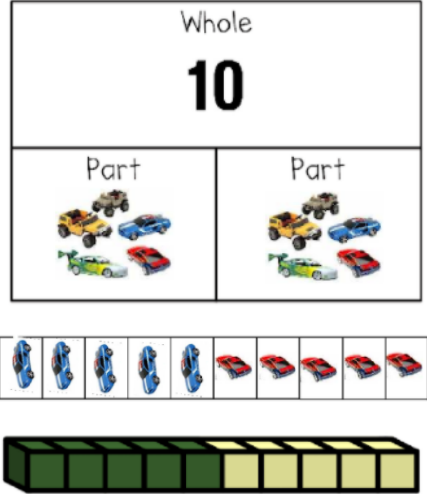
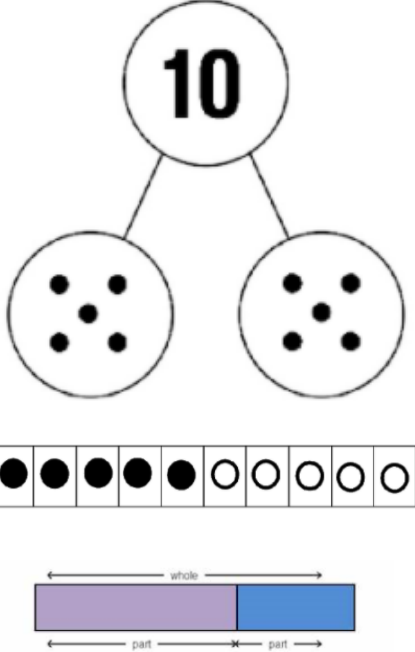
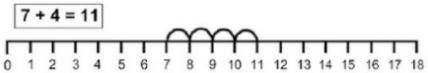
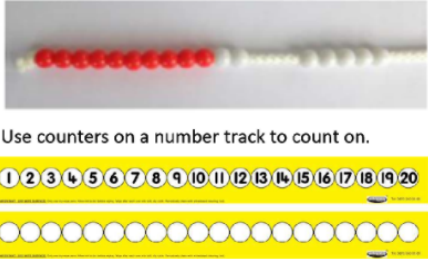
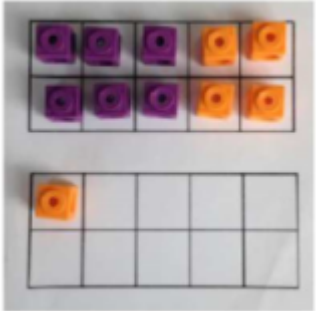
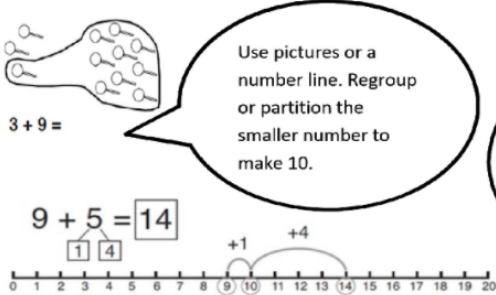




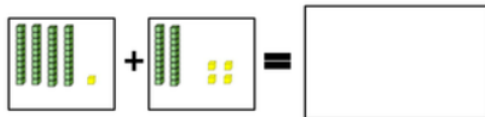
Calculation guidance to develop Addition

Progression in the Teaching of Calculations			
ADD IT!			
Objective/ strategy	Concrete - build it/ use it!	Pictorial - draw it!	Abstract - solve it!
Combine two parts to make a part-part-whole bar model.	<p>Using real life objects:</p> 		$5 + 5 = 10$ $10 = 5 + 5$ 5 add 5 is equal to 10 10 is equal to 5 add 5 $7 + 3 = 10$ $3 + 7 = 10$ $10 = 7 + 3$ $10 = 3 + 7$
Starting at the greatest number and counting on	<p>Start with the greatest amount of beads and count forwards in ones to find the total</p>		$7 + 4 = 11$ Place the greatest number in your

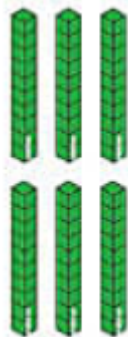
<p>in ones</p>	 <p>Use counters on a number track to count on.</p>	<p>Start at 7 as it is the greatest addend and count on in 4 jumps of one to find the sum.</p>	<p>head and count on 4.</p> <p>$11 = 7 + 4$</p> <p>Spot the relationship that both sides are worth the same amount.</p>
<p>Regrouping to make 10</p>	<p>$6 + 5 = 11$ which is $6 + 4 + 1 = 11$</p> 	 <p>You could use a tens frame and draw in the dots to make 10 then continue.</p>	<p>$7 + 4 = 11$</p> <p>In your head, recognise the number bond $7 + 3 = 10$ then add one more on.</p>
<p>Adding 3 single digits</p>	<p>$4 + 7 + 6 = 17$</p> <p>Use bead strings to put $4 + 6$ together to make 10 then add on 7 more. Always look for number bonds if possible.</p> 	 <p>$4 + 6 + 7 = 17$</p> <p>Add together 3 sets of objects, re-drawing to make 10 if possible, then adding on the rest.</p>	<p>$4 + 7 + 6 = 17$</p> <p>Use the commutative law to move the addends.</p> <p>$(4 + 6) + 7 = 17$</p>

Partitioning tens and ones to add

Use Dienes or another manipulative and show $41 + 24$ in this format.



