

<p><b>Year 1</b>  <b>Read, write and interpret mathematical statements involving addition (+), and equals (=) signs</b></p> <p><b>Vocabulary:</b>          Number bonds, number line          Add, more, plus, make, sum, total, altogether          Inverse          Double, near double          Equals, is the same as (including equals sign)          How many more to make..?, how many more is...than..?, how much more is..?          More, many, greater, One more/          Two more / Three more...Ten more/          Count          (on/up/to/from/down)</p>	<p><b>Count up to 10 objects reliably – revision from early years</b></p>  <p>‘You have five apples and I have three apples. How many apples altogether?’</p> <p><b>Use concrete objects – multi-link, small plastic toys (all the same)</b></p> <p><b>Given a number identify one more</b></p>  	<p><b>Progression:</b>          Count up to 10 objects reliably.</p> <p>Given a number, identify one more</p> <p>Read, write and interpret mathematical statements involving addition (+) and the equals (=) sign</p> <p>Add one- digit and two-digit numbers within 20, including zero</p> <p>Solve missing number problem eg  <math>10 + \square = 16</math></p>
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Equal to, the same as,  
Units, ones, tens  
Zero, one, two, three to twenty, and beyond

**Read, write and interpret mathematical statements involving addition (+)**

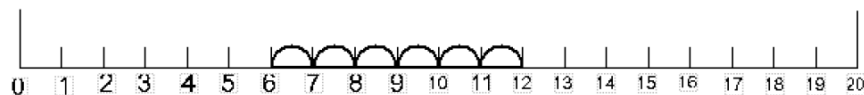


**5 + 4 = 9**

'Put your finger on number five. Count on (count forwards) four.'

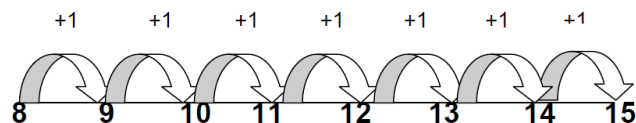
Then progress to a **marked number line**:

**6 + 6 = 12**



'Put your finger on number six and count on six.'

**8 + 7 = 15** 'Put your finger on number eight and count on seven.'

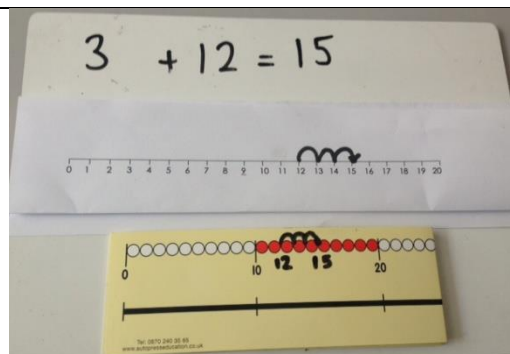


Ensure children are confident with using a marked number line before moving on to an empty number line (see year two guidance).

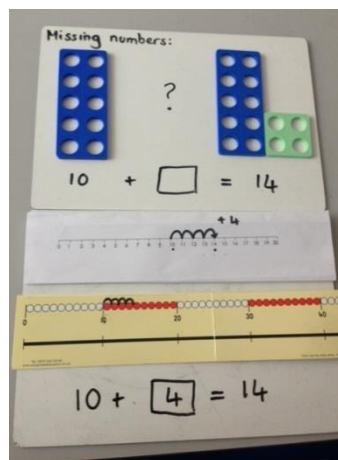
Continue to practise counting on from the largest number for addition with totals within 20.

	<b>Add one- digit and two-digit numbers within 20, including zero</b>	
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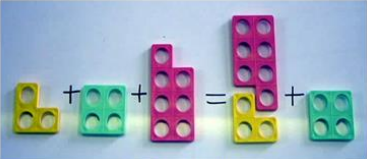
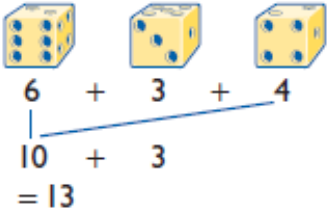
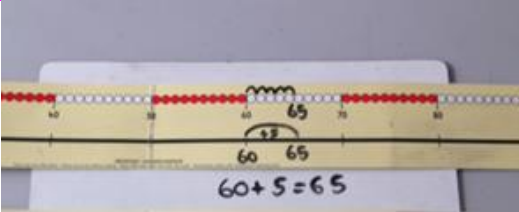
**Solve missing number problems eg  $10 + \square = 16$**



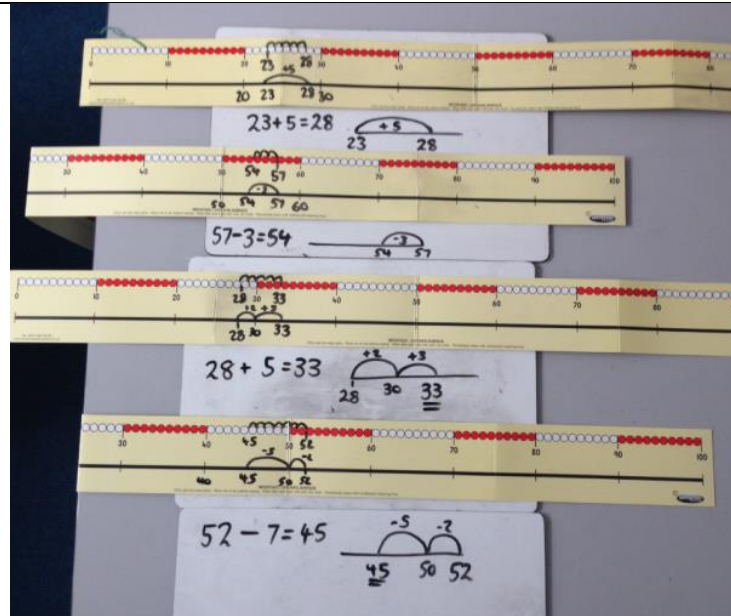
**Year 2**  
Add and numbers using concrete

**Ensure children are confident with previous year's strategies. Revise where appropriate.**

**Progression:**  
Add any single digit number to

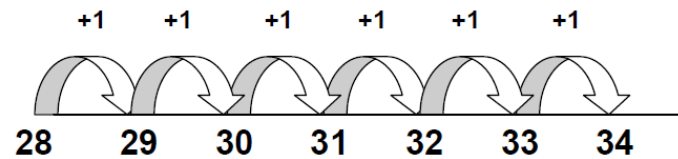
<p>objects, pictorial representations, and mentally, including:</p> <p><b>A two digit number and ones</b></p> <p><b>A two digit number and tens</b></p> <p><b>Two two-digit numbers</b></p> <p><b>Three one-digit numbers</b></p> <p><b>(see mental maths policy for these objectives)</b></p> <p><b>Vocabulary:</b>          Number bonds,          number line          Add, more, plus,          make, sum, total,          altogether          Inverse          Double, near double</p>	<p><b>Three one digit numbers</b></p>  <p><math>3 + 4 + 7 = 14</math>          Re-arranging numbers to use bonds to 10 to help addition</p>  <p><math>6 + 3 + 4 = 13</math></p> <p><b>A 2-digit number and ones</b></p> <p><b>Add ones to multiples of 10.</b></p>  <p><math>60 + 5 = 65</math></p> <p><b>Add ones to a two-digit number (including crossing the tens boundary).</b></p>	<p>or from a multiple of 10 (<math>60 + 5</math>).</p> <p>Add a single-digit number to or from a two-digit number, including crossing the tens boundary (<math>23 + 5</math>, progressing to <math>28 +</math>).</p> <p>Add a multiple of 10 from any 2-digit number (<math>27 + 60</math>).</p> <p>Add two 2-digit numbers (<math>34 + 65</math>).</p>
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Equals, is the same as (including equals sign)  
 How many more to make..?, how many more is...than..?, how much more is..?  
 More, many, greater, One more/  
 Two more / Three more...Ten more/  
 Count (on/up/to/from/down)  
 Equal to, the same as,  
 Units, ones, tens  
 Zero, one, two, three to twenty, and beyond  
 Numbers to one hundred  
 Hundreds  
 Partition, recombine  
 Hundred more/less



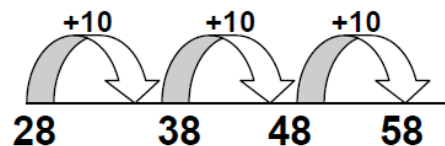
Counting on in ones using an **empty number line**, within 100...

