

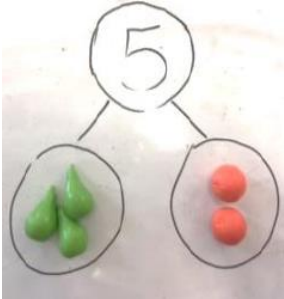
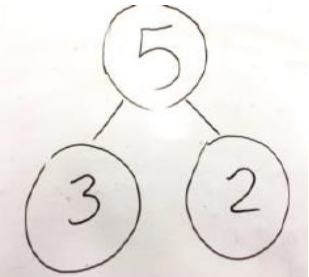
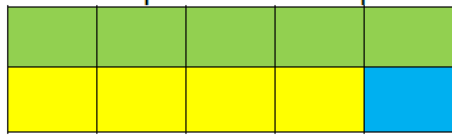


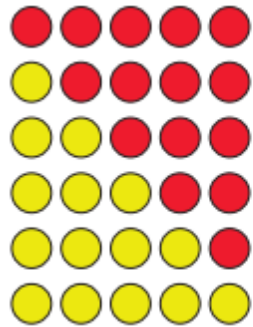
Year One

Addition

Year One	Pupils should be able to: <ul style="list-style-type: none">• Read, write and interpret mathematical statements involving addition• Represent and use all number bonds within 20• Add one-digit and two-digit numbers to 20, including 0• Solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems
Number Bonds	
Use of cubes to represent bar model and part- part whole model	
 <p>4 and 1 make 5 $4 + 1 = 5$</p>	 <p>3 and 2 make 5 $3 + 2 = 5$</p> 
Use of pictorial representations	 <p>Abstract part-part whole model alongside calculation $3 + 2 = 5$</p>



4 and 1 make 5
 $4 + 1 = 5$



$0 + 5 = 5$
 $1 + \square = 5$
 $2 + \square = 5$
 $3 + \square = 5$
 $4 + \square = 5$
 $5 + \square = 5$

Use of numicon to represent number bonds



Use of ten frame to represent number bonds to 10

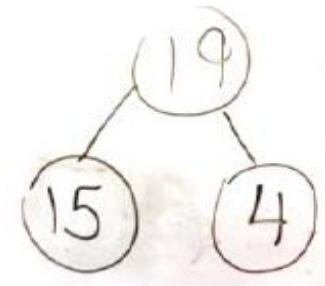


Add One-Digit and Two-Digit

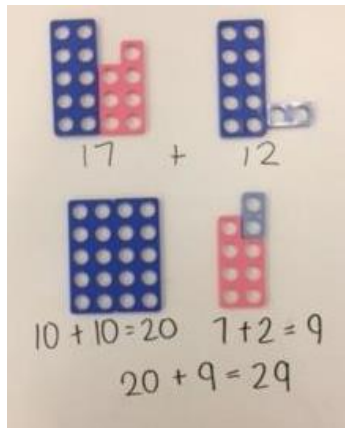
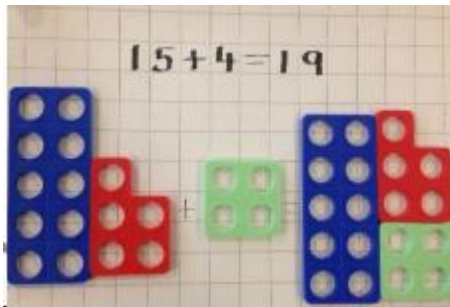
Use of everyday objects, counters, numicon and cubes using part-part whole model



Pictorial representations



Children move onto counting on mentally
 $15 + 4 = 19$
 15...16, 17, 18, 19



If children are secure, when adding 2 digits within 20 they may start partitioning by adding the tens and then the ones with numicon

