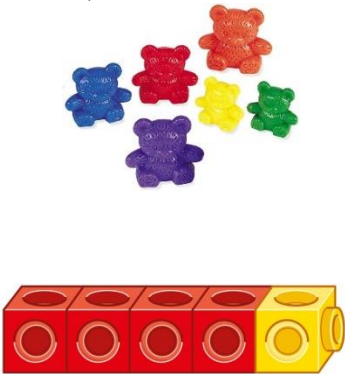
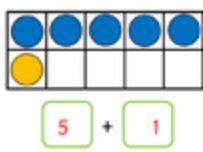
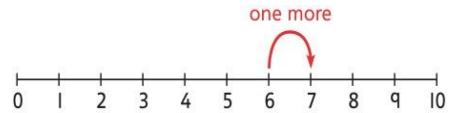
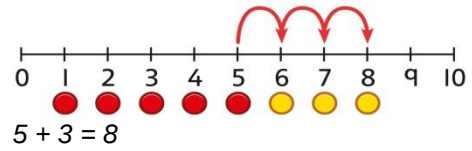
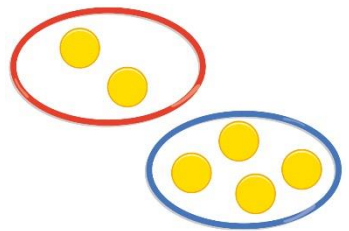
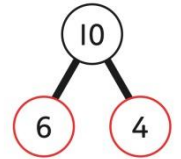
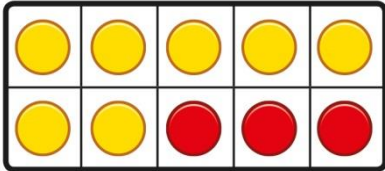
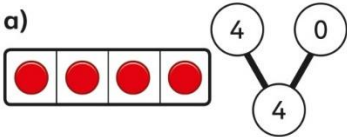
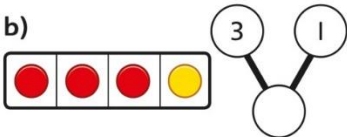
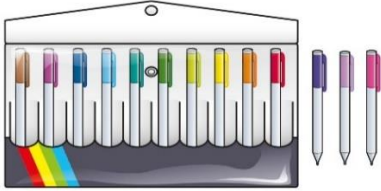
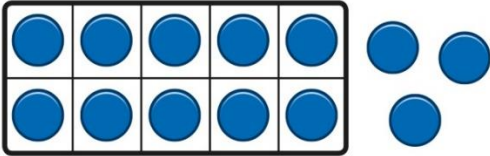
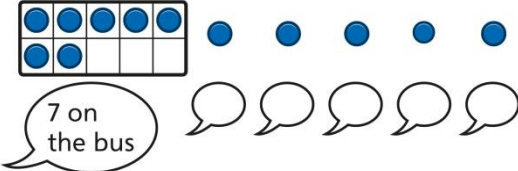
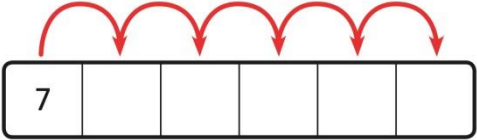
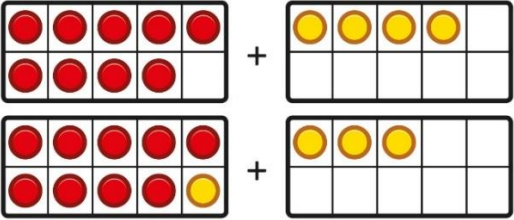
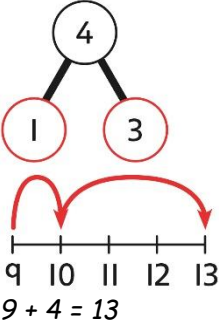
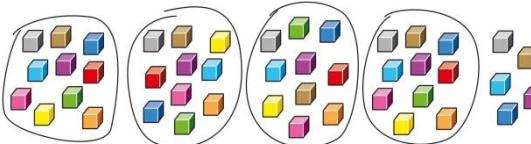
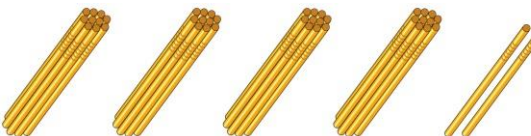
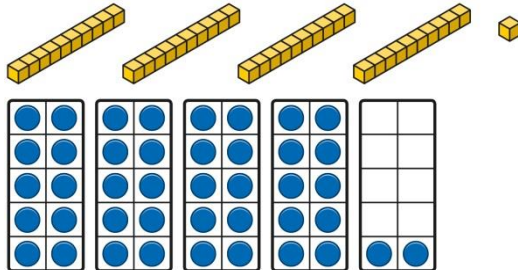
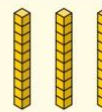
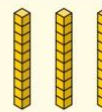
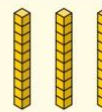
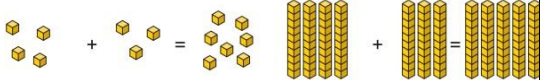
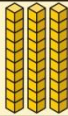
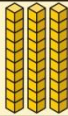
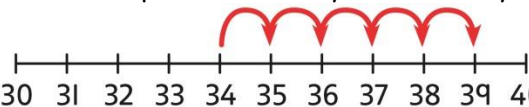
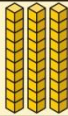
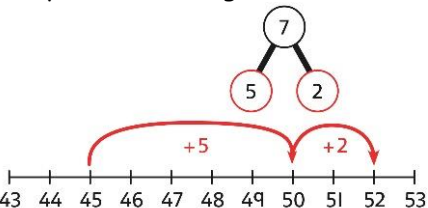


