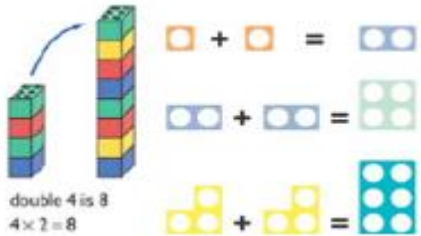

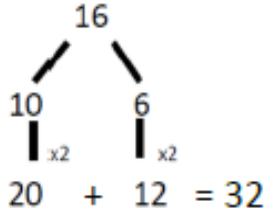
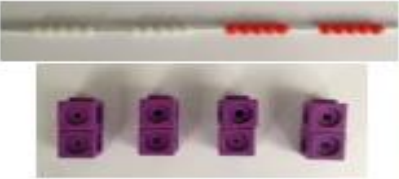




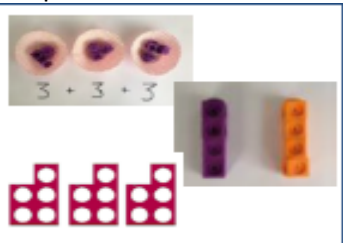
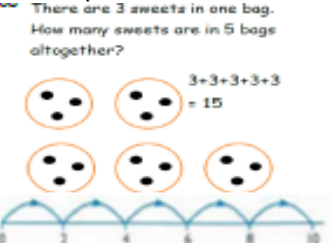

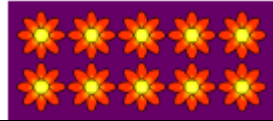


## Y1 – Multiplication

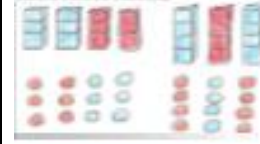
<u>Objective / Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
Doubling	<p>Use practical activities using manipulatives including cubes and Numicon to demonstrate doubling</p>  <p>double 4 is 8 <math>4 \times 2 = 8</math></p>	<p>Draw pictures to show how to double numbers</p> <p style="text-align: center;">Double 4 is 8</p> 	<p>Partition a number and then double each part before recombining it back together.</p> 
Counting in multiples	<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. Write sequences with multiples of numbers.</p> <p>2,4,6,8,10,12,14</p> <p>5,10,15,20,25,30</p>
Making equal Groups and counting the total	<p>Use manipulatives to create equal groups.</p>  <p><math>\square \times \square = 8</math></p>	<p>Draw  to show <math>2 \times 3 = 6</math></p> <p>Draw and make representations</p>	<p style="text-align: center;"><math>2 \times 4 = 8</math></p>
Repeated Addition	<p>Use different objects to add equal groups</p>  <p><math>3 + 3 + 3</math></p>	<p>Use pictorial including number lines to solve problems</p> <p>There are 3 sweets in one bag. How many sweets are in 5 bags altogether?</p> <p><math>3 + 3 + 3 + 3 + 3 = 15</math></p> 	<p>Write addition sentences to describe objects and pictures.</p>  <p><math>2 + 2 + 2 + 2 + 2 = 10</math></p>

Understanding Arrays

Use objects laid out in arrays to find the answers to 2 lots 5, 3 lots of 2 etc.

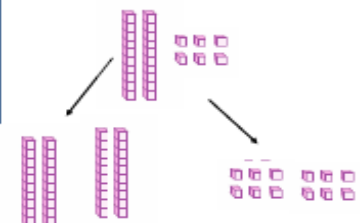
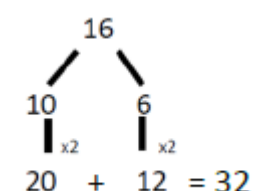

