

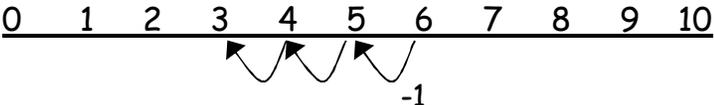
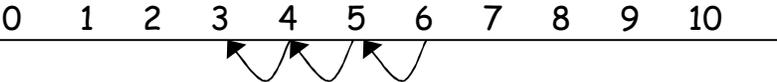
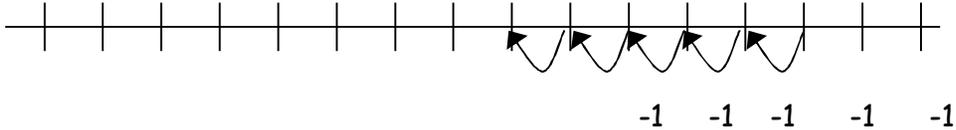


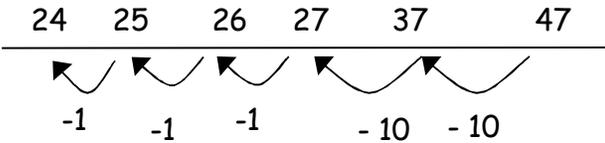
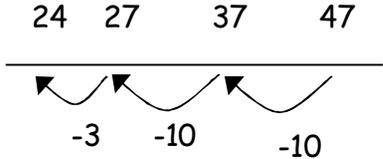
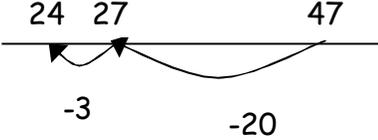
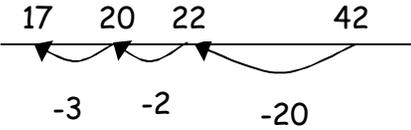
Mickleover Primary School
Calculation Policy
SUBTRACTION

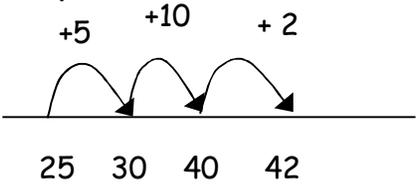
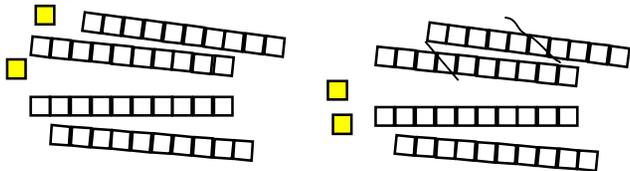
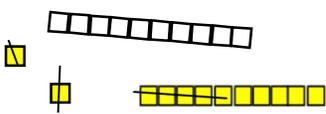
	<i>Learning Objectives</i>	<i>Success criteria</i>	<i>Method</i>
EYFS	Children will engage in a variety of counting songs and rhymes and practical activities.	In practical activities and through discussion they will begin to use the vocabulary associated with subtraction.	<ul style="list-style-type: none"> Through songs and practical activities. Children will engage in a wide variety of songs and rhymes, games and activities to develop number sense. <p>http://minimaths.club/special-songs/</p>
	Children will find one less than a given number.	Children will find one less from up to 5 progressing to 10 and 20 Understands subtraction as removing or hiding objects.	<ul style="list-style-type: none"> In practical activities and through discussion they will begin to use the vocabulary involved in subtraction <p style="text-align: center;">  </p> <p>'You have five apples and I eat one apples. How many apples left?'</p> <ul style="list-style-type: none"> They will record pictorially then numerically $5 - 1 = 4$ apples Children will also subtract using finