

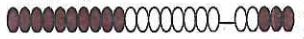
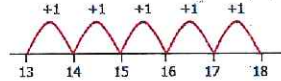
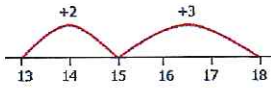
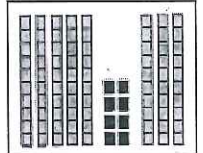
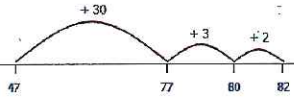
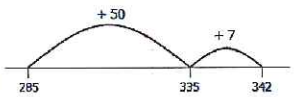


## ADDITION

### STATUTORY EXPECTATIONS

### Rapid Recall/Mental Calculations

### Non-statutory guidance

Y1	<p>Count ... from 1-20 ... and say which no. is 1 more than a given no. Using quantities objects, + two U nos and count on to find the answer. [Expected] Estimate no. of objects; check quantities by counting up to 20. [Exceeding]</p>	<p>Practical or recorded using ICT. Hannah ... listed how many girls and how many boys were outside. [She] was able to say that "There are 5 girls and 4 boys. That's 9 altogether".  When playing in the shop Christopher used his shopping list to add 2 amounts. He said "the beans are 5 pence and the bananas are 3 pence, altogether that is 8 pence."  [EYFS Profile exemplifications, STA]</p>	<p>Pictures/Objects I eat 2 cakes and my friend eats 3. How many cakes did we eat altogether?    [Might be recorded as: 2 + 3 = 5]</p>	<p>Symbolic 8 people are on the bus. 5 more get on at the next stop. How many people are on the bus now    [Might be recorded as: 8 + 5 = 13]</p>		
Y1	<p>Add (and subtract) one-digit and two-digit numbers to 20 (9 + 9, 18 - 9), including zero  Read/write/interpret statements involving addition (+), subtraction (-) and equals (=) signs.</p>	<p><b>Pupils use concrete objects and pictorial representations</b> (eg place value counters, Dienes)  <b>Problems should include terms: put together, add, altogether, total, take away, distance between, more than and less than, so pupils develop concept of +/- and use operations flexibly.</b></p>	<p>Practical/recorded using ICT Pictures/Symbolic (see above)  Visual (modelled using bead strings) 13 + 5 = 18  </p>	<p>Visual (efficient jumps) 13 + 5 = 18 [jumps may be in 1s] </p>	<p>Use known facts/partitioning 8 + 5 = 13 8 + 2 = 10 10 + 3 = 13</p>	<p>Represent/use number bonds (and related subtraction facts) within 20.  Missing number problems (eg 16 = ? + 9)  <i>Memorise/reason with bonds to 10/20 in several forms (eg 9 + 7 = 16; 16 - 7 = 9; 7 = 16 - 9). Pupils should realise the effect of adding or subtracting zero - establishes +/- as related operations.  Pupils combine and increase numbers, counting forwards and backwards.</i></p>
Y2	<p>TU + U TU + tens TU + TU U + U + U  [Show addition of two numbers can be done in any order.]</p>	<p>Recognise/use inverse relationship between +/- and use to check calcs and missing number problems.  <b>Pupils use concrete objects, pictorial representations and mental strategies.</b> (eg place value counters, Dienes)  </p>	<p>Visual (efficient jumps) 35 + 47 = 82   [Also jumps can be in 10s and 1s]</p>	<p>No number line 35 + 47 = 82 47 + 30 = 77 77 + 3 = 80 80 + 2 = 82</p>	<p>Partitioning 35 + 47 = 82 40 + 30 = 70 7 + 5 = 12  47 + 35 = 82 40 + 7 30 + 5 70 + 12</p>	<p>Recall and use addition facts to 20 fluently. Derive and use related facts up to 100.  Solve problems by applying increasing knowledge of mental methods.  <i>Pupils extend understanding of the language of + to include sum.  Practise + to 20 to derive facts such as using 3 + 7 = 10 to calculate 30 + 70 = 100, 100 - 70 = 30 and 70 = 100 - 30. Check calcs, including by adding numbers in a different order to check +. Establishes commutativity and associativity of addition.</i></p>