Children can then move to recording abstractly

$$17 + 12 =$$

$$10 + 10 = 20$$

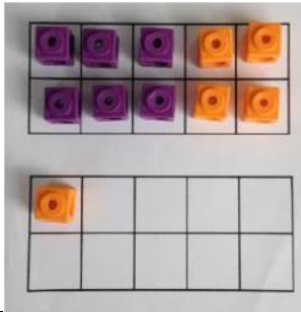
$$7 + 2 = 9$$

$$20 + 9 = 29$$

When children are secure they can move on to doing this mentally

Regrouping to Make 10

Use of a ten frame by partitioning the smaller number to make ten and then counting on the left over amount



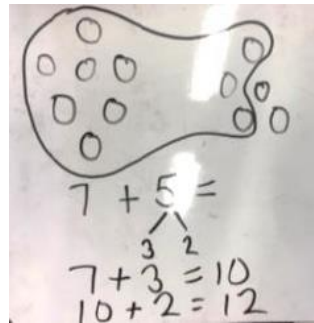
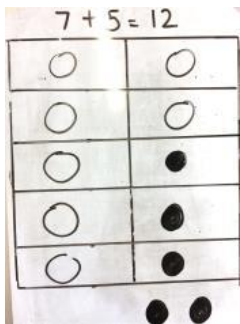
Step 1: Make 10
Step 2: Add the left over amount

$$7 + 5 =$$

$$7 + 3 = 10$$

$$10 + 2 = 12$$

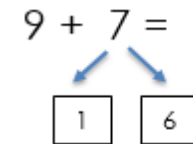
Use pictorial strategies to support ten frame as well as circle by 10



Use abstract methods of partitioning the smaller number to make ten when prior strategies are secure

$$9 + 1 = 10$$

$$10 + 6 = 16$$



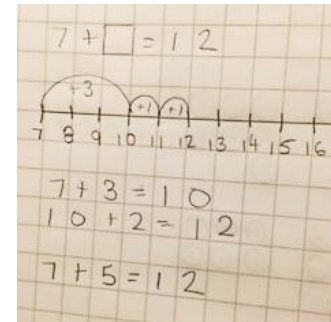
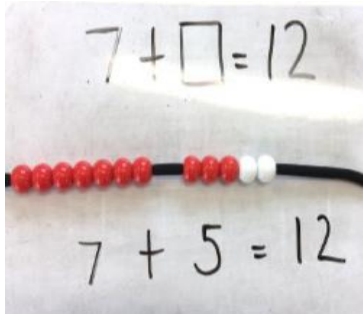
Missing Number Problems

Children begin by using concrete objects to support in 'counting on' to find the missing number



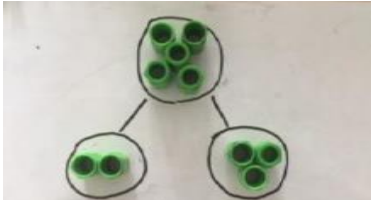
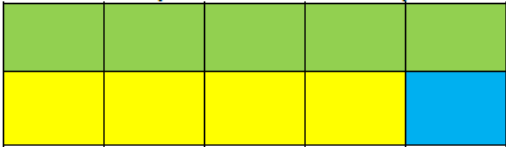
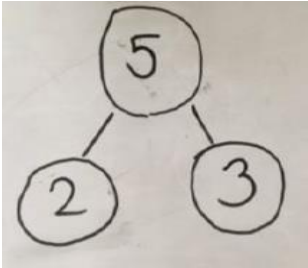
Children can then use the support of a number line to support counting on to find missing numbers.

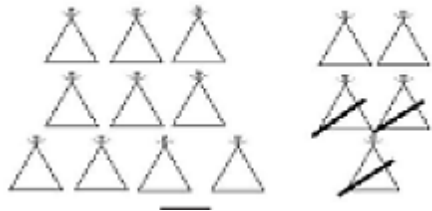
$$8 + \underline{\quad} = 14$$

Children should use knowledge of number bonds to partition when counting on to find the missing number.



