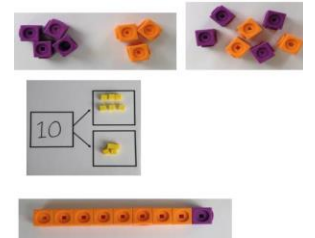
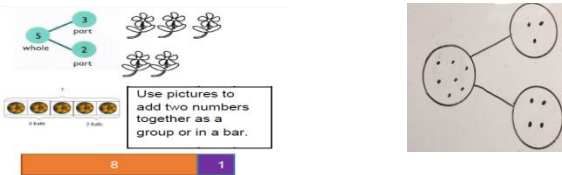
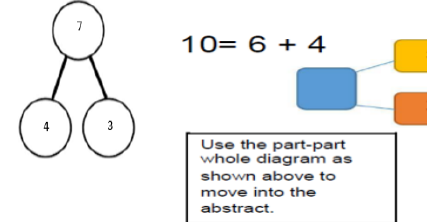
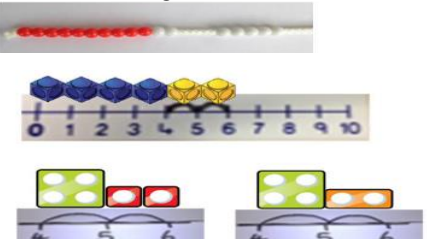
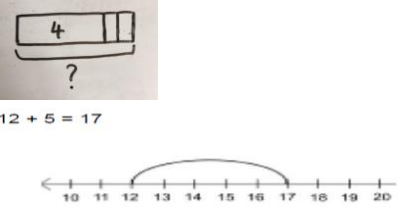
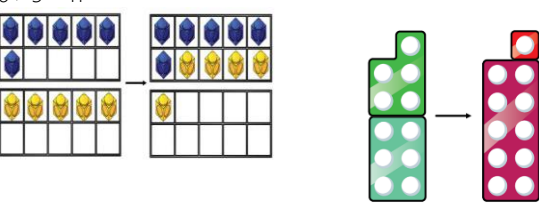
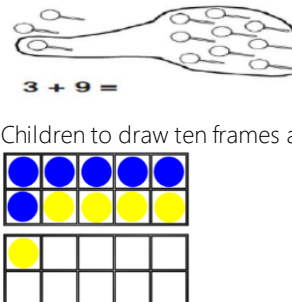


Addition at Milverton



Year	Concrete	Pictorial	Abstract
EYFS	<p>Combining two parts to make whole</p> <p>Counting two parts to make a whole (use other resources too e.g. buttons, shells, teddy bears, cars etc.)</p> <p>Use cubes to add two numbers together as a group or in a</p> 	<p>Children to represent the objects using dots. They can place each part on a part whole model.</p>  <p>Use pictures to add two numbers together as a group or in a bar.</p>	<p>$4 + 3 = 7$</p> <p>Four is a part, 3 is a part and the whole is seven.</p>  <p>Use the part-part whole diagram as shown above to move into the abstract.</p>
	<p>Starting at the bigger number and counting on</p> <p>Start with the larger number and count on 1 by 1.</p> 	<p>A bar model which encourages the children to count on, rather than count all.</p>  <p>$12 + 5 = 17$</p> <p>Start at the larger number on the number line and count on in ones or in one jump to find the answer.</p>	<p>$5 + 12 = 17$</p> <p>Place the large number in your head and count on the smaller number to find a total.</p> <p>What is 2 more than 6?</p> <p>What is the sum of 2 and 6?</p> <p>What is the total of 6 and 2?</p> <p>$6 + 2 =$</p>
Year 1	<p>Re-grouping to make 10</p> <p>Using ten frames and counters/cubes or Numicon.</p> <p>$6 + 5 = 11$</p> 	<p>Use pictures or a number line. Regroup or partition the smaller number to make 10.</p>  <p>$3 + 9 =$</p> <p>Children to draw ten frames and counter/cubes.</p>	<p>Children to develop an understanding of equality e.g.</p> <p>$6 + \square = 11$</p> <p>$6 + 5 = 5 + \square$</p> <p>$6 + 5 = \square + 4$</p> <p>$7 + 4 = 11$</p> <p>If I am at seven, how many more do I need to make 10?</p> <p>How many more do I add on now?</p>