Year 1			
	Concrete	Pictorial	Abstract
Counting and adding more	Children add one more person or object to a group to find one more, using people in their class, teddies or cubes etc. 	Children add one more cube or counter to a group to represent one more. <i>One more than 5 is 6.</i> 	Use a number line to understand how to link counting on with finding one more.  <i>One more than 6 is 7. 7 is one more than 6.</i> Learn to link counting on with adding more than one. 
Understanding part-whole relationship	Sort people and objects into parts and understand the relationship with the whole. 	Children draw to represent the parts and understand the relationship with the whole.  <i>The parts are 2 and 4. The whole is 6.</i>	Use a part-whole model to represent the numbers.  $6 + 4 = 10$ $6 + 4 = 10$

	<i>The parts are 2 and 4. The whole is 6.</i>		<i>The model is also used to work out the relevant number facts.</i> $4 + 6 = 10$ $10 = 4 + 6$ $10 = 6 + 4$
Knowing and finding number bonds within 10	Break apart a group of unifix and put back together to find and form number bonds.  $3 + 4 = 7$ Use number bead strings with different colours to represent the two groups of objects that make a total.  $6 = 2 + 4$	Use five and ten frames to represent key number bonds.  $5 = 4 + 1$  $10 = 7 + 3$	Use a part-whole model alongside other representations to find number bonds. Make sure to include examples where one of the parts is zero. a)  b)  $4 + 0 = 4$ $3 + 1 = 4$
Understanding teen numbers as a one lot of ten and some more	Complete a group of 10 objects and count more.	Use a ten frame to support understanding of a complete 10 for teen numbers.	<i>1 ten and 3 ones equal 13.</i> $10 + 3 = 13$ <i>Putting the equals sign in a range of places supports the idea of equality not just 'the answer'.</i>

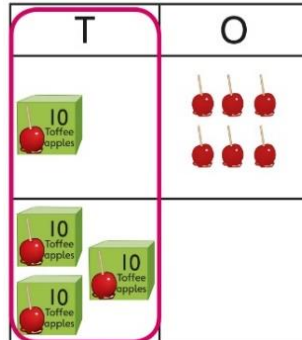
	 <i>13 is one lot of 10 and 3 more.</i>	 <i>13 is 10 and 3 more.</i>	
Adding by counting on from the bigger number	Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer. 	Children use counters to support and represent their counting on strategy. 	Children use number lines or number tracks to support their counting on strategy.  $7 + 5 = \square$
Bridging the 10 using number bonds	Children use a bead string to complete a 10 and understand how this relates to the addition.  <i>7 add 3 makes 10.</i> <i>So, 7 add 5 is one lot of 10 and 2 more.</i>	Children use counters to complete a ten frame and understand how they can add using knowledge of number bonds to 10. 	Use a part-whole model and a number line to support the calculation independently.  $9 + 4 = 13$