Subtraction

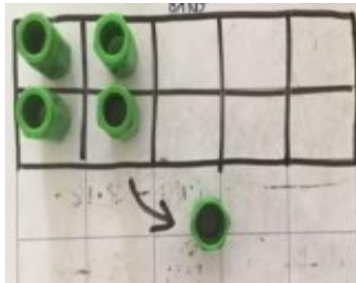
<p>Year One</p>	<p>Pupils should be able to:</p> <p>Pupils should be able to:</p> <ul style="list-style-type: none"> • Read, write and interpret mathematical statements involving subtraction • Represent and use all number bonds within 20 • Subtract one-digit and two-digit within 20, including 0 • Solve one-step problems that involve subtraction using concrete objects and pictorial representations, and missing number problems 	
<p>Subtracting One and Two Digits</p>		
<p>Use of cubes to represent bar model and part- part whole model</p>		
 <p>2 is 3</p> $5 - 1 = 4$	 <p>5 take away one is 4</p> $5 - 2 = 3$	 <p>5 take away</p> <p>5 take away 2 is 3</p>
<p>Use of pictorial representations</p>  <p>5 take away 4 is 1</p> $5 - 4 = 1$	<p>Abstract part-part whole model alongside calculation</p>  <p>2 and 3 make 5 so 5 take away 2 is 3</p> $5 - 2 = 3$	



$$15 - 3 = 12$$

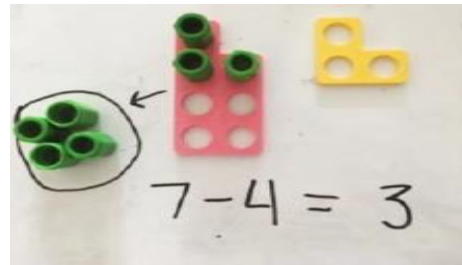
Children draw or use pictures to physically cross out smaller amount and count how many left over

Use of ten frames to subtract single digits

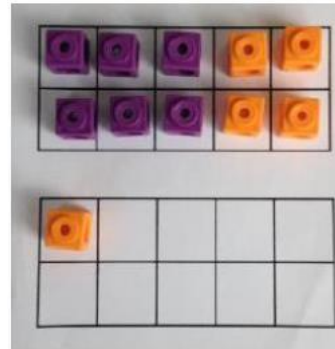


$$5 - 1 = 4$$

Use of numicon and pegs as previously used in EYFS



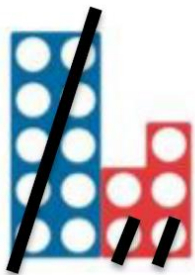
Use of ten frames to subtract numbers within 20



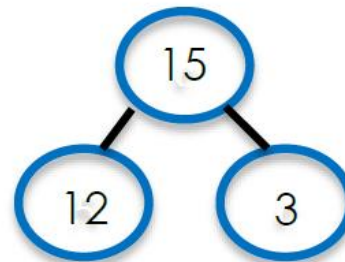
$$11 - 5 = 6$$

Children use pictorial representations to cross out smaller number using numicon before moving on to record this abstractly