**28 + 6 = 34**



**Add a multiple of 10 to any 2-digit number**

$$28 + 30 = 58$$

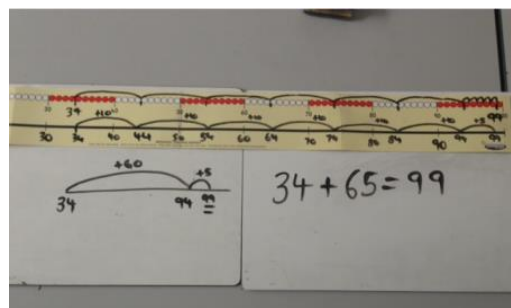


Use in conjunction with a **100 square** to show jumps of tens.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

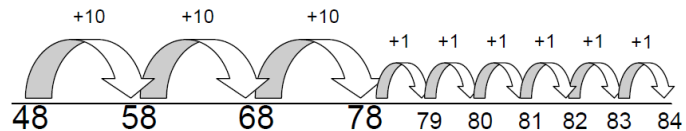
27+60=87

**Add two 2-digit numbers**

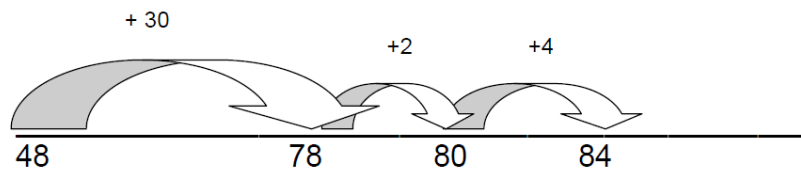


**48 + 36 = 84**

'Put the biggest number first (48), and then partition the smaller number (36 = 30 + 6) and count on: 48 + 30 + 6.'



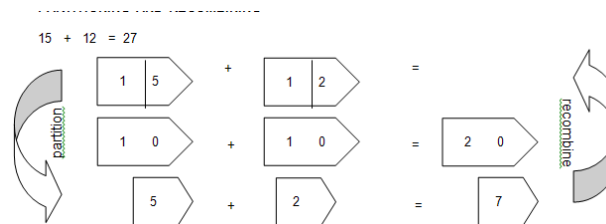
If children are confident, use more efficient jumps...





Also use the partitioning method to add two 2-digit numbers.

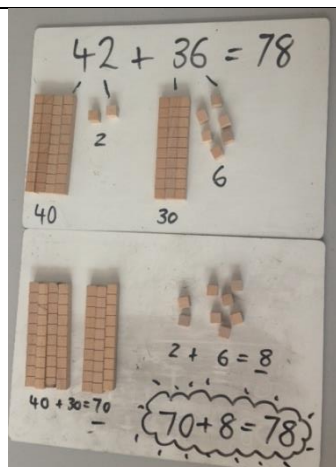
Use arrow cards/ dienes to consolidate



$$\begin{array}{r}
 43 + 25 = 68 \\
 \begin{array}{cc}
 / \quad \backslash & / \quad \backslash \\
 40 \quad 3 & 20 \quad 5
 \end{array}
 \end{array}$$

$$\begin{array}{l}
 40 + 20 = 60 \\
 3 + 5 = 8 \\
 60 + 8 = 68
 \end{array}$$

'Partition the numbers into tens and ones/units.  
 Add the tens together and then add the ones/units together.  
 Recombine to give the answer'.



Once children are confident move onto numbers that bridge the tens

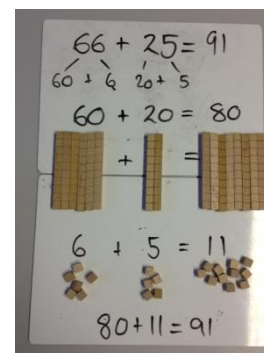
$$48 + 36 = 40 + 8 + 30 + 6$$

$$40 + 30 = 70$$

$$8 + 6 = 14$$

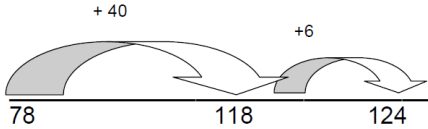
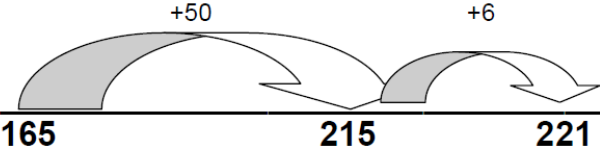
$$70 + 14 = 84$$