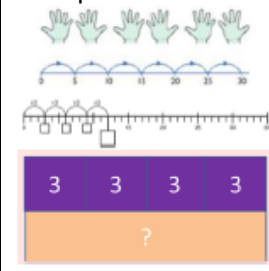
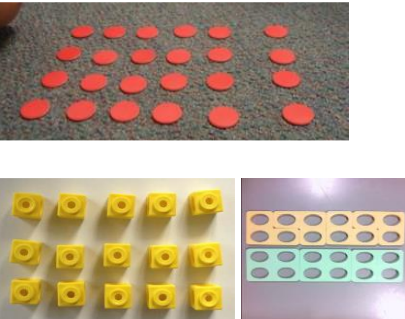
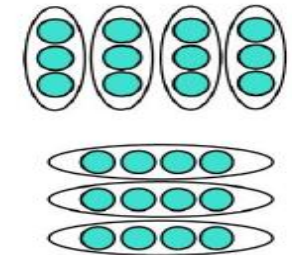



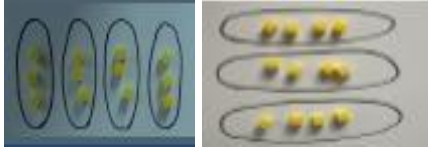

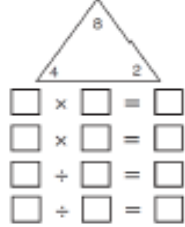
Draw representations of arrays to show under-standing




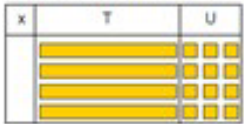

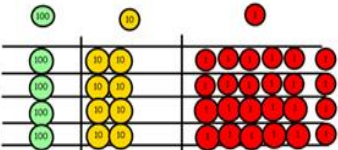
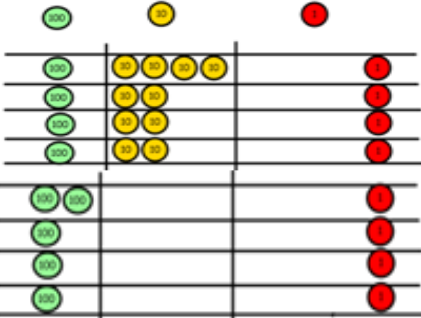
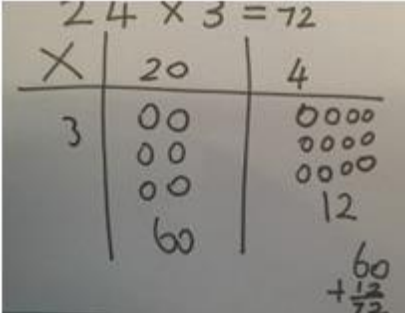
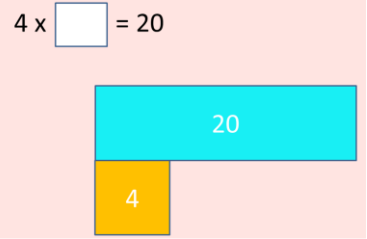
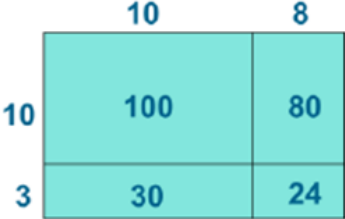
$$3 \times 2 = 6$$
$$2 \times 5 = 10$$