Addition at Milverton



Year 2

Adding 3 single digits

$$3 + 8 + 1 = 12$$

$$3 + 8 + 1 = 12$$

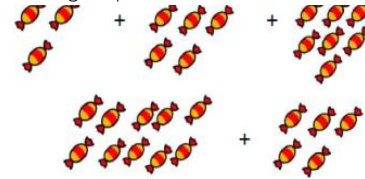
$$3 + 1 = 4$$

Teach children to look for number facts. Following on from making 10, make 10 with 2 of the digits (if possible) then add the 3rd digit.

$$4 + 5 + 7 = 16$$

$$4 + 5 = 9$$

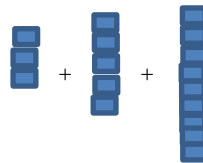
Add together three groups of objects. Draw a picture to recombine the groups to make 10.



Draw a number line

$$3 + 5 + 9 = 17$$

Draw base 10 e.g



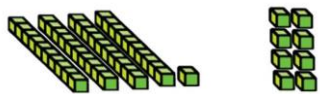
$$\begin{array}{l} \textcircled{4} + 7 + \textcircled{6} = \boxed{10} + \boxed{7} \\ 10 \\ = \boxed{17} \end{array}$$

Combine the two numbers that make 10 and then add on the remainder.

2 digit addition

TO+O using base 10 continue to develop the understanding of partitioning and place value.

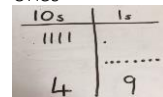
$47 + 8 =$



Arrow Cards

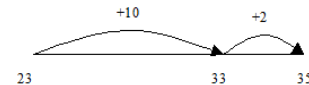
$47 + 25 =$

Children to represent base 10 e.g. lines for tens and dots for ones



Continue to use number lines to develop understanding of counting in tens and ones:

$$\begin{aligned} 23 + 12 &= 23 + 10 + 2 \\ &= 33 + 2 \\ &= 35 \end{aligned}$$



Partitioning and Bridging Through 10.

The steps in addition often bridge through a multiple of 10 e.g. Children should be able to partition the 7 to relate adding the 2 and then the 5.

$$\begin{aligned} 41 + 8 &= \\ 1 + 8 &= 9 \\ 40 + 9 &= 49 \end{aligned}$$

	4	1
+		8
<hr/>		
	4	9

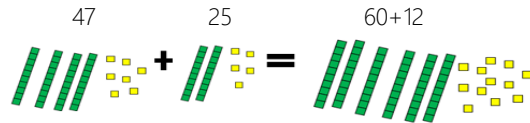
Addition at Milverton



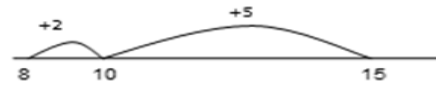
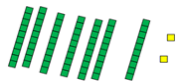
TO+TO using base 10

Partitioning in different ways and recombine

$47 + 25$



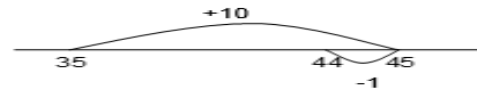
Leading to exchanging:
72



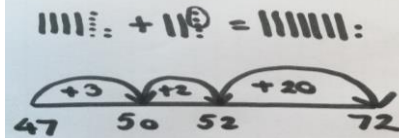
Adding 9 or 11 by Adding 10 and Adjusting by 1

e.g. Add 9 by adding 10 and adjusting by 1

$35 + 9 = 44$



TO + TO



TO + TO

Partition and recombine

$47 + 25 =$

$40 + 20 = 60$

$7 + 5 = 12$

$60 + 12 = 72$

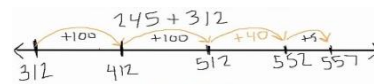
$40 + 7$
$20 + 5$
$60 + 12 = 72$

Partition and recombine

$312 + 245$



Continue to use number lines to develop understanding of counting on in hundreds, tens and ones.



Partition and recombine

$245 + 312 =$

$200 + 40 + 5$

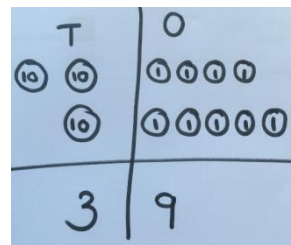
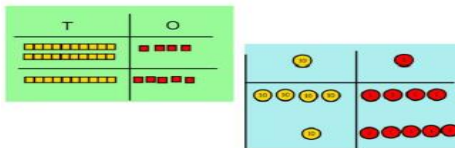
$300 + 10 + 2$

$500 + 50 + 7 = 557$

Column method without re-grouping (up to 3 digits)

$24 + 15 =$

Add together the ones first then add the tens. Use the Base 10 blocks first before moving onto place value counters.



Expanded method moving to Formal written method

HTO

247

$+ 122$

09

60

300

369

HTO
247
+ 122
369

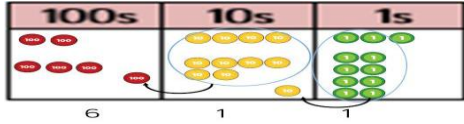
Year 3

Addition at Milverton



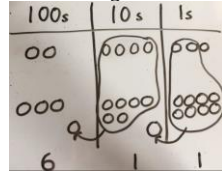
Column method re-grouping (up to 3 digits)

Place value counters to add HTO+ TO, HTO + HTO. When there are 10 ones in the 1s column we exchange for 1 ten, when there are 10 tens in the 10s column we exchange for 1 hundred.



This can also be done with Base 10 to help children clearly see that 10 ones equal 1 ten and 10 tens equal 100. As children move on to decimals, money and decimal place value counters can be used to support learning.

Children to represent the counters in a place value chart, circling when they make an exchange.



Expanded method moving to formal written method

$$\begin{array}{r} 243 \\ + 368 \\ \hline 11 \\ 100 \\ 500 \\ \hline 611 \end{array}$$

Formal method

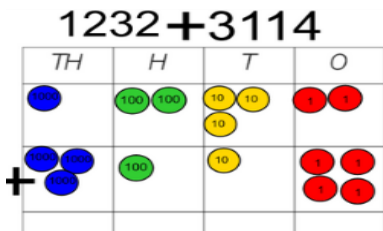
$$\begin{array}{r} 243 \\ +368 \\ \hline 611 \\ \hline \end{array}$$

The expanded method and formal method should be taught side by side.

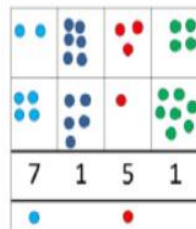
All children moving to the formal column method by the end of year 4.

Column method including re-grouping (up to 4 digits)

Place value counters extend to ThHTO + ThHTO



Children can draw a pictorial representation of the columns and place value counters to further support their learning and understanding.



Formal method

$$\begin{array}{r} 4517 \\ + 2634 \\ \hline 7151 \\ \hline \end{array}$$

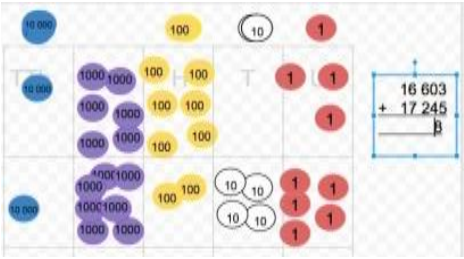
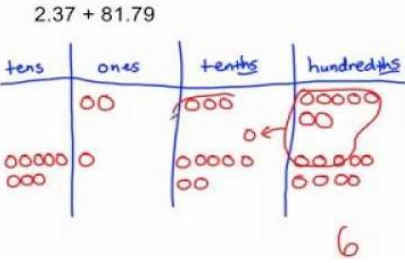
Extend to 2 decimal places including money