Year 2													
	Concrete	Pictorial	Abstract										
Understanding 10s and 1s	Group objects into 10s and 1s.  Bundle straws to understand unitising of 10s. 	Understand 10s and 1s equipment, and link with visual representations on ten frames. 	Represent numbers on a place value grid, using equipment or numerals in a range of contexts. <table border="1" data-bbox="1543 501 1845 828"><tr><th>Tens</th><th>Ones</th></tr><tr><td></td><td></td></tr><tr><td>3</td><td>2</td></tr><tr><th>Tens</th><th>Ones</th></tr><tr><td>4</td><td>3</td></tr></table>	Tens	Ones			3	2	Tens	Ones	4	3
Tens	Ones												
													
3	2												
Tens	Ones												
4	3												
Adding 10s	Use known bonds and knowledge of tens to add them on, using denes and bead strings.  I know that $4 + 3 = 7$. So, I know that 4 tens add 3 tens is 7 tens.	Use known bonds and knowledge of tens to add them on.  I know that $4 + 3 = 7$. So, I know that 4 tens add 3 tens is 7 tens.	$20 + 30 = 50$ $70 = 50 + 20$ $40 + ? = 60$										
Adding a 1-digit number	Add the 1s to find the total. Use known bonds within 10.	Use a place value grid to add the ones.	Understand the link between counting on and using known number facts. Children										

to a 2-digit number <u>not</u> bridging a 10	 41 is 4 lots of ten and 1 one. 41 add 6 ones is 4 lots of tens and 7 ones.  34 is 3 lots of ten and 4 ones. 4 ones and 5 ones are 9 ones. The total is 3 lots of ten and 9 ones.	<table border="1" data-bbox="1003 252 1279 536"> <tr> <td>T</td><td>O</td></tr> <tr> <td></td><td></td></tr> <tr> <td></td><td></td></tr> </table>	T	O					should be encouraged to use known number bonds to improve efficiency and accuracy. 
T	O								
									
									
Adding a 1-digit number to a 2-digit number bridging 10	Complete a 10 using number bonds.  There are 4 lots of ten and 5 ones. I need to add 7. I will use 5 to complete a 10, then add 2 more.	Complete a 10 using number bonds.  $7 = 5 + 2$ $45 + 5 + 2 = 52$	Independently use strategies when completing calculation.						
Using a bar model	Using objects.  $3 + 5 = 8$	Draw pictures to represent the objects in the model.  $3 + 4 = 7$	Use the bar model to answer questions. $10 - \square = 2$ <table border="1" data-bbox="1559 1262 1787 1369"> <tr> <td>10</td></tr> <tr> <td>2</td></tr> </table>	10	2				
10									
2									

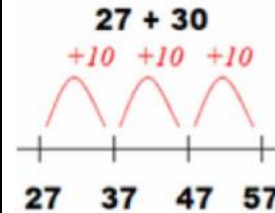
Adding a multiple of 10 to a 2-digit number using columns

Add the 10s using a place value grid to support.

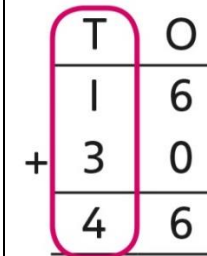


16 is 1 ten and 6 ones.
30 is 3 tens.
There are 4 lots of ten and 6 ones in total.

Use a number lined and bridge ten. Use part whole if appropriate.



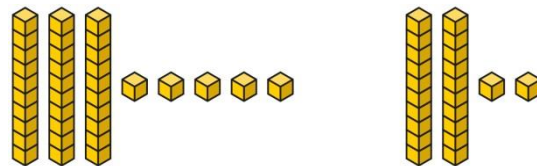
Add the 10s represented vertically. Children must understand how the method relates to unitising of 10s and place value.



1 + 3 = 4
1 ten + 3 tens = 4 tens
16 + 30 = 46

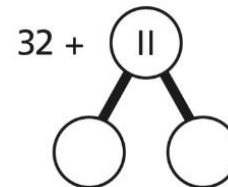
Adding two 2-digit numbers

Add the 10s and 1s separately. Use denes, place value counters and numicon to show the process.



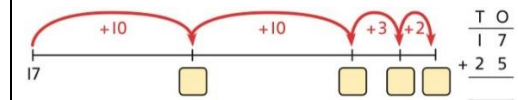
5 + 3 = 8
There are 8 ones in total.
3 + 2 = 5

Add the 10s and 1s separately. Use a part-whole model to support.

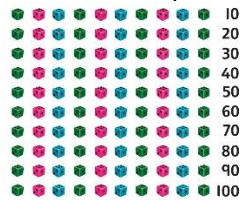
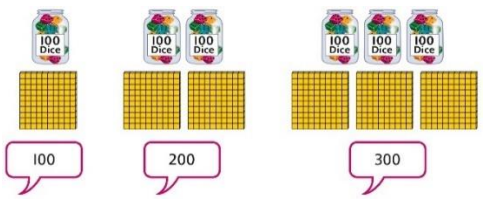
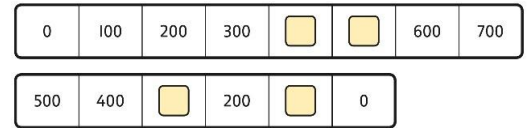
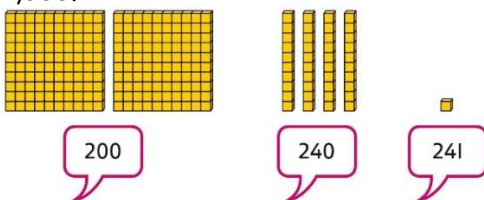
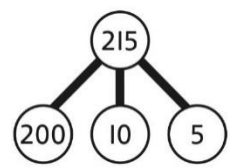


11 = 10 + 1
32 + 10 = 42
42 + 1 = 43

Add the 10s and the 1s separately, bridging 10s where required. A number line can support the calculations.

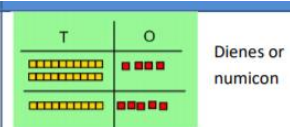


If appropriate, we would introduce column addition to the children that are ready to work on this method. See Year 3 for more information.

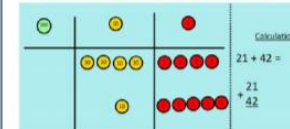
	There are 5 tens in total. $35 + 23 = 58$	$32 + 11 = 43$	
Year 3			
	Concrete	Pictorial	Abstract
Understanding place value within 100s	Understand the cardinality of 100, and the link with 10 tens. Use cubes to place into groups of 10 tens. 	Unitise 100 and count in steps of 100. 	Represent steps of 100 on a number line and a number track and count up to 1,000 and back to 0. 
Understanding place value to 1,000	Unitise 100s, 10s and 1s to build 3-digit numbers. 	Use equipment to represent numbers to 1,000.  Use a place value grid to support the structure of numbers to 1,000. Place value counters are used alongside other equipment. Children should understand how each counter represents a different unitised amount.	Represent the parts of numbers to 1,000 using a part-whole model.  $215 = 200 + 10 + 5$ Recognise numbers to 1,000 represented on a number line, including those between intervals. Add using hundreds.

Column Addition—no regrouping.

Add two or three 2 or 3 digit numbers.



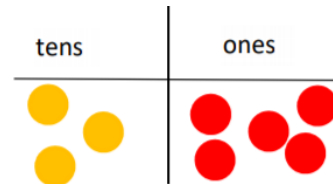
Add together the ones first, then the tens.



Move to using place value counters.



Children move to drawing the place value counters into a tens and ones frame.

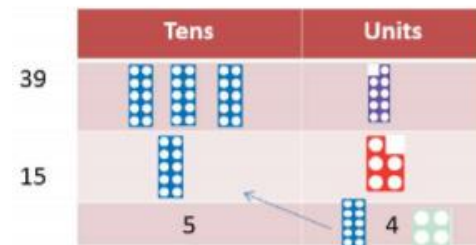


Add the ones first, then the tens, then the hundreds.

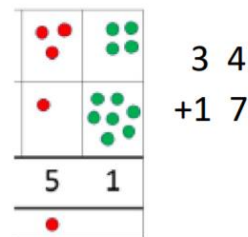
$$\begin{array}{r} 223 \\ + 114 \\ \hline 337 \end{array}$$

Column Addition with regrouping.