## Y2 – Multiplication

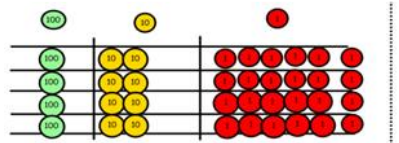
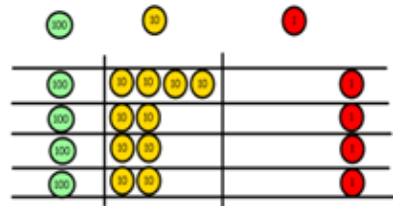
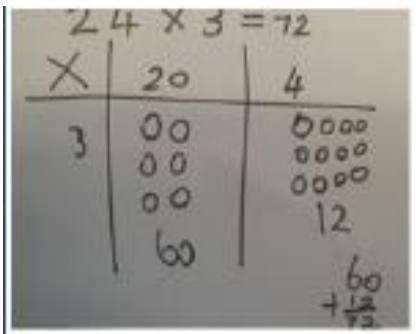
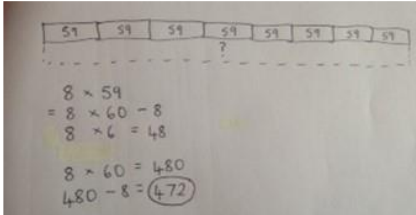
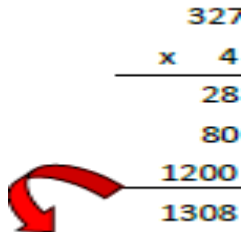
<u>Objective / Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>
Doubling	<p>Model doubling using dienes and place value counters.</p>  <p style="text-align: center;"><math>40 + 12 = 52</math></p>	<p>Draw pictures and representations to show how to double numbers</p>	<p>Partition a number and then double each part before recombining it back together.</p>  <p style="text-align: center;"><math>20 + 12 = 32</math></p>
Counting in multiples of 2, 3, 4, 5, 10 from 0 (repeated addition)	<p>Count the groups as children are skip counting, children may use their fingers as they are skip counting. Use bar models.</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. 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 style="text-align: center;"><math>4 \times 3 = \square</math></p>
Multiplication is commutative	<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</p>	<p>Use representations of arrays to show different calculations and explore commutativity.</p> 	<p><math>12 = 4 \times 3</math> <math>12 = 3 \times 4</math></p> <p>Use an array to write multiplication sentences and reinforce repeated addition.</p>  <p><math>5 + 5 + 5 = 15</math> <math>3 + 3 + 3 + 3 + 3 = 15</math> <math>5 \times 3 = 15</math> <math>3 \times 5 = 15</math></p>

	<p>order of the multiplication does not affect the answer.</p> 		
Using Inverse		<p>Fact family Triangles</p> 	$\underline{2 \times 4 = 8}$ $\underline{4 \times 2 = 8}$ $\underline{8 \div 2 = 4}$ $\underline{8 \div 4 = 2}$ $\underline{8 = 2 \times 4}$ $\underline{8 = 4 \times 2}$ $\underline{2 = 8 \div 4}$ $\underline{4 = 8 \div 2}$

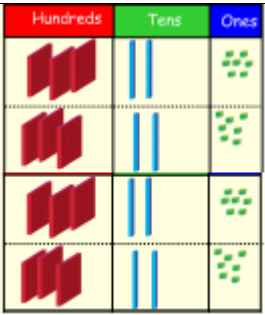
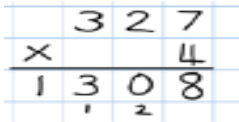
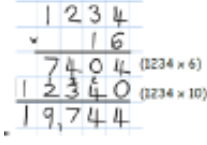
## Year 3 - Multiplication

<u>Objective / Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>						
<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 <math>4 \times 126</math></p> <p>Fill each row with 126</p>  <p>Calculations <math>4 \times 126</math></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" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"><b>X</b></td> <td style="padding: 5px;"><b>30</b></td> <td style="padding: 5px;"><b>5</b></td> </tr> <tr> <td style="padding: 5px;"><b>7</b></td> <td style="padding: 5px;"><b>210</b></td> <td style="padding: 5px;"><b>35</b></td> </tr> </table> <p style="text-align: center;"><b>210 + 35 = 245</b></p> <p>Moving forward, multiply by a 2-digit number showing the different rows within the grid method.</p> 	<b>X</b>	<b>30</b>	<b>5</b>	<b>7</b>	<b>210</b>	<b>35</b>
<b>X</b>	<b>30</b>	<b>5</b>							
<b>7</b>	<b>210</b>	<b>35</b>							