$$48 + 36 = 84$$



**Further develop addition with numbers that bridge the 100s boundary**

**If at any time children are making significant errors, return to the previous stage of calculation.**

<p><b>Year 3</b></p> <p><b>Add numbers with up to three digits, using formal written methods of columnar addition</b></p> <p><b>Vocabulary:</b>          Numbers to one thousand          Column addition and subtraction          Number bonds, number line          Add, more, plus, make, sum, total, altogether          Inverse          Double, near double          Equals, is the same as (including equals sign)          How many more to make..?, how many more is...than..?, how much more is..?          More, many, greater, One more/          Two more / Three</p>	<p><b>Ensure children are confident with the previous year's methods. Revise if necessary before moving on.</b></p> <p><b>Further develop the use of the empty number line</b></p> <p><b>2 digit + 2 digit (bridging 100s)</b></p> <p><math>78 + 46 = 124</math></p>  <p><b>Extend onto 3-digit + 2-digit</b></p> <p><math>165 + 56 = 221</math></p>  <p><b>Develop partitioning method:</b></p> <p>Progression</p> <ul style="list-style-type: none"> <li>• Not crossing tens</li> <li>• Crossing tens</li> <li>• Crossing hundreds only</li> <li>• Crossing tens and hundreds</li> </ul>	<p><b>Progression:</b>          Further develop the use of the empty number line for numbers that bridge 100.          -2-digit + 2-digit (bridging 10s)          -3-digit + 2-digit.</p> <p>Develop partitioning method          -Not crossing tens          -Crossing tens          -Crossing hundreds only          -Crossing tens and hundreds.</p> <p>Expanded written method for calculations that do not bridge the tens or hundreds column</p>
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<p>more... Ten more/ Count (on/up/to/from/down) Equal to, the same as, Units, ones, tens Zero, one, two, three to twenty, and beyond Numbers to one hundred Hundreds Partition, recombine Hundred more/less, expanded written method,</p>	<p><b>Expanded written method progressing towards formal written method</b></p> <p>Introduce with the calculation presented both horizontally and vertically.</p> <p><b>Calculations that do not bridge the tens or hundreds column.</b></p> $63 + 32 = 95$ $\begin{array}{r} 60 + 3 \\ + 30 + 2 \\ \hline 90 + 5 = 95 \end{array}$ <p>‘Partition the numbers into tens and ones/units. Add the tens together and then add the ones/units together. Recombine to give the answer.’</p> <p><b>NB: These numbers would be more suitable for mental calculation but initially use 2-digit numbers when introducing the column method.</b></p> <p><b>Extend onto ...</b></p> $\begin{array}{r} + 63 \\ + 32 \\ \hline + 90 \quad (3 + 2) \\ \hline 95 \quad (60 + 30) \end{array}$ <p>Add the least significant digits (units) together first and then the tens in preparation for the formal written method.</p>	<p>extending onto formal written method.</p> <p>Expanded written method for calculations that bridge the tens or the hundreds column extending onto formal written method.</p> <p>Expanded written method for calculations that bridge the tens and the hundreds columns extending onto formal written method.</p>
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**Extend onto the formal written method**

$$\begin{array}{r} 63 \\ + 32 \\ \hline 95 \end{array}$$

Use the language of place value to ensure understanding:  
 'Three add two equals five. Write five in the units column.  
 60 add 30 equals 90. Write 9 (90) in the tens column.'

**Calculations which bridge the tens or hundreds column**

Begin with the expanded written method again.

$$68 + 24 = 92$$

$$\begin{array}{r} 60 + 8 \\ + 20 + 4 \\ \hline 80 + 12 = 92 \end{array}$$

'Partition the numbers into tens and ones/units. Add the tens together and then add the ones/units together. Recombine to give the answer.'

**Extend onto ...**

$$\begin{array}{r} 68 \\ + 24 \\ \hline 12 \quad (8 + 4) \\ + 80 \quad (60 + 20) \\ \hline 92 \end{array}$$

Add the least significant digits (units) together first and then the tens in preparation for the formal written method.

If children are confident and ready introduce the formal method where the children have to “carry” ten from the ones into the tens column.

$$\begin{array}{r} 68 \\ + 24 \\ \hline 92 \\ \hline \end{array}$$

Use the language of place value to ensure understanding: ‘Eight add four equals 12. Write two in the units column and ‘carry’ one (10) across into the tens column. 60 add 20 and the ten that we ‘carried’ equals 90. Write 9 (90) in the tens column. 92 is the answer.

