

Concrete - Children should have the opportunity to use objects and manipulatives to help them understand what they are doing.

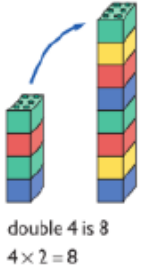

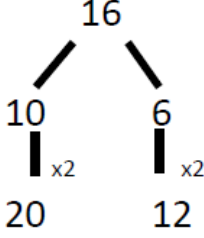
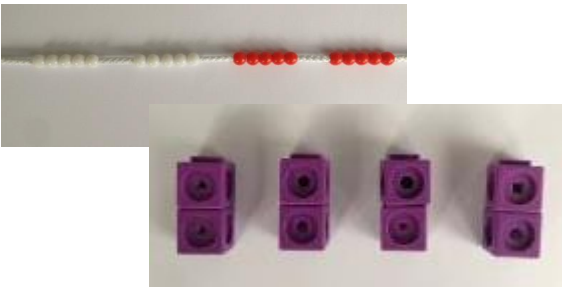
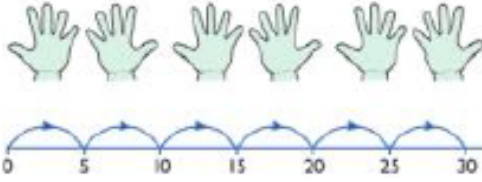
Pictorial - Children should then build on this concrete approach by using pictures.

This can then be used to reason and solve problems.

Abstract - Children should be able to use numbers and key concepts with confidence.



Progression in Calculation - Multiplication

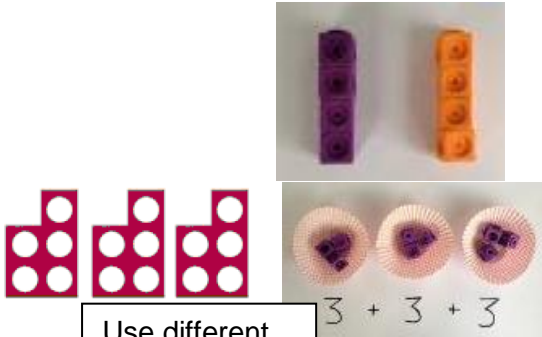
X	<u>Year 1 x Objective and Strategies Doubling</u> Year 1 - Not taught the x symbol, introduced in Year 2		
	Fluency - Learning in stages		
Concrete	Pictorial	Abstract	
 <p>Use practical activities to show how to double a number.</p>	<p>Draw pictures to show how to double a number.</p> <p>Double 4 is 8</p> 	 <p>Partition a number and then double each part before recombining it back together.</p>	
<u>Year 1 x Objective and Strategies Counting in multiples</u>			
Fluency - Learning in stages			
Concrete	Pictorial	Abstract	
 <p>Count in multiples supported by concrete objects in equal groups.</p>	 <p>Use a number line or pictures to continue support in 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>	

X

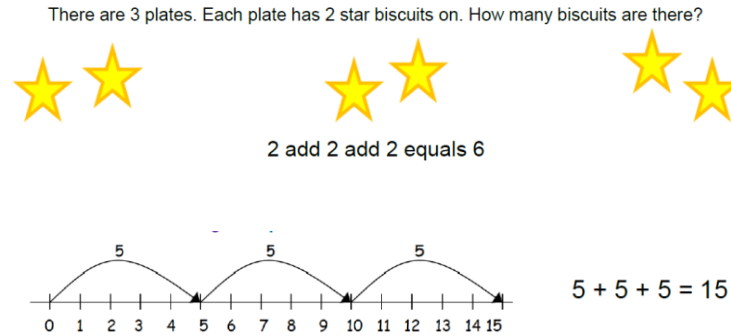
Year 1 x Objective and Strategies *Repeated addition*

Fluency - Learning in stages

Concrete



Pictorial



Abstract

Write addition sentences to describe objects and pictures.



8 goats have twins. How many goats are born?