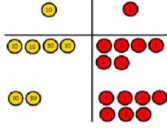
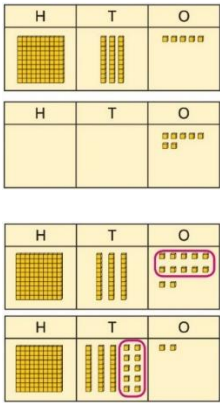
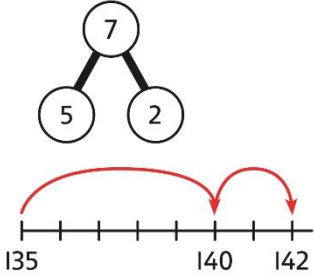
Exchange ten ones for a ten. Model using numicon and place value counters.

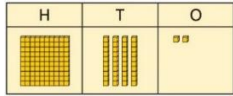
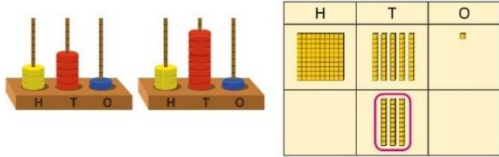
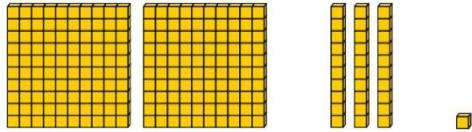
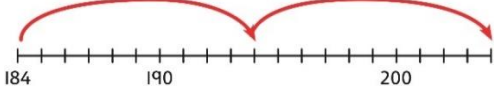


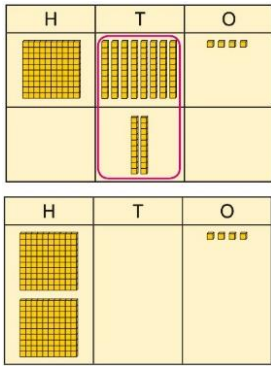
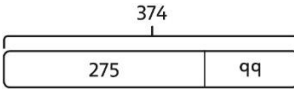
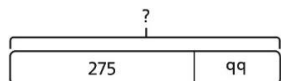
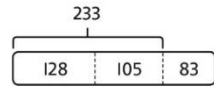
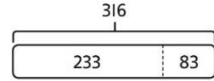
Children can draw a representation of the grid to further support their understanding, carrying the ten underneath the line

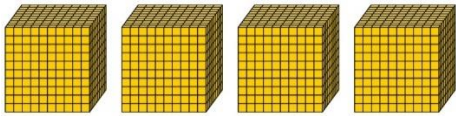
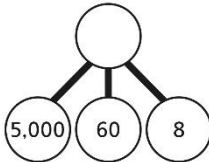
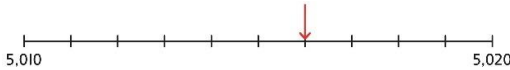


Children can complete column addition, with written support. They know how to do this independently.

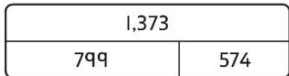
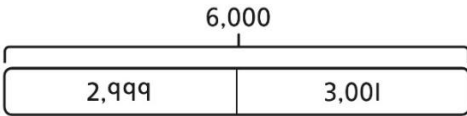
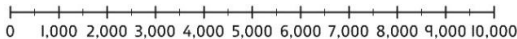
	 $46 + 27 = 73$		
Estimate the answers to questions and use inverse operations to check answers.	Estimating $98 + 17 = ?$ $100 + 20 = 120$ 	Use number lines to illustrate estimation. 	Building up known facts and using them to illustrate the inverse and to check answers: $98 + 18 = 116$ $116 - 18 = 98$ $18 + 98 = 116$ $116 - 98 = 18$
3-digit number + 1s with exchange	Understand that when the 1s make to 10 or more, this requires an exchange of 10 ones for 1 ten. Children should explore this using unitised objects or physical apparatus.	Exchange 10 ones for 1 ten where needed. Use a place value grid to support the understanding. 	Understand how to bridge by partitioning to the 1s to make the next 10.  $135 + 7 = ?$ $135 + 5 + 2 = 142$ Ensure that children understand how to add 1s bridging a 100.