**NB: The digit that is “carried” should be recorded under the line in the correct column.**

**Calculations which bridge the tens and hundreds column**

Only extend onto if children are secure)

$$76 + 47 = 123$$

$$\begin{array}{r} 70 + 40 \\ + 7 + 7 \\ \hline 110 + 13 \\ \hline 123 \end{array}$$

Add the least significant digits (units) together first and then the tens in preparation for the formal written method.

Extend to...

children across the bridge 100.

$$76 + 47 = 123$$

$$\begin{array}{r} 47 \\ + 76 \\ \hline 123 \end{array}$$

Use the language of place value to ensure understanding: 'Seven add six equals 13. Write three in the units column and 'carry' one (10) across into the tens column. 40 add 70 and the ten that we 'carried' equals 120. Write 2 (20) in the tens column and 'carry' one (100) across into the hundreds column (100).

Extend to formal written method where need to "carry" columns and

The digits that have been 'carried' should be recorded under the line in the correct column.

If children are confident further develop with addition of 3 digit and 2 digit numbers:

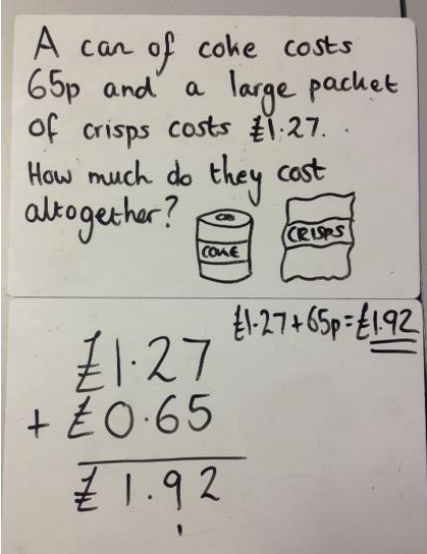
$$178 + 43 = 221$$

$$\begin{array}{r} 178 \\ + 43 \\ \hline 221 \end{array}$$

	<p>If at any time children make significant errors, return to the previous stage of calculation.</p>	
<p><b>Year 4</b>                  Add numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</p> <p><b>Vocabulary:</b>                  Tenths, hundredths                  Decimal (places)                  Thousand more/less than                  Negative integers                  Count through zero, place value                  columns, place holder,                  Numbers to one thousand</p>	<p><b>Continue to use the empty number line to add 3 and 4 digit numbers as appropriate.</b></p> <p><b>Further develop the formal written method of addition with three digits. Revisit the expanded method if necessary.</b></p> $176 + 147 = 323$ $  \begin{array}{r}  176 \\  + 147 \\  \hline  13 \quad (7 + 6) \\  + 110 \quad (70 + 40) \\  \hline  200 \quad (100 + 100) \\  \hline  323  \end{array}  $	<p><b>Progression:</b>                  Further develop the use of the empty number line to add three or four digit numbers.</p> <p>Further develop the formal written method for addition with three digits (revising the expanded method where necessary)</p> <p>Develop addition of 4-digit numbers + 3-digit</p>



<p>Column addition and subtraction          Number bonds, number line          Add, more, plus, make, sum, total, altogether          Inverse          Double, near double          Equals, is the same as (including equals sign)          How many more to make..?, how many more is...than..?, how much more is..?          More, many, greater, One more/ Two more / Three more...Ten more/          Count (on/up/to/from/down)          Equal to, the same as,          Units, ones, tens          Zero, one, two, three to twenty, and beyond          Numbers to one hundred          Hundreds          Partition, recombine</p>	<p><b>Then extend onto the formal written method.</b></p> <p><b>176 + 147 = 323</b></p> $\begin{array}{r} 147 \\ + 176 \\ \hline 323 \\ \hline \end{array}$ <p>Use the language of place value to ensure understanding:          'Seven add six equals 13. Write three in the units column and 'carry' one across into the tens column (10). 40 add 70 and the ten that we carried equals 120. Write 2 in the tens column (20) and 'carry' 1 across into the hundreds column (100). 100 add 100 and the 100 that has been carried equals 300. Write 3 in the hundreds column (300).</p> <p><b>Extend onto 4-digit add 3-digit numbers.</b></p> <p>Only extend children if they are confident using the previous methods.</p> <p><b>1845 + 526 = 2371</b></p> $\begin{array}{r} 1845 \\ + 526 \\ \hline 2371 \\ \hline \end{array}$ <p><b>Continue to develop with the addition of two 4-digit numbers and addition of decimals in the context of money and measures.</b></p> <p><b>Make sure the place value columns are lined up, including 0s as place holders.</b></p>	<p>numbers using the formal written method.</p> <p>Develop the addition of 4-digit numbers and addition of decimals in the context of money/ measures.</p>
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<p>Hundred more/less, expanded written method,</p>	 <p>A can of coke costs 65p and a large packet of crisps costs £1.27. How much do they cost altogether?</p> <p>£1.27 + £0.65 ----- £1.92</p> <p>£1.27 + 65p = £1.92</p>	
<p><b>Year 5</b> Add whole numbers with more than 4 digits, including using formal written methods (columnar addition)</p> <p><b>Vocabulary:</b> Efficient written method Tenths, hundredths</p>	<p><b><u>Continue to use the empty number line for larger numbers and decimals as appropriate.</u></b></p> <p><b><u>Continue to develop the formal written method for addition with larger numbers and decimal numbers and with the addition of 3 or more numbers.</u></b></p> <p>Ensure that children are confident with lining up place value columns.</p>	<p><b><u>Progression:</u></b> Further develop the use of the empty number for larger numbers and decimals.</p> <p>Continue to develop the formal written method for addition with larger</p>