Children can record this using the part-part whole model



$$15 - 12 = 3$$



$$15 - 12 = 3$$

Children move onto counting back mentally

$$15 - 7 = 8$$

15...14, 13, 12, 11, 10, 9, 8

Children can then move to recording abstractly through partitioning

$$17 - 12 =$$

$$10 - 10 = 0$$

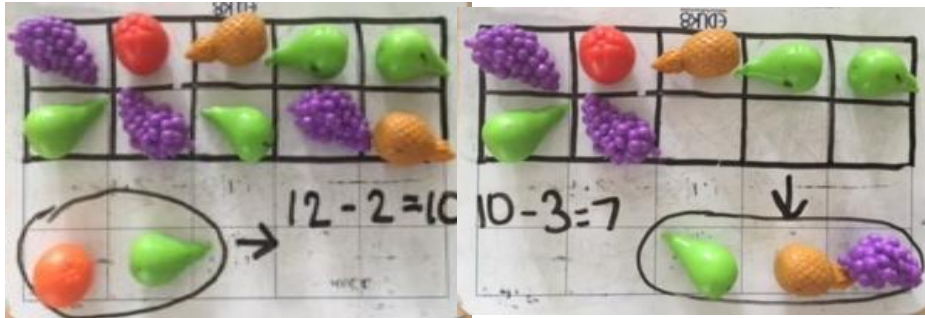
$$7 - 2 = 5$$

$$0 + 5 = 5$$

When children are secure they can move on to doing this mentally

Regrouping to Make 10

Use of a ten frame with concrete objects to subtract to make ten first and then subtract the left over amount

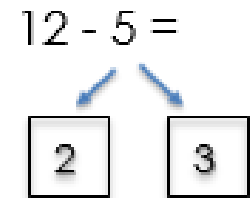


$$12 - 5 = 7$$

Use knowledge of number bonds to partition smaller number to make ten first

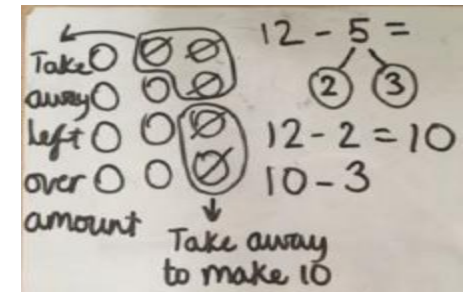
$$12 - 2 = 10$$

$$10 - 3 = 7$$



Use pictorial strategies to support subtracting through number bond knowledge and subtracting

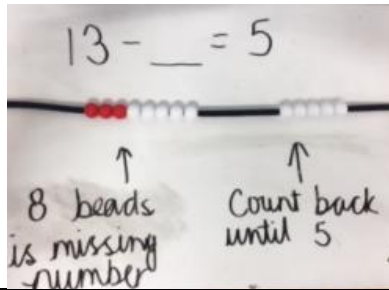
When children are secure they can move onto use of mental strategies



Missing Number Problems

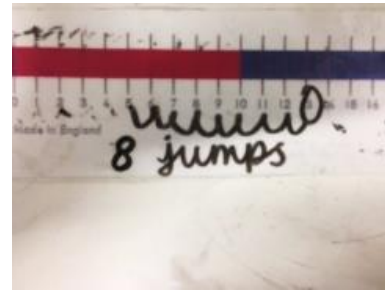
Children begin by using concrete objects to support in 'counting back' to find the missing number.

$$13 - \underline{\quad} = 5$$



Children can then use the support of a number line to support counting back to find missing numbers.

$$13 - \underline{\quad} = 5$$



Children can then move on to mentally counting back to find the missing number.

Children will need to count back to the 'answer' while keeping tally of 'how many' they have counting back

13...12, 11, 10, 9, 8, 7, 6, 5

'I counted back till I landed on 5. I counted back 8 jumps in total so the missing number is 8

Multiplication

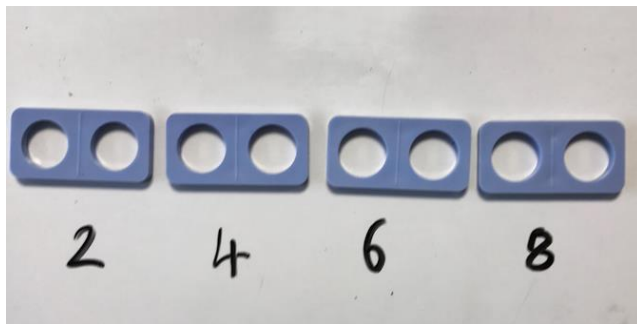
Year One

Pupils should be able to:

