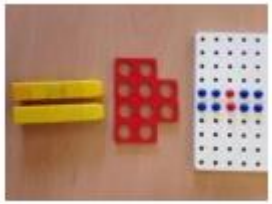
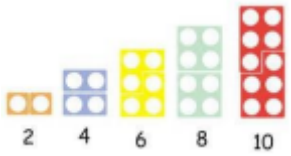
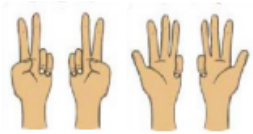
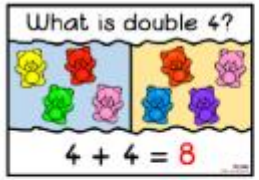
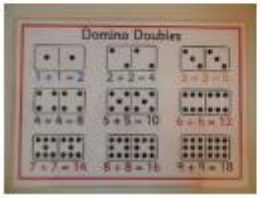
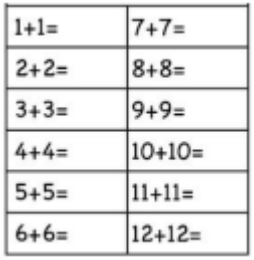
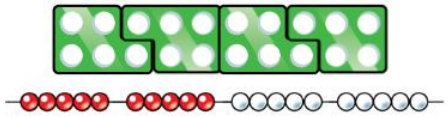
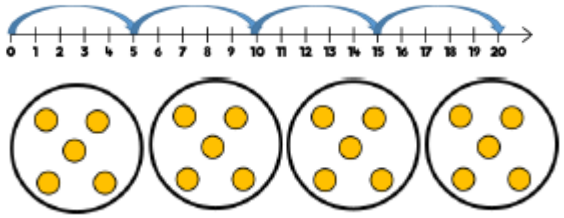
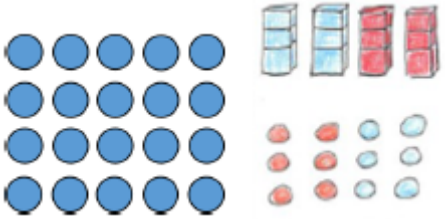
Reception

Objective / strategy	Concrete	Pictorial	Abstract
Doubling Deepening understanding Patterns an relationships Making pairs Combining two groups	      Counting and other maths resources for children to make 2 equal groups. Physical and real life examples that encourage children to see concept of doubling as adding two equal groups.	    Pictures and icons that encourage children to see concept of doubling as adding two equal groups.	 1+1= 7+7= 2+2= 8+8= 3+3= 9+9= 4+4= 10+10= 5+5= 11+11= 6+6= 12+12= Addition calculations to model adding two equal groups.

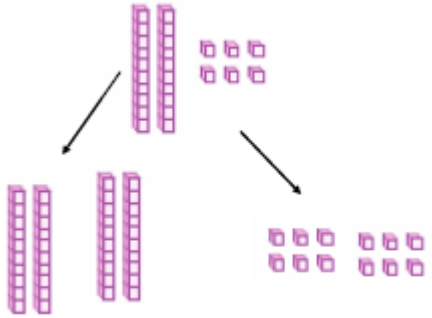
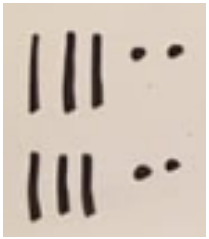
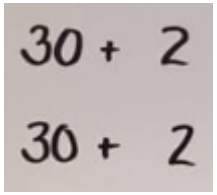
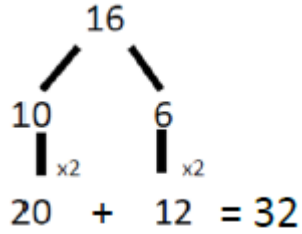
Year 1			
Objective / strategy	Concrete	Pictorial	Abstract
Repeated addition	 Use different objects to add equal groups.	 Use pictorial including number lines to solve problems such as one bag holds five apples how many apples do four bags hold?	$5+5+5+5=20$ Write addition sentences to describe objects and pictures.
Understanding arrays	 Use objects laid out in arrays to find the answers to 2 lots 5, 3 lots of 2 etc.	 Draw represnretations of arrays to show understanding.	$5 \times 4 = 20$

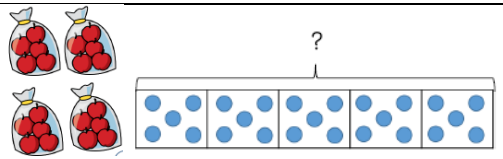
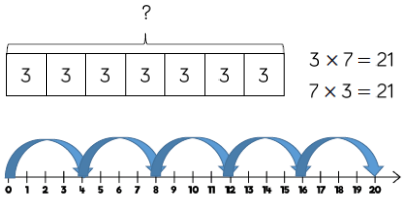
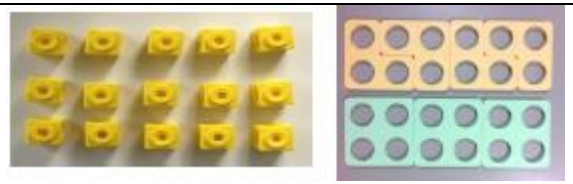
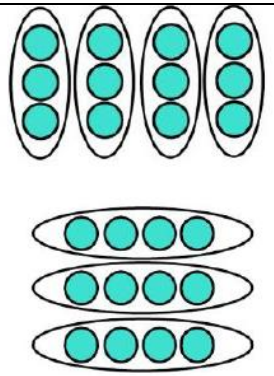
Key vocabulary and questions

