

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

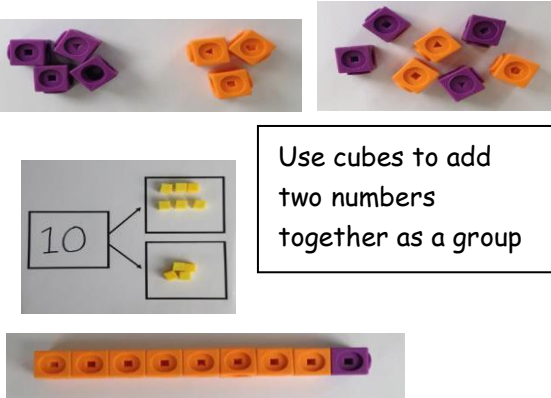

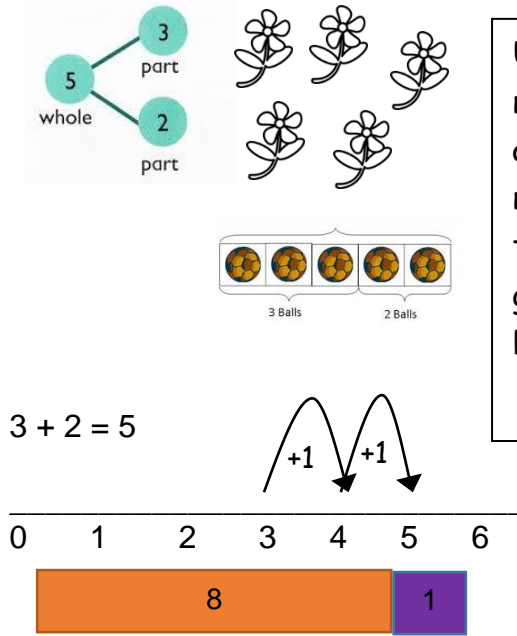
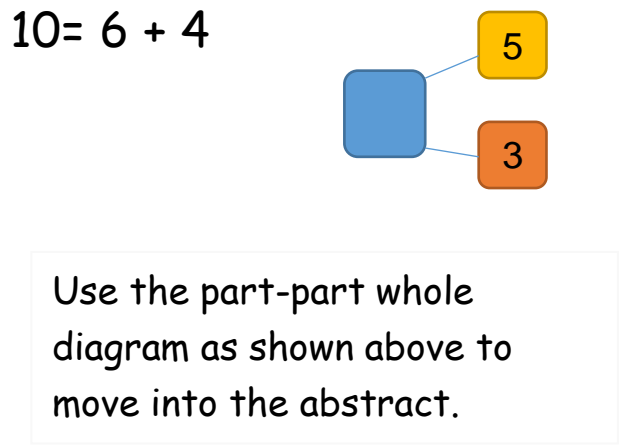
**Pictorial** - Children should then build on this concrete approach by using pictures.

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 - Addition

+	<p><b>Objective and Strategies</b> Combining two parts to make a whole: part-whole model (Numbers up to 20)</p>	<p><b>EYFS/ Year One</b></p>
<b>Fluency – Learning in stages</b>		
<b>Concrete</b>	<b>Pictorial</b>	<b>Abstract</b>
 <p>Use cubes to add two numbers together as a group</p> <p><math>5 + 1 = 6</math></p> 	 <p>Use numberlines to add two numbers together as a group or in a bar.</p> <p><math>3 + 2 = 5</math></p>	<p><math>4 + 3 = 7</math></p> <p><math>10 = 6 + 4</math></p>  <p>Use the part-part whole diagram as shown above to move into the abstract.</p>

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**Objective and Strategies** Starting at the bigger number and counting on

Year One

Fluency – Learning in stages

Concrete

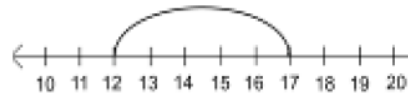


Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.



Pictorial

$12 + 5 = 17$



Start at the larger number on the numberline and count on in ones or in one jump to find the answer.

Using the bar model (below) count on in ones or one jump to add.

12	1	1	1	1	1
?					

12	5
?	

Abstract

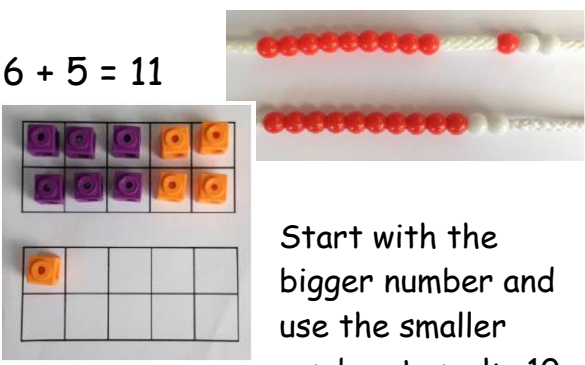
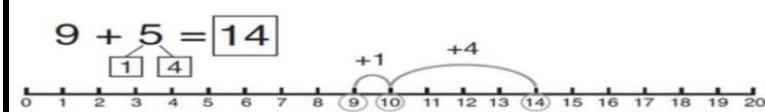
$5 + 12 = 17$

Place the larger number in your head and count on the smaller number to find your answer.