Y3	<p>Use formal written methods of columnar addition. TU + TU HTU + TU HTU + HTU</p>	<p>Number line 57 + 285 = 342 </p>	<p>No number line 57 + 285 = 342 285 + 50 = 335 335 + 7 = 342</p>	<p>Expanded vertical 374 + 248 12 110 500 622</p>	<p>Compact vertical 374 + 248 622 11</p>	<p>Estimate answers and use inverse to check.  HTU + U; HTU + tens HTU + hundreds  Use number facts and place value to solve problems.  <i>For mental calcs with TU nos, answers could be &gt;100.</i></p>
Y4	<p>Use formal written methods of columnar addition. HTU + HTU ThHTU + HTU ThHTU + ThHTU</p>	<p>Estimate and use inverse operations to check answers to a calculation.  Estimate, compare and calculate different measures, including money in pounds and pence.</p>	<p>Expanded vertical 789 + 642 = 1431 <math display="block">\begin{array}{r} 789 \\ + 642 \\ \hline 11 \\ 120 \\ 1300 \\ \hline 1431 \end{array}</math></p>	<p>789 + 642 = 1431 <math display="block">\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \end{array}</math></p>	<p>5735 + 562 = 6297 <math display="block">\begin{array}{r} 5735 \\ + 562 \\ \hline 7 \\ 90 \\ 1200 \\ 5000 \\ \hline 6297 \end{array}</math></p>	<p>Solve addition two-step problems in contexts, deciding which operations and methods to use &amp; why.  Solve simple measure and money problems involving fractions and decimals to 2dp  <i>Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency.  Pupils build on their understanding of place value and decimal notation to record metric measures, including money.</i></p>
Y5	<p>Add whole numbers &gt;4 digits, including using formal written methods (columnar addition).  Decimals up to 2dp (eg 72.5 + 45.7)</p>	<p>Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition multi-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>Solve problems involving number up to 3dp.  Solve problems involving converting between units of time. [Measurement]  Use all four operations to solve problems involving measure [eg length, mass, volume, money] using decimal notation including scaling. [Measurement]</p>	<p>Expanded vertical 23.70 + 48.56 0.06 1.20 11.00 60.00 72.26</p>	<p>Compact vertical 23.70 + 48.56 72.26  11</p>	<p>Pupils practise adding decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1.  Add numbers mentally with increasingly large numbers (eg 12462 + 2300 = 14762).  Pupils mentally add tenths, and one-digit whole numbers and tenths.  <i>They extend their knowledge of fractions to thousandths and connect to decimals and measures.  Pupils should go beyond the measurement and money models of decimals (eg by solving puzzles).</i></p>
Y6	<p>Solve multi-step problems in contexts, deciding which operations/methods to use and why. Decimals up to 3dp (Context: Measures)</p>	<p>Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.  Use knowledge of the order of operations to carry out calculations involving subtraction.</p>	<p>Solve problems which require answers to be rounded to specified degrees of accuracy. [Fractions]  Solve problems involving the calculation and conversion of units of measure, using decimal notation to 3dp where appropriate. [Measurement]</p>	<p>Expanded vertical 3.243 + 18.070 = 21.313 <math display="block">\begin{array}{r} 3.243 \\ + 18.070 \\ \hline 0.003 \\ 0.110 \\ 0.200 \\ 21.000 \end{array}</math></p>	<p>Compact vertical 3.243 + 18.070 21.313  1 1</p>	<p>Perform mental calculations, including with mixed operations and large numbers. Using the number line, pupils add positive and negative integers for measures such as temperature.  <i>Pupils develop skills of rounding/estimating to predict/check order of magnitude of ans to decimal calcs. Includes rounding answers to a degree of accuracy &amp; checking reasonableness.</i></p>