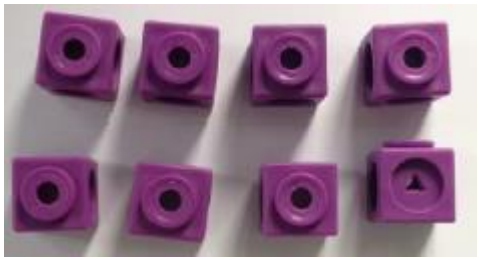
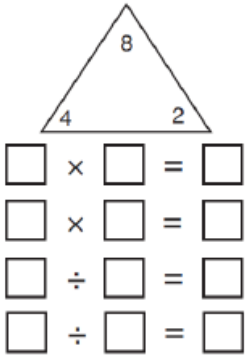
Equal sets, groups

Half, halve, double

Share, left over

Year 2			
Objective / strategy	Concrete	Pictorial	Abstract
Doubling	 Model doubling using base 20 or numicon.	  Draw pictures and representations to show how to double numbers.	 Partition a number and then double each part before recombining it back together.

Counting in multiples of 2, 3, 4, 5 and 10 from 0. Repeated addition	 Use concrete objects and bar model.	 Number lines, counting sticks and bar models should be used to show representation of counting in multiples.	$4 \times 3 = \square$ Count in multiples of a number aloud. Write sequences with multiples of numbers. 0, 2, 4, 6, 8, 10 0, 5, 10, 15, 20, 25, 30
Multiplication is commutative.	 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.	 Use representations of arrays to show different calculations and explore commutativity.	 5 + 5 + 5 = 15 5 x 3 = 15 3 + 3 + 3 + 3 + 3 3 x 5 = 15 Use an array to write multiplication sentences and reinforce repeated addition. Missing number calculations 3 x ? = 12

Using the Inverse – teach this alongside division so pupils learn how they work alongside each other.			2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 2 8 = 2 x 4 8 = 4 x 2 2 = 8 ÷ 4 4 = 8÷ 2 Show all 8 related fact family sentences.

Key vocabulary and questions

lots of, groups of , times, multiply, multiplied by, multiple of

once, twice, three times... ten times...

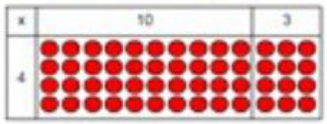
times as (big, long, wide... and so on)

repeated addition, array

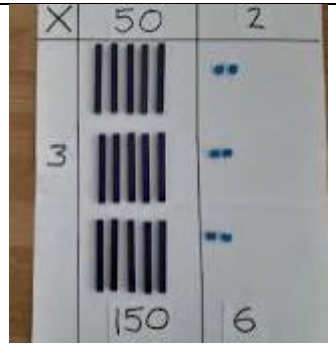
row, column

Year 3

Objective / strategy	Concrete	Pictorial	Abstract

<table>
<tr>
<td>Introduction of grid method using expanded column method.</td>
<td> 

4 rows of 10
4 rows of 3

Show the links with arrays to first introduce the grid method.</td>
<td> 

Children can represent their work with base 10 or place value counters in a way that they understand. The place value counters should be used to support the understanding of the method rather than supporting the multiplication.</td>
<td>

×	30	5
7	210	35

210 + 35 = 245

First look at expanded column method before moving on to the short multiplication method.</td>
</tr>
<tr>
<td>Multiply 2- digit numbers by 1- digit numbers.

Short multiplication method</td>
<td> 
</td>
<td>

	H	T	O	
		3	4	
×			5	
		2	0	(5 × 4)
+	1	5	0	(5 × 30)
	1	7	0	

	H	T	O	
		3	4	
×			5	
	1	7	0	
	1	2		
</td>
</tr>
</table>

		Children will need to understand the two additions before moving onto the final method.