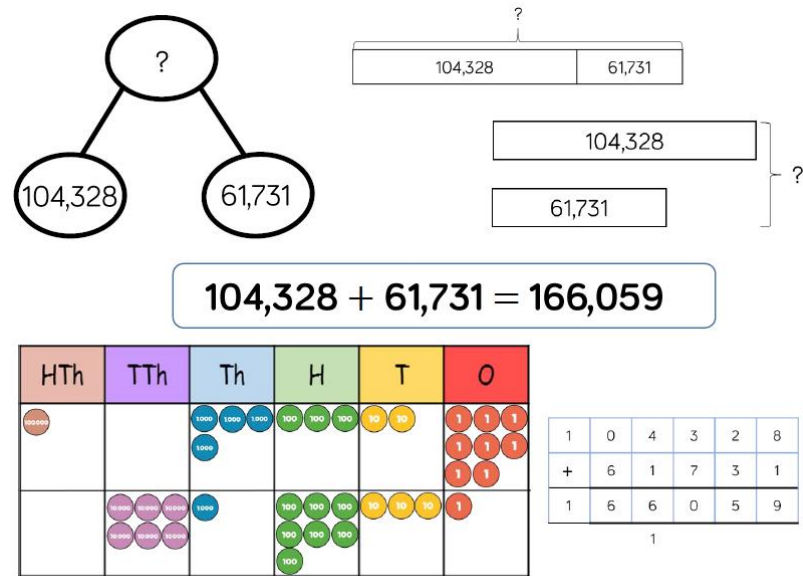
		 $135 + 7 = 142$	$198 + 5 = ?$ $198 + 2 + 3 = 203$
3-digit number + 10s, no exchange	Calculate mentally by forming the number bond for the 10s.  $234 + 50$ <i>There are 3 tens and 5 tens altogether.</i> $3 + 5 = 8$ <i>In total there are 8 tens.</i> $234 + 50 = 284$	Calculate mentally by forming the number bond for the 10s. $351 + 30 = ?$  $5 \text{ tens} + 3 \text{ tens} = 8 \text{ tens}$ $351 + 30 = 381$	Calculate mentally by forming the number bond for the 10s. $753 + 40$ <i>I know that $5 + 4 = 9$</i> <i>So, $50 + 40 = 90$</i> $753 + 40 = 793$
3-digit number + 10s, with exchange	Understand the exchange of 10 tens for 1 hundred. 	Add by exchanging 10 tens for 1 hundred. $184 + 20 = ?$	Understand how the addition relates to counting on in 10s across 100.  $184 + 20 = ?$ <i>I can count in 10s ... 194 ... 204</i> $184 + 20 = 204$

		 $184 + 20 = 204$	Use number bonds within 20 to support efficient mental calculations. $385 + 50$ <i>There are 8 tens and 5 tens. That is 13 tens.</i> $385 + 50 = 300 + 130 + 5$ $385 + 50 = 435$
Representing addition problems and selecting appropriate methods	Encourage children to use their own drawings and choices of place value equipment to represent problems with one or more steps. These representations will help them to select appropriate methods.	Children understand and create bar models to represent addition problems. $275 + 99 = ?$  $275 + 99 = 374$	Use representations to support choices of appropriate methods.  <i>I will add 100, then subtract 1 to find the solution.</i> $128 + 105 + 83 = ?$ <i>I need to add three numbers.</i> $128 + 105 = 233$  