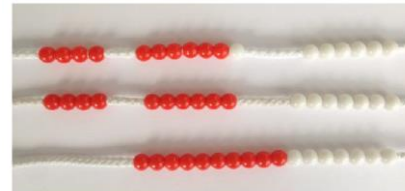
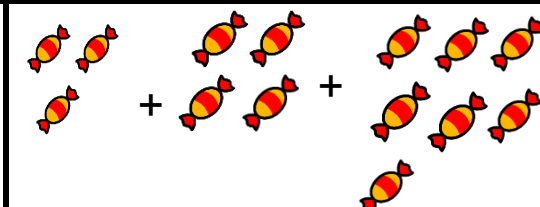
Complete the diagram. Can you extend it?



+	<b>Objective and Strategies</b> <span style="color: purple;">Regrouping to make 10.</span>	Year One
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Fluency – Learning in stages		
Concrete	Pictorial	Abstract
<p><math>6 + 5 = 11</math></p>  <p>Start with the bigger number and use the smaller number to make 10.</p> <p>Also, children can use Numicon and Diennes to make 10.</p>	<p>Use pictures or a number line.</p> <p>Regroup or partition the smaller number to make 10.</p> 	<p><math>7 + 4 = \underline{\quad}</math></p> <p>If I am at seven, how many more do I need to make 10. How many more do I add on now?</p>

+	<b>Objective and Strategies</b> <span style="color: purple;">Adding three single digits</span>	Year One
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Fluency – Learning in stages		
Concrete	Pictorial	Abstract
<p>Put 4 and 6 together to make 10. Add on 7.</p>  <p>Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit</p>	 <div style="border: 1px solid black; padding: 5px; margin-top: 10px; width: fit-content;"> <p>Add together three groups of objects. Draw a picture to recombine the groups to make 10.</p> </div>	<p><math>4 + 7 + 6 = 10 + 7</math></p> <p style="text-align: center; margin-left: 20px;">10</p> <p style="text-align: center; margin-left: 100px;">= 17</p> <p>Combine the two numbers that make 10 and then add on the remainder.</p>

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# Objective and Strategies *Column method- no regrouping*

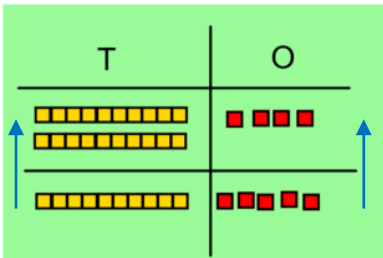
Year Two

## Fluency – Learning in stages

### Concrete

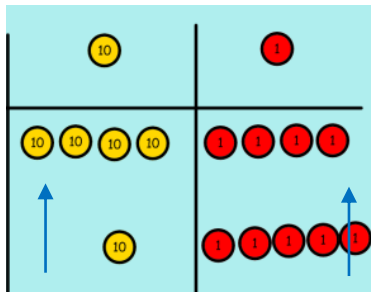
$24 + 15 =$

Add together the ones first then add the tens. Use the Base 10 blocks first before moving onto place value counters.



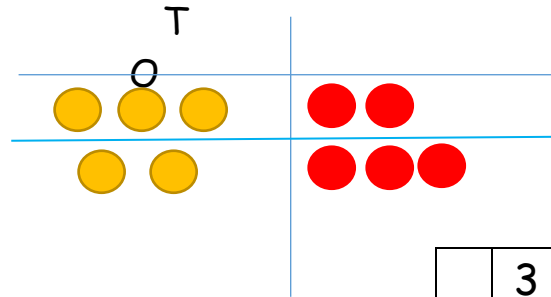
	2	4
+	1	5
	3	9

	4	4
+	1	5
	5	9



### Pictorial

After practically using the base 10 blocks and place value counters, children can draw the counters to help them to solve additions.



	3	2
+	2	3
	5	5

### Abstract

#### Calculations

$21 + 42 =$

$$\begin{array}{r} 21 \\ + 42 \\ \hline \end{array}$$

21	42
= Total	

Children progress onto the written method.

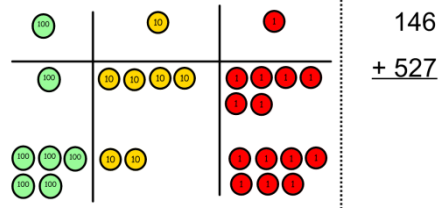
Children are also introduced to the bar model to understand addition.

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Objective and Strategies Column method- regroupingYear Two -  
Year Six

## Fluency – Learning in stages

## Concrete



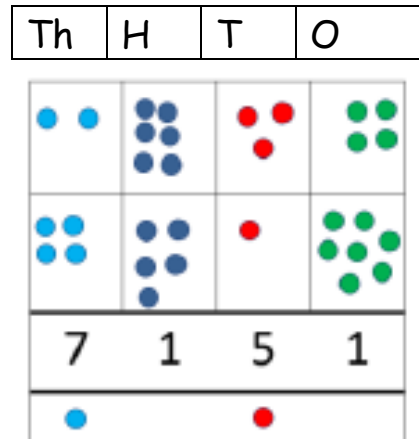
Make both numbers on a place value grid. This can also be done with place value counters or diennes to help children clearly see that 10 ones equal 1 ten and 10 tens equal 100.

Add up the units and exchange 10 ones for one ten. Add up the rest of the columns, exchanging the 10 counters from one column for the next place value column until every column has been added.

As children move on to decimals, money and decimal place value counters can be used to support learning.

## Pictorial

Children can draw a pictorial representation of the columns and place value counters to further support their learning and understanding.



## Abstract

Clearly show the exchange below the addition.

	1	4	7	8
+		1	6	4
	1	6	4	2
		1	1	

As the children move on, introduce decimals with the same number of decimal places and different. Money can be used here.