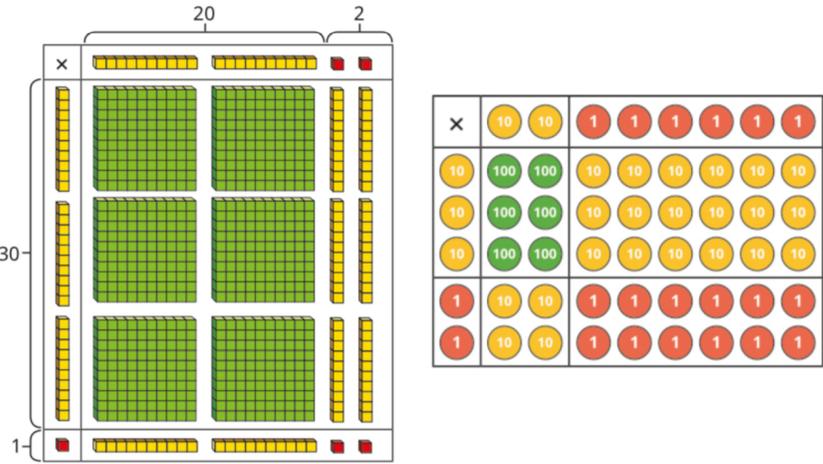
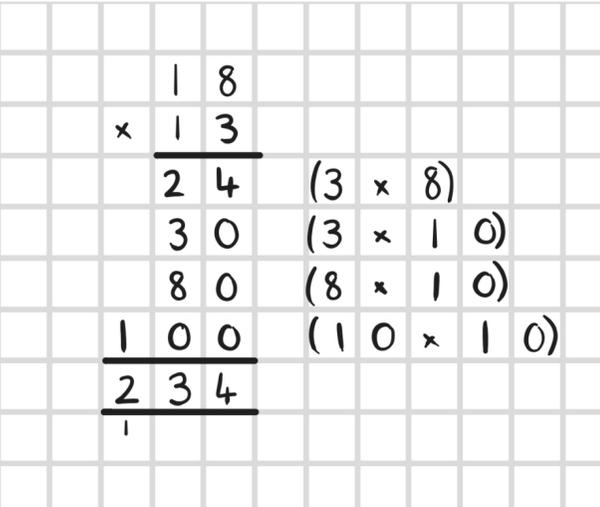
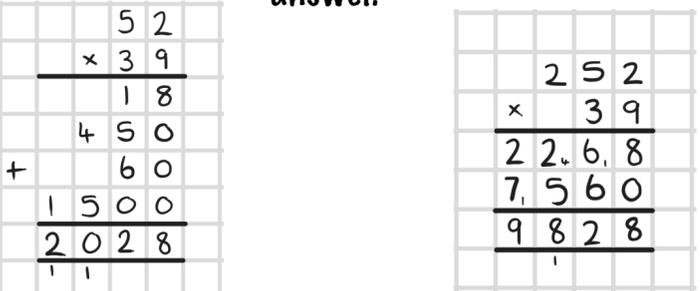