Year 4															
	Concrete	Pictorial	Abstract												
Understanding numbers to 10,000	Use place value equipment to understand the place value of 4-digit numbers.  <i>4 thousands equal 4,000.</i> <i>1 thousand is 10 hundreds.</i>	Represent numbers using place value counters once children understand the relationship between 1,000s and 100s.  $2,000 + 500 + 40 + 2 = 2,542$	Understand partitioning of 4-digit numbers, including numbers with digits of 0.  $5,000 + 60 + 8 = 5,068$ Understand and read 4-digit numbers on a number line. 												
Choosing mental methods where appropriate	Use unitising and known facts to support mental calculations. <i>Make 1,405 from place value equipment.</i> <i>Add 2,000.</i> <i>Now add the 1,000s.</i> <i>1 thousand + 2 thousands = 3 thousands</i> $1,405 + 2,000 = 3,405$	Use unitising and known facts to support mental calculations. <table border="1" data-bbox="994 1090 1491 1233"> <thead> <tr> <th>Th</th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td><td></td></tr> <tr> <td></td><td></td><td></td><td></td></tr> </tbody> </table> <i>I can add the 100s mentally.</i> $200 + 300 = 500$	Th	H	T	O									Use unitising and known facts to support mental calculations. $4,256 + 300 = ?$ $2 + 3 = 5$ $200 + 300 = 500$ $4,256 + 300 = 4,556$
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		$So, 4,256 + 300 = 4,556$																																																																																													
Column addition with exchange	Use place value equipment on a place value grid to organise thinking. Ensure that children understand how the columns relate to place value and what to do if the numbers are not all 4-digit numbers. Use equipment to show $1,905 + 775$. <table border="1"> <thead> <tr> <th>Th</th><th>H</th><th>T</th><th>O</th></tr> </thead> <tbody> <tr> <td>1000</td><td>900</td><td>0</td><td>5</td></tr> <tr> <td></td><td>700</td><td>70</td><td>7</td></tr> </tbody> </table> Why have only three columns been used for the second row? Why is the Thousands box empty? Which columns will total 10 or more?	Th	H	T	O	1000	900	0	5		700	70	7	Use place value equipment to model required exchanges. Include examples that exchange in more than one column.	Use a column method to add, including exchanges. <table border="0"> <tr> <td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr> <td>1</td><td>5</td><td>5</td><td>4</td></tr> <tr> <td>+</td><td>4</td><td>2</td><td>3</td></tr> <tr> <td></td><td></td><td></td><td>7</td></tr> <tr> <td></td><td></td><td></td><td>1</td></tr> </table> <table border="0"> <tr> <td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr> <td>1</td><td>5</td><td>5</td><td>4</td></tr> <tr> <td>+</td><td>4</td><td>2</td><td>3</td></tr> <tr> <td></td><td></td><td>9</td><td>7</td></tr> <tr> <td></td><td></td><td>1</td><td></td></tr> </table> <table border="0"> <tr> <td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr> <td>1</td><td>5</td><td>5</td><td>4</td></tr> <tr> <td>+</td><td>4</td><td>2</td><td>3</td></tr> <tr> <td></td><td>7</td><td>9</td><td>7</td></tr> <tr> <td></td><td></td><td>1</td><td></td></tr> </table> <table border="0"> <tr> <td>Th</td><td>H</td><td>T</td><td>O</td></tr> <tr> <td>1</td><td>5</td><td>5</td><td>4</td></tr> <tr> <td>+</td><td>4</td><td>2</td><td>3</td></tr> <tr> <td>5</td><td>7</td><td>9</td><td>7</td></tr> <tr> <td></td><td></td><td>1</td><td></td></tr> </table>	Th	H	T	O	1	5	5	4	+	4	2	3				7				1	Th	H	T	O	1	5	5	4	+	4	2	3			9	7			1		Th	H	T	O	1	5	5	4	+	4	2	3		7	9	7			1		Th	H	T	O	1	5	5	4	+	4	2	3	5	7	9	7			1	
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			Include examples that exchange in more than one column.
Representing additions and checking strategies		Bar models may be used to represent additions in problem contexts, and to justify mental methods where appropriate.  Th H T O 7 9 9 + 5 7 4 1 3 7 3 1 1 1 <i>I chose to work out $574 + 800$, then subtract 1.</i>  <i>This is equivalent to $3,000 + 3,000$.</i>	Use rounding and estimating on a number line to check the reasonableness of an addition.  $912 + 6,149 = ?$ <i>I used rounding to work out that the answer should be approximately $1,000 + 6,000 = 7,000$.</i>
Year 5 and 6			
	Concrete	Pictorial	Abstract
Year 4 Add numbers with more than 4 digits	Children will continue to use the concrete materials that they have used in previous year groups. Place value counters are an effective tool when using concrete resources for this purpose.		



At this stage, children should be working abstractly to complete these question types. Revisit previous years' methods, if needed.

Add with up to 3 decimal places

Place value counters on a place value grid, are the most effective way to support when adding decimals with 1, 2 and 3 decimal places. Children need a variety of experiences of numbers that include decimal places such as money and other measures.