Key vocabulary and questions

lots of, groups of

, times, multiply, multiplication, multiplied by, multiple of, product

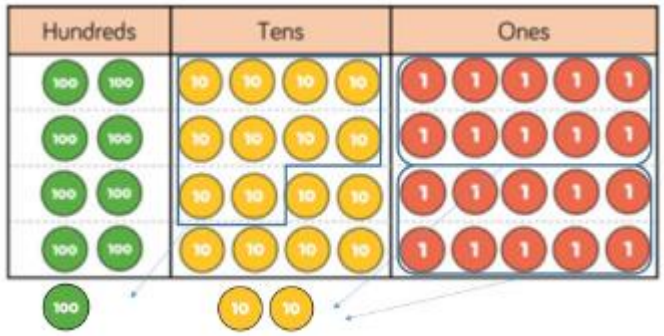
once, twice, three times... ten times...

times as (big, long, wide... and so on)

repeated addition

array

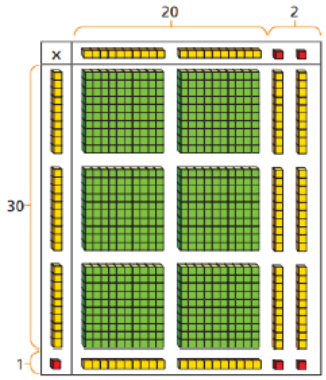
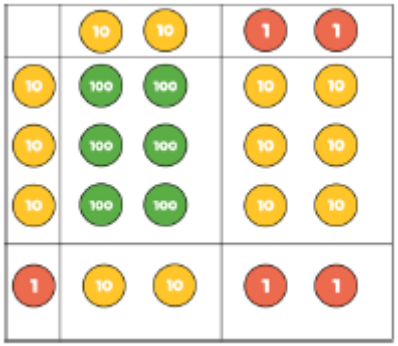
Year 4			
Objective / strategy	Concrete	Pictorial	Abstract

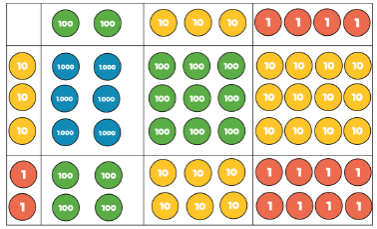
Multiply 3-digit numbers by 1-digit numbers	 Base 10 and place value counters continue to support the understanding of the written method. Limit the number of exchanges needed in the questions and move children away from resources when multiplying larger numbers.	327 x 4 28 80 1200 1308 When moving to 3-digit by 1-digit multiplication, encourage children to move towards the short formal written method.

Key vocabulary and questions

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times... ten times...
times as (big, long, wide... and so on)
repeated addition
array
row, column

Year 5			
Objective / strategy	Concrete	Pictorial	Abstract

Multiply 4-diit numbers by 1-digit numbers	 When multiplying 4-digit numbers, place value counters are the best manipulative to use to support childne in their undetsnadig of the formal written method.	1,826 × 3 = 5,478 |	Th | H | T | O | | 1 | 8 | 2 | 6 | | × | | | | 3 | | 5 | 4 | 7 | 8 | 2 1 If children are mulipliying larger numbers and struggling with their times tables, encourage the use of muliplication grids so children can focus on the use of the written method.
Multiply 2-digit numbers by 2-digit numbers	 When mulipliying a multi-digit number by 2-digits, us ethe area model to help understand the size of		× | 20 | 2 30 | 600 | 60 1 | 20 | 2 | | H | T | O | | | | 2 | 2 | | × | | 3 | 1 | | | | 2 | 2 | | | 6 | 6 | 0 | | | 6 | 8 | 2 | The gird method matchesthe are model,as an intital written method before moving

	the numbers they are using. This links to finding the area of a rectangle by finding the space covered by the Base 10.		on to the formal written muliplicatoon method.
Multiply 3-digit numbers by 2-digit numbers	 Children can contiune to use the area model when multiplying 3-digits by 2-digits. Place value counters become more efficient to use but Base 10 can be used to highlight the size of numbers.	<table><tr><td>×</td><td>200</td><td>30</td><td>4</td></tr><tr><td>30</td><td>6,000</td><td>900</td><td>120</td></tr><tr><td>2</td><td>400</td><td>60</td><td>8</td></tr></table>	<table><tr><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>2</td><td>3</td><td>4</td></tr><tr><td>×</td><td></td><td>3</td><td>2</td></tr><tr><td></td><td>4</td><td>6</td><td>8</td></tr><tr><td>1 7</td><td>1 0</td><td>2</td><td>0</td></tr><tr><td>7</td><td>4</td><td>8</td><td>8</td></tr></table> Encourage children to move towards the formal writteb method, seeing the links with the grid method.

Key vocabulary and questions

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product

once, twice, three times... ten times...

times as (big, long, wide... and so on)

repeated addition

array

row, column

Year 6			
Objective / strategy	Concrete	Pictorial	Abstract
Multiply 4-digit numbers by 2-digti numbers		Children should now be confident in the written method. If not see year 5. If they are still struggling with times tables, provide multiplication grids to support when they are focusing on the use of the method. Consider where exchanging digits are placed and make sure this is consistent. Children will also cross out exchanging digits as they are added in.	

TTh	Th	H	T	O
	2	7	3	9
×			2	8
2 (2)	1 (5)	9 (3)	1 (7)	2
5 (1)	4	7 (1)	8	0
7	6	6	9	2
		1		

Key vocabulary and questions

lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times... ten times...
times as (big, long, wide... and so on)
repeated addition