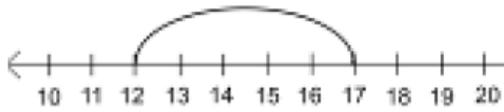
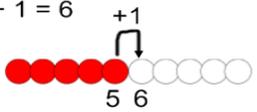
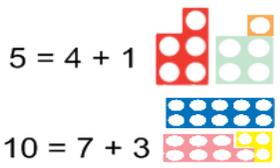
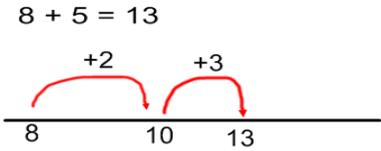
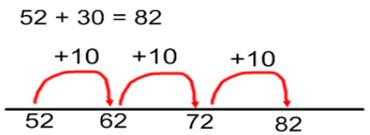


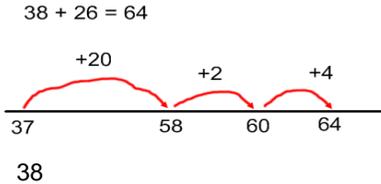
+ Addition +

This shows the progression of teaching addition. Each method is designed to lead on to the next gradually building up children's understanding of number.

Remember, children should think about whether a calculation can be done mentally first.

STEP	Activity	Strategy	Comments
<p>1</p> <p><i>Early addition</i></p>	<p>Counting</p>	<p>Combining groups of objects to find the total</p> <div style="display: flex; align-items: center; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 150px;"> <p>Use cubes to add two numbers together as a group or in a bar. We use Numicon for number bonds and adding.</p> </div> <div style="text-align: center;"> $3 + 2$  </div> <div style="text-align: center;">   </div> </div>	<p>Put all objects together and count...</p> <p>Find total of 2 groups using objects in hoops...</p> <p>Then total of 2 groups using objects and numerals in hoops...</p> <p>Then... total of 2 groups using objects and hoops and recording as a number sentence...</p> <p>Then without hoops, with objects and record as a number sentence</p>
<p>2</p> <p><i>Relating groups of objects to number line</i></p>	<p>Finding numbers</p>	<p>'Informal number line' / number sentences</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center; margin-right: 20px;">  </div> <div style="text-align: center;"> $3 + 2$   </div> </div> <p>As above, alongside a calculation</p>	<p>Look at number sentences. Use objects on sheets to find answer</p> <p>Then... Look at number sentences – use objects provided to find the answer</p> <p>Look at number sentences: what do we have to do? Use objects to find an answer</p> <p>$5 + 12 = 17$</p> <p>Place the larger number in your head and count on the smaller number to find your answer.</p>
<p>3</p> <p><i>Locating numbers on a number line & adding one more.</i></p>	<p>Counting to ten and back</p> <p>Locating numbers</p>	<p>Add one onto a number</p> <div style="text-align: center;"> $5 + 1 = 6$  </div>	<p>Find 5 on number track, then add one</p> <p>Encourage children to locate the first number and count on from there, rather than starting at zero.</p>

<p>4</p> <p><i>Number bonds up to 10.</i></p>	<p>Pegs on a coat hanger (turn round to show inverse)</p> <p>Write all the ways to make</p> <p>2,3,4,5,6,7,8,9,10</p>	<p>How many ways of splitting up a number?</p> <p>5 = ? + ?</p> <p>10 = ? + ?</p> <p>9 = ? + ?</p> <p>8 = ? + ?</p> <p>Etc</p> <div style="text-align: right;">  </div>	<p>Model with Numicon</p> <p>In order to calculate effectively children must know all the bonds for numbers up to ten. This will enable them to jump on the number line rather than <i>count</i>.</p> <p>Using a bead bar is also an effective way to showing how to split smaller numbers up</p> <p>KS1 children to also model this using jumps on a number line in order to lead to step 5.</p>
<p>5</p> <p><i>Using number bonds to add on the number line.</i></p>	<p>'Rapid recall</p> <p>Adding to a ten mentally</p> <p>(10 + 2 = 12, 10 + 3 = 13 10 + 4 = 14...)</p>	<p>Bridge 10 (e.g. 8 + 5 = 13)</p> <p>Include use of bead bar</p> <div style="text-align: center;">  </div>	<p>Emphasise JUMP on number line, NOT counting!</p> <p>Use number bonds to jump to the next ten on the number line. Then add what is left in one jump.</p>
<p>6</p> <p><i>Using number line to jump in tens from any 2-digit number.</i></p>	<p>Counting on and back in steps of ten.</p>	<p>Adding multiples of 10</p> <div style="text-align: center;">  </div>	<p>Starting from any 2-digit number children must be able to jump in steps of ten.</p> <p><i>Focus on what happens to the tens and units as you count.</i></p> <p><i>Focus on tricky parts: counting over 100, counting back past 20 in the teen numbers.</i></p>