Lower KS2 Multiplication

Objective	Concrete	Pictorial	Abstract																																																																													
<p>Grid method</p>	<p>Show the link with arrays to first introduce the grid method.</p> <table border="1" data-bbox="519 802 1006 968"> <tr> <td>x</td> <td>10</td> <td>5</td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> </table> <p>4 rows of 10 4 rows of 5</p> <p>Move onto base 10, towards a more compact method.</p> <table border="1" data-bbox="519 1108 1006 1309"> <tr> <td>x</td> <td>10</td> <td>5</td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> </table> <p>4 rows of 15</p> <p>Move onto place value counters to show how to find groups of a number. Make exchanges if needed.</p> <p>$124 \times 3 = 372$</p> <table border="1" data-bbox="926 1376 1336 1746"> <thead> <tr> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	x	10	5	4			x	10	5	4			Hundreds	Tens	Ones													<p>Children can draw the counters to show their thinking as shown below.</p> <table border="1" data-bbox="1552 776 2135 1202"> <tr> <td>x</td> <td>100</td> <td>20</td> <td>4</td> </tr> <tr> <td>4</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>9</td> <td>6</td> </tr> </table>	x	100	20	4	4					1	9	6	<p>Start with multiplying by one digit numbers and showing the clear addition alongside the grid.</p> <table border="1" data-bbox="2345 808 2652 953"> <tr> <td>x</td> <td>10</td> <td>5</td> </tr> <tr> <td>4</td> <td>40</td> <td>20</td> </tr> </table> <p>$40 + 20 = 60$ $15 \times 4 = 60$</p> <table border="1" data-bbox="2735 814 3002 1080"> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>2</td> <td>1</td> <td>5</td> </tr> <tr> <td>x</td> <td></td> <td></td> <td>3</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>Moving forward, multiply by a 2 digit number showing the different rows within the grid method.</p> <table border="1" data-bbox="2412 1358 2985 1624"> <tr> <td>x</td> <td>200</td> <td>30</td> <td>2</td> </tr> <tr> <td>10</td> <td>2000</td> <td>300</td> <td>20</td> </tr> <tr> <td>8</td> <td>1600</td> <td>240</td> <td>16</td> </tr> </table> <p>$3600 + 540 + 36 = 4176$ $232 \times 18 = 4176$</p>	x	10	5	4	40	20						H	T	O		2	1	5	x			3					x	200	30	2	10	2000	300	20	8	1600	240	16
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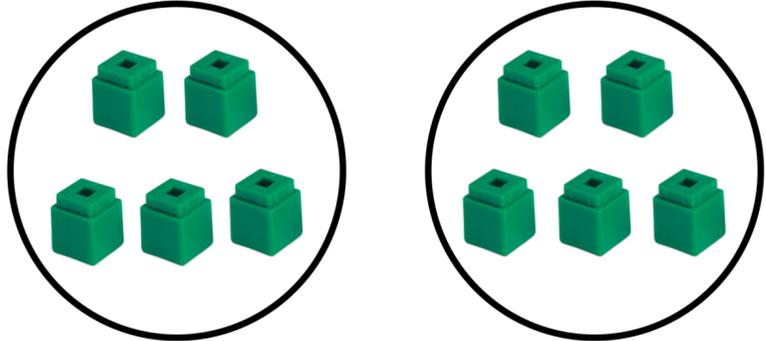
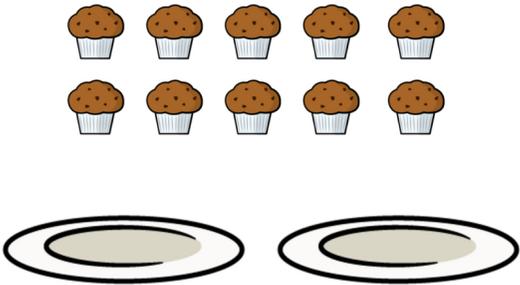
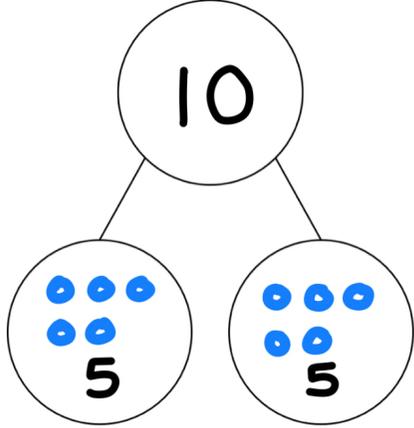
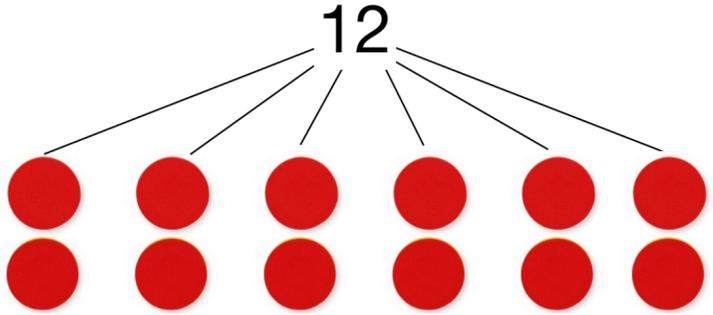
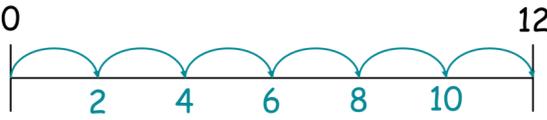