<p>Decimal (places)          Thousand more/less than, decimal places,          Negative integers          Count through zero, place value columns, place holder,          Numbers to one thousand          Column addition and subtraction          Number bonds, number line          Add, more, plus, make, sum, total, altogether          Inverse          Double, near double          Equals, is the same as (including equals sign)          How many more to make..?, how many more is...than..?, how much more is..?          More, many, greater, One more/          Two more / Three more...Ten more/</p>	<p style="text-align: center;"><b>21848 + 1523 = 23371</b></p> <p><b>Make sure used to ensure that recorded column.</b></p> $\begin{array}{r} 21848 \\ + 1523 \\ \hline 23371 \\ \small{\phantom{0}1 \phantom{0}1} \end{array}$ <p><b>Using the decimal numbers.</b></p> <p>Ensure that children use the language of place value to support understanding and ensure that the decimal points line up.</p> <p style="text-align: center;"><b>£154.75 + £233.82 = £388.57</b></p> $\begin{array}{r} 154.75 \\ + 233.82 \\ \hline 388.57 \\ \small{\phantom{0}1} \end{array}$ <p><b>Continue to apply and practise the formal method throughout year 5. Ensure mental methods are used when more appropriate i.e. 2-digit numbers.</b></p>	<p>numbers and decimal numbers and with the addition of 3 or more numbers.</p> <p>Use formal written method for adding decimal numbers.</p>
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language of place value is ensure understanding and the “carried” digits are under the line in the correct

**formal written method for**

Continue to use the language of place value to ensure understanding.

<p>Count (on/up/to/from/down) Equal to, the same as, Units, ones, tens Zero, one, two, three to twenty, and beyond Numbers to one hundred Hundreds Partition, recombine Hundred more/less, expanded written method,</p>		
<p><b>Year 6</b></p> <p><b>Vocabulary:</b> Order of operations Efficient written method Tenths, hundredths Decimal (places) Thousand more/less than, decimal places, Negative integers Count through zero, place value</p>	<p><b>No objectives have been included in the programmes of study explicitly related to written methods for addition in Y6. However, there is an expectation that children will continue to practise and use the formal written method for larger numbers and decimals and use these methods when solving problems, when appropriate (see previous year’s guidance for methods).</b></p> <p><b>Our aim is that by the end of Y6, children use mental methods (with jottings) when appropriate, but for calculations that they cannot do in their heads, they use an efficient formal written method accurately and with confidence.</b></p>	

Frances Olive Anderson Primary School Calculation Policy Addition

<p>columns, place holder,          Numbers to one thousand          Column addition and subtraction          Number bonds, number line          Add, more, plus, make, sum, total, altogether          Inverse          Double, near double          Equals, is the same as (including equals sign)          How many more to make..?, how many more is...than..?, how much more is..?          More, many, greater, One more/          Two more / Three more...Ten more/          Count          (on/up/to/from/down)          Equal to, the same as,          Units, ones, tens          Zero, one, two, three to twenty, and beyond</p>		
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**Frances Olive Anderson Primary School Calculation Policy Addition**

Numbers to one hundred Hundreds Partition, recombine Hundred more/less, expanded written method,		
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