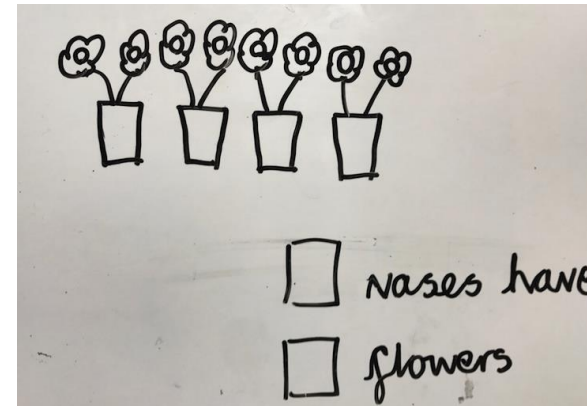
- solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher

Counting in multiples

Use of everyday objects or Numicon to count in 2s, 5s and 10s.

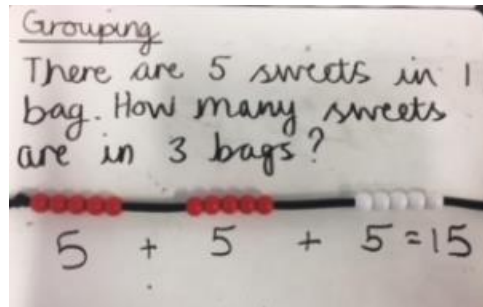


Use of images, given and then created by the children to support counting in 2s, 5s and 10s

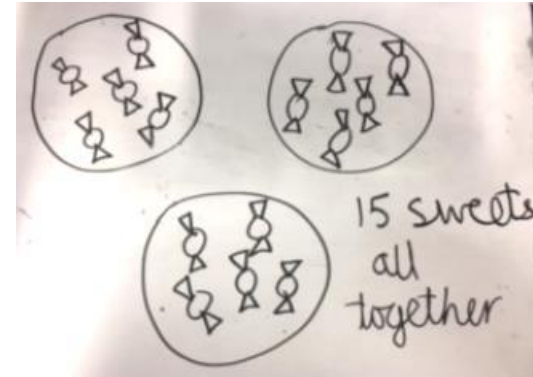


Repeated Addition

Bead strings to understand multiplication as grouping.

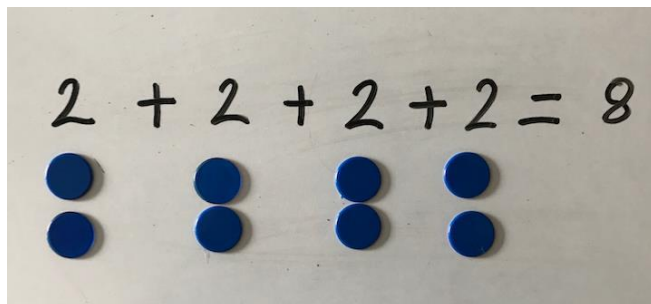


To draw own visuals to support multiplication as grouping.

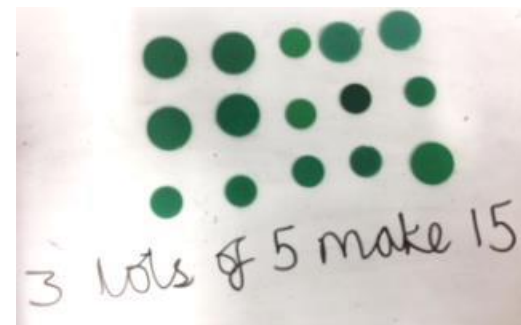


Arrays

Repeated addition to support understanding of arrays.

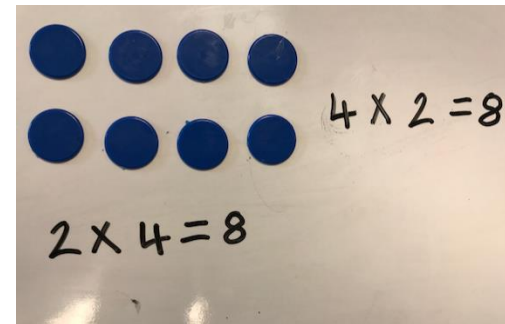


To draw own visuals to support multiplication as grouping.