Upper KS2 Multiplication

Objective	Concrete	Pictorial	Abstract									
<p>Expanded method</p>	<p>Use area model to first introduce the expanded method. Move onto to place value counters.</p> 	<table border="1" data-bbox="1492 656 2165 1088"> <tr> <td>X</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>$100 + 80 + 30 + 24 = 134$ $13 \times 18 = 134$</p>	X	10	8	10	 100	 80	3	 30	 24	<p>Start with long multiplication, reminding the children about lining up their numbers clearly in columns.</p> 
X	10	8										
10	 100	 80										
3	 30	 24										
<p>Compact method</p>	<p>Children can continue to be supported by place value counters.</p> <p>It is important at this stage that they always multiply the ones first and note down their answer followed by the tens which they note below.</p>	<p>Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.</p>  <p>$24 \times 6 = 144$</p>	<p>Start with long multiplication, reminding the children about lining up their numbers clearly in columns. Children can write out what they are solving next to their answer.</p> 									

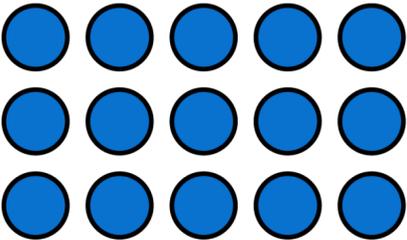
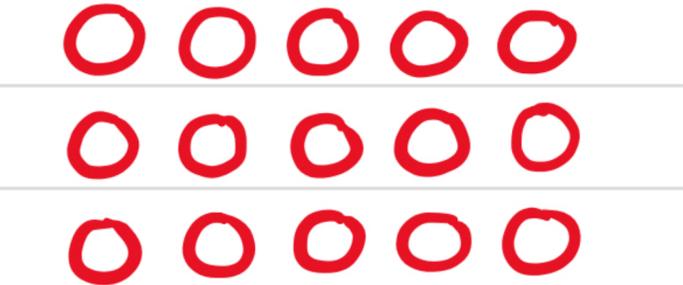
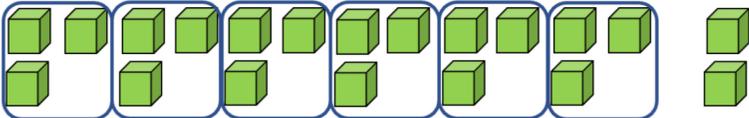
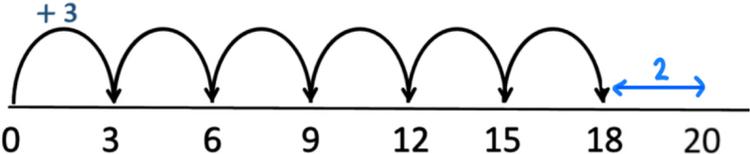
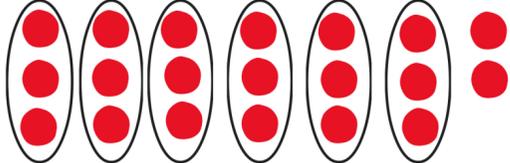
KS1 Division



Objective	Concrete	Pictorial	Abstract
Sharing	<p>Children to use concrete objects and share them equally between groups.</p> 	<p>Children use pictures or shapes to share quantities.</p>  $10 \div 2 = 5$	$10 \div 2 = 5$ 
Grouping	<p>Divide quantities into equal groups using concrete objects to aid understanding.</p> 	<p>Children use a number line to show jumps in groups. The number of jumps equals the number of groups.</p> $12 \div 2 = \square$  <p>How many groups of 2?</p>	$12 \div 2 = 6$ <p>Divide 12 into 2 groups. How many are in each group?</p>



Lower KS2 Division

Objective	Concrete	Pictorial	Abstract
<p>Division with arrays</p>	<p>Link division to multiplication by creating an array.</p>  <p> $3 \times 5 = 15$ $5 \times 3 = 15$ $15 \div 3 = 5$ $15 \div 5 = 3$ </p>	<p>Draw an array and use lines to split the array into groups. Use this to make multiplication and division sentences.</p> 	<p>Find the inverse of multiplication and division sentences by creating four linking number sentences.</p> <p> $3 \times 5 = 15$ $5 \times 3 = 15$ $15 \div 3 = 5$ $15 \div 5 = 3$ </p>
<p>Division with remainders</p>	<p>Divide objects between groups. How many are left over?</p> <p>$20 \div 3 =$</p> 	<p>Jump forward in equal jumps on a number line then see how many more you need to jump to find the remainder.</p>  <p>Draw dots, group them to divide an amount and clearly show the remainder.</p> 	<p>Complete the divisions and show the remainder using r.</p> <p>$20 \div 3 = 6 \text{ r } 2$</p> <p> dividend — divisor — quotient — remainder </p>

Upper KS2 Division



Objective	Abstract																																																																										
Long division	Children will use long division to divide numbers with up to 4 digits by 2 digit numbers.																																																																										
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