<p>7</p> <p><i>Adding on the number line.</i></p>	<p>Counting on in tens</p> <p>Adding to a ten mentally</p>	<p>TO + TO</p> $38 + 26 = 64$ 	<p>This puts together the two previous ways of adding on a number line.</p> <p>THE NUMBER LINE REPRESENTS THE JUMPS IN YOUR HEAD!</p> <p><i>If adding near multiples of ten, more confident pupils can do adding a ten and adjusting:</i></p> $43 + 19, = 43 + 20 = 63 - 1 = 62$																																													
<p>8</p> <p><i>Column addition for 3 digit numbers.</i></p>	<p>Practice partitioning</p> <p>Number bonds up to ten (to avoid counting in ones when adding up columns)</p>	<p>HTO + HTO using partitioning</p> $347 + 122 =$ <table style="margin-left: 20px;"> <tr> <td>300</td> <td>40</td> <td>7</td> </tr> <tr> <td>+100</td> <td>20</td> <td>2</td> </tr> <tr> <td>400</td> <td>60</td> <td>9 = 469</td> </tr> </table> <p>THEN, GO BEYOND 10 in 1 column etc.</p> $159 + 264 =$ <table style="margin-left: 20px;"> <tr> <td>100</td> <td>50</td> <td>9</td> </tr> <tr> <td>+200</td> <td>60</td> <td>4</td> </tr> <tr> <td>300</td> <td>110</td> <td>13 = 423</td> </tr> </table>	300	40	7	+100	20	2	400	60	9 = 469	100	50	9	+200	60	4	300	110	13 = 423	<p>Start by partitioning the numbers so the children understand what each column represents.</p> <p>Children should only use this when adding together 3-digit numbers and preferably when the ones add to more than ten. (Although to introduce concept using simpler numbers is a good idea)</p>																											
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<p>9</p> <p><i>Compact Column addition</i></p>	<p>Practice partitioning</p> <p>Number bonds up to ten (to avoid counting in ones when adding up columns)</p>	<p>347 + 122</p> <table style="margin-left: 20px;"> <tr> <td>347</td> <td>Then</td> <td>347</td> <td>Then, with carrying</td> <td>159</td> </tr> <tr> <td>+122</td> <td></td> <td>+122</td> <td></td> <td></td> </tr> <tr> <td>9</td> <td></td> <td>469</td> <td></td> <td></td> </tr> <tr> <td>60</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>400</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>536</td> <td>469</td> <td></td> <td></td> <td></td> </tr> <tr> <td>+ 85</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>621</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>11</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	347	Then	347	Then, with carrying	159	+122		+122			9		469			60					400					536	469				+ 85					621					11					<p>As the children become more confident in column addition they can gradually start to use the compact method for speed.</p> <p>It is vital that they still understand that the small '1' represents tens or hundreds.</p> <p>Children will be working with up to 7 digits by end of year 6.</p>
347	Then	347	Then, with carrying	159																																												
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<p>10</p> <p><i>Compact Column addition with decimals</i></p>	<p>'Moving digits' ITP to investigate decimals.</p> <p>Practice partitioning Number bonds up to ten (<i>to avoid counting in ones when adding up columns</i>)</p>	<p>Same number of decimal places</p> <p>78.5 km</p> <p>+ <u>54.6 km</u></p> <p>133.1 km</p> <p>1 1</p> <p>Then, different number of decimal places</p> <p>124.9</p> <p>+ <u>7.25</u></p> <p><u>132.15</u></p> <p>1 1</p>	<p>As with the compact column addition strategy it is vital that children understand what each column represents in terms of value.</p>