Then, group the tens and add.



Then, group the ones and add.

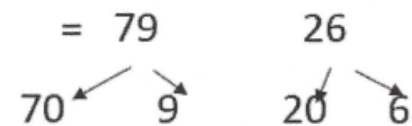


Then put them altogether.

Draw place value counters of partitioned tens and ones. Then put them altogether.



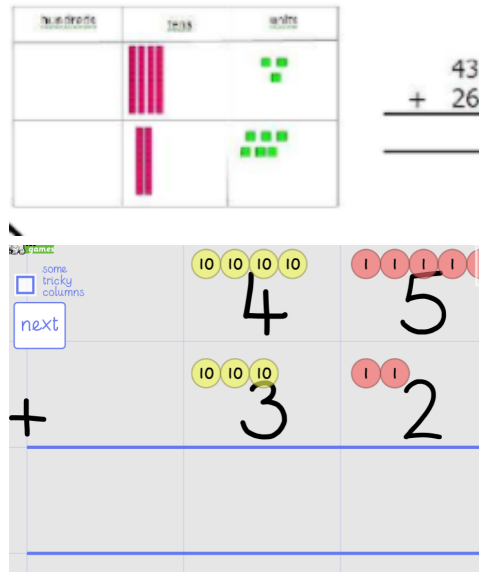
$$79 + 26$$



$$70 + 20 = \quad 9 + 6 =$$

**Column method
no regrouping**

Use Dienes or place value counters to add tens and ones, before moving on.



hundreds	tens	ones
	////	□□□
	//	□□□
	6	9

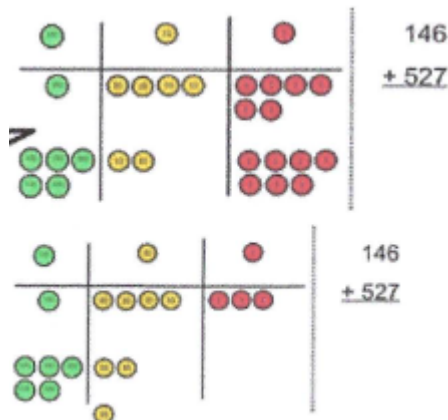
Draw the tens and ones in a place value grid to add them.

$$21 + 42 = 63$$

$$\begin{array}{r} 21 \\ + 42 \\ \hline 63 \end{array}$$

**Column method
with regrouping -
expanded into
compact method**

Use Dienes or place value counters.



Place value grids can be drawn into books with counters or Dienes represented.

hundreds	tens	ones
/	////	□□□□□
////	//	□□□□□
6	6	3
	1	

Begin with the expanded form and all regrouped digits underneath. Then, move on to compact method. Then, adding decimal numbers with the same number of decimal places (in a relevant context e.g. money). Then, adding decimal numbers with different decimal places.

Start with the lowest place value column and make 10 ones, then exchange for 1 ten and regroup underneath.

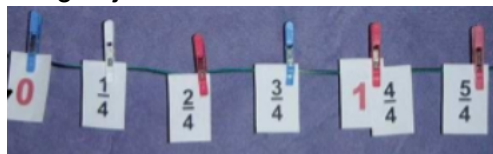
$$\begin{array}{r} 100+40+6 + \\ \underline{500+20+7} \\ + \quad + \end{array}$$

$$\begin{array}{r} 536 \\ + 85 \\ \hline 621 \\ 11 \end{array} \quad \begin{array}{r} 72.8 \\ + 54.6 \\ \hline 127.4 \\ 11 \end{array}$$

$$\begin{array}{r} 23.61 \\ + 90.77 \\ \hline 114.38 \end{array}$$

Adding fractions

Count forwards in fractional parts using objects and a number line.



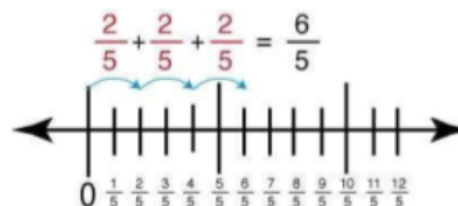
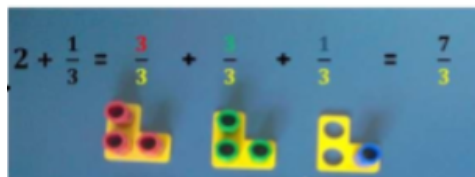
Use cubes and fraction tiles to add fractions with different denominators.

Draw number lines for adding fractions and counting on in jumps of the given fraction.

Encourage children to spot the relationships between equivalent fractions in order to find a common denominator.

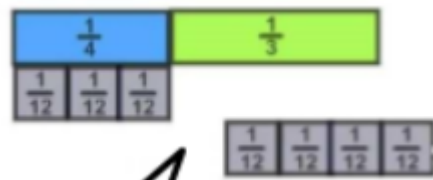


Use Numicon to add wholes and fractions less than 1.



Use bar models to add fractions with same and different denominators.

$$\frac{1}{4} + \frac{1}{3}$$



$$\frac{1}{4} + \frac{1}{3} =$$

$$\frac{1 \times 3}{4 \times 3} + \frac{1 \times 4}{3 \times 4}$$

$$\frac{3}{12} + \frac{4}{12} = \frac{7}{12}$$