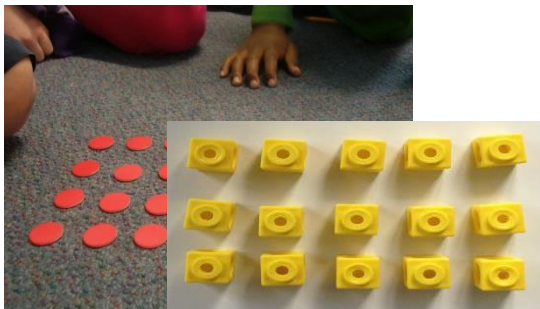


Year 2 x Objective and Strategies *Arrays- showing commutative multiplication*

Fluency - Learning in stages

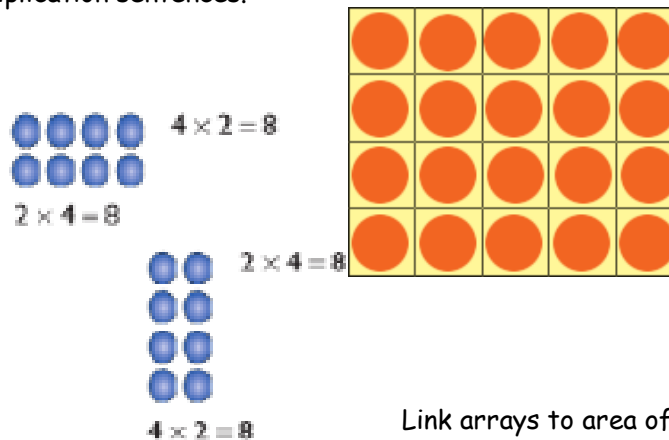
Concrete

Create arrays using counters/ cubes to show multiplication sentences.



Pictorial

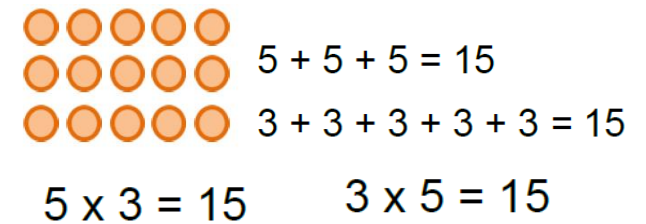
Draw arrays in different rotations to find **commutative** multiplication sentences.



Link arrays to area of rectangles.

Abstract

Use an array to write multiplication sentences and reinforce repeated addition.



- Cassie has 4 bags with 5 sweets in each, Rachel has 5 bags with 4 sweets in each. How many do they have each? Can you split the sweets into different numbers of bags so they both still have the same number?

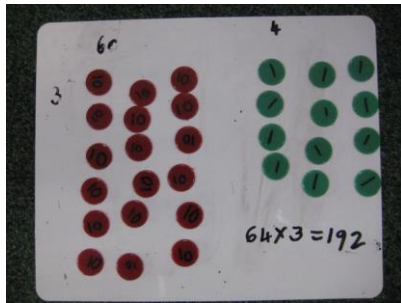
X

Year 3-Year 6 x Objective and Strategies Column multiplication

Fluency - Learning in stages

Concrete

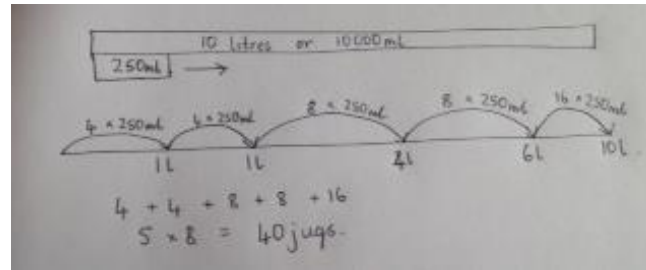
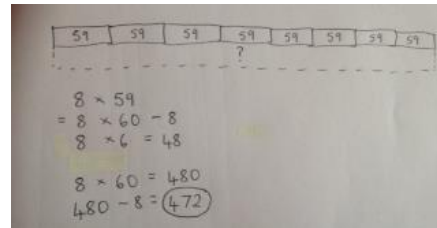
Children can continue to be supported by place value counters at the stage of multiplication.



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.

Pictorial

Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.



$38 \times 4 =$

x	30	8
4	120	32

$120 + 32 = 152$

Abstract

Start with single digit multiplication, reminding the children about lining up their numbers clearly in columns.

	4	7
	x	8
3	7	6
	5	

For long multiplication If it helps, children can write out what they are solving next to their answer.

$$\begin{array}{r}
 32 \\
 \times 24 \\
 \hline
 8 \quad (4 \times 2) \\
 120 \quad (4 \times 30) \\
 40 \quad (20 \times 2) \\
 \hline
 600 \quad (20 \times 30) \\
 \hline
 768
 \end{array}$$

This can move onto the more compact method.

	1	2	3	4
	x		1	8
	19	28	37	2
1	2	3	4	0
2	2	2	1	2
1	1	1		