Commutative relationship

Introducing the commutative relationship to show that 2 equations can be created from 1 array.



Numbered Number Line

Children use practical objects within a number line and move towards jumping on a numbered number line.



Division

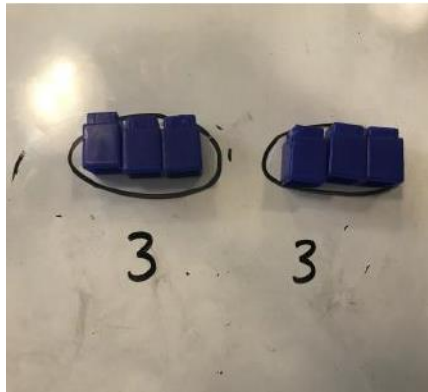
Year One

Pupils should be able to:

- Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

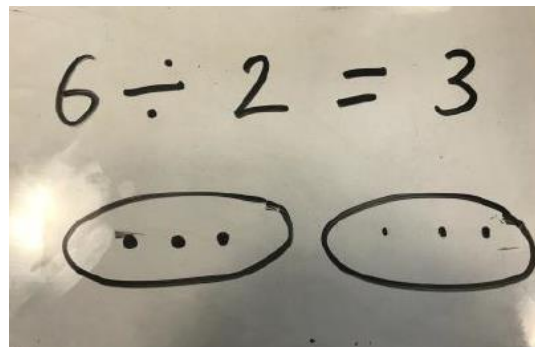
Sharing

Children should experience sharing objects out equally between 2, 5 and 10

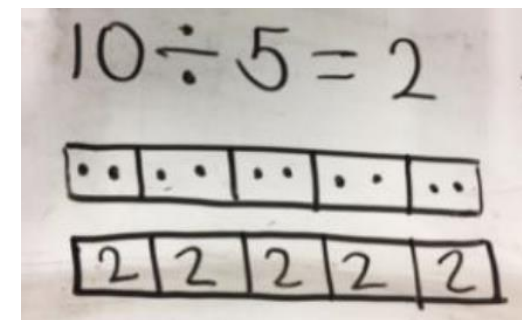


The answer is the amount shared in each group

Children can then move on to representing pictorial in books either them drawing themselves or sharing circles provided

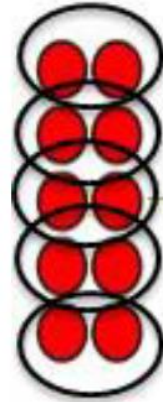
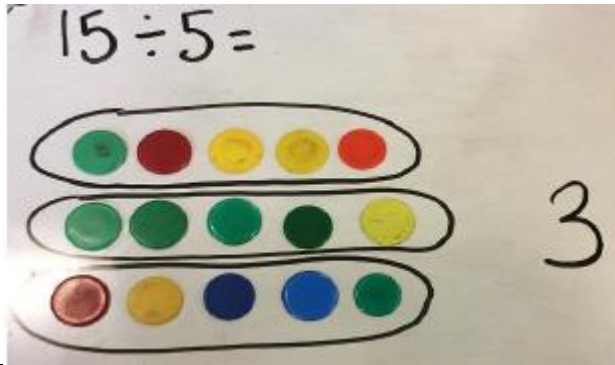


If children are ready, they could be pushed on to solve more abstractly through use of a bar model. Or provided with a bar and show their representations



Grouping

Children should experience grouping objects into groups of the multiple. Explaining objects into groups of 5 and seeing how many groups there are through use of arrays



Rather than children drawing arrays in their books, in year 1 children may be provided pictorially with array and children can circle to group. If children are ready they can draw their own.

$$10 \div 2 = 5$$