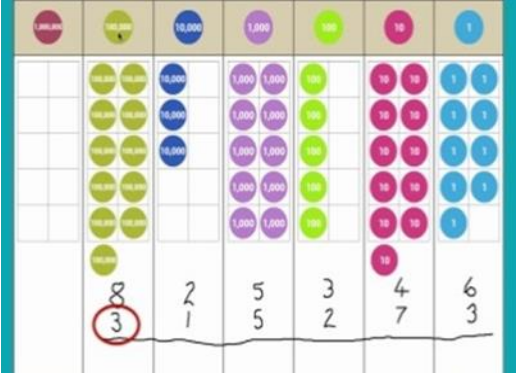
$$\begin{array}{r} 72.8 \\ +54.6 \\ \hline 127.4 \\ \hline \end{array} \quad \begin{array}{r} \pounds 23.59 \\ + \pounds 7.55 \\ \hline \pounds 31.14 \\ \hline \end{array}$$

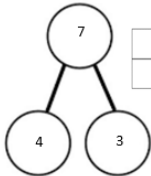
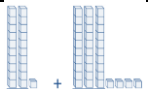
Year 4

Addition at Milverton



Year 5	Column method re-grouping		
	<p>Continue to use place value counters to secure understanding. Place value counters can be used alongside the columnar method to develop understanding of addition with decimal numbers.</p> 	<p>Children draw a pictorial representation of columns and place value counters.</p> 	<p>As year 4, progressing when understanding of the expanded method is secure, children will move on to the formal columnar method for whole numbers and decimal numbers as an efficient written algorithm.</p> $\begin{array}{r} 172.83 \\ + 54.68 \\ \hline 227.51 \\ \hline 1 \quad 1 \quad 1 \end{array}$

Year 6	Column method re-grouping		
			<p>As year 5, progressing to larger numbers, aiming for both conceptual understanding and procedural fluency with columnar method to be secured. Continue to calculate with decimals, including those with different numbers of decimal places and numbers to 10,000,000.</p> $\begin{array}{r} 23.361 \\ - 9.080 \\ \hline 59.770 \\ + 1.300 \\ \hline 93.311 \\ \hline 2 \quad 1 \quad 2 \end{array}$ <p>All the missing digits are the same. Find the missing digits.</p> $\begin{array}{r} 52247 \\ + 305904 \\ \hline 90302 \end{array}$

Conceptual variation; different ways to ask children to solve 21 + 34											
	<p>Word problems: In year 3, there are 21 children and in year 4, there are 34 children. How many children in total? $21 + 34 = 55$. Prove it</p>	<p>$21 + 34 =$</p> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 15px; background-color: #4a7ebb; margin-right: 5px;"></div> = 21 + 34 </div> <p>Calculate the sum of twenty-one and thirty-four.</p>	<p>Missing digit problems:</p>  <div style="display: flex; align-items: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><th style="background-color: #d9e1f2;">10s</th><th style="background-color: #d9e1f2;">1s</th></tr> <tr><td>20</td><td>10</td></tr> <tr><td>30</td><td>?</td></tr> <tr><td>?</td><td>5</td></tr> </table> </div>	10s	1s	20	10	30	?	?	5
10s	1s										
20	10										
30	?										
?	5										

Addition at Milverton



Suggested Vocabulary

Addition & Subtraction

Years 1 and 2

add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, equal to, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_? difference, count on, strategy, partition, tens, units

Years 3 and 4:

add, addition, more, plus, increase, sum, total, altogether, double, near double, how many more to make...? how many more to make...? how many more is... than...? how much more is...? -, subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over? how many fewer is... than...? how much less is...? difference between, half, halve, how many more/fewer is... than...? how much more/less is...? Is equal to, is the same as, tens boundary, hundreds boundary, inverse

Years 5 and 6:

add, addition, more, plus, increase, sum, total, altogether, double, near double, how many more to make...? subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over? difference between, half, halve, how many more/fewer is... than...? how much more/less is...? Is equal to, sign, is the same as, tens boundary, hundreds boundary, units boundary, tenths boundary, inverse