## Year 4 - Multiplication

<u>Objective / Strategy</u>	<u>Concrete</u>	<u>Pictorial</u>	<u>Abstract</u>																																								
<p>Grid method recap from year 3 for 2 digits x 1 digit</p> <p>Move to multiplying 3-digit numbers by 1 digit. (year 4 expectation)</p>	<p>Use 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>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 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.</p> 	<p>Start with multiplying by one-digit numbers and showing the clear addition alongside the grid.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">x</td> <td style="padding: 5px;">30</td> <td style="padding: 5px;">5</td> </tr> <tr> <td style="padding: 5px;">7</td> <td style="padding: 5px;">210</td> <td style="padding: 5px;">35</td> </tr> </table> <p style="text-align: center;"><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 place value counters at the stage of multiplication. This initially done where there is no regrouping. <math>321 \times 2 = 642</math></p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffcccc;">Hundreds</th> <th style="background-color: #ccffcc;">Tens</th> <th style="background-color: #ccccff;">Ones</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">2</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> <td style="text-align: center;">2</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">4</td> <td style="text-align: center;">2</td> </tr> </tbody> </table> <p>It is important at this stage that they always multiply the ones first. The corresponding long multiplication is modelled alongside</p>	Hundreds	Tens	Ones	3	2	1	2	4	2	6	4	2	<p>The grid method may be used to show how this relates to a formal written method.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;">x</td> <td style="padding: 5px;">300</td> <td style="padding: 5px;">20</td> <td style="padding: 5px;">7</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">1200</td> <td style="padding: 5px;">80</td> <td style="padding: 5px;">28</td> </tr> </table>  <p>Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.</p>	x	300	20	7	4	1200	80	28	 <p>This may lead to a compact method.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">7</td> </tr> <tr> <td style="padding: 5px;">x</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;">4</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">3</td> <td style="padding: 5px;">0</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> <td style="padding: 5px;">8</td> </tr> </table>		3	2	7	x			4		1	3	0			1	2				8
Hundreds	Tens	Ones																																									
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2	4	2																																									
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	3	2	7																																								
x			4																																								
	1	3	0																																								
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## Year 5 and Year 6 – Multiplication

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. Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. <math>321 \times 2 = 642</math></p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <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: right; color: red; font-size: 2em;">➔</p>	x	300	20	7	4	1200	80	28	$  \begin{array}{r}  327 \\  \times 4 \\  \hline  28 \\  80 \\  1200 \\  \hline  1308  \end{array}  $ <p style="color: red; font-size: 2em;">↶</p> <p>This will lead to a compact method.</p> 																						
x	300	20	7																														
4	1200	80	28																														
<p>Column multiplication</p>	<p>Manipulatives may still be used with the corresponding long multiplication modelled alongside.</p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <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 style="text-align: right; color: red; font-size: 2em;">➔</p> <p>Continue to use bar modelling to support problem solving.</p>		10	8	10	100	80	3	30	24	<table border="1" style="border-collapse: collapse; text-align: center;"> <tr> <td></td> <td>1</td> <td>0</td> </tr> <tr> <td>x</td> <td>1</td> <td>3</td> </tr> <tr> <td></td> <td>5</td> <td>4</td> </tr> <tr> <td></td> <td>2</td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>0</td> </tr> <tr> <td></td> <td>2</td> <td>3</td> </tr> <tr> <td></td> <td>4</td> <td></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><math>18 \times 3</math> on the first row (<math>8 \times 3 = 24</math>, carrying the 2 for 20, then <math>1 \times 3</math>)</p> <p><math>18 \times 10</math> on the 2nd row. Show multiplying by 10 by putting zero in units first</p> </div> 		1	0	x	1	3		5	4		2			1	0		2	3		4	
	10	8																															
10	100	80																															
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	5	4																															
	2																																
	1	0																															
	2	3																															
	4																																
<p>Multiplying decimals up to 2 decimal places by a single digit.</p>			<p>Remind children that the single digit belongs in the units column. Line up the decimal points in the question and the answer.</p>																														

			$\begin{array}{r} 319 \\ \times 8 \\ \hline 2552 \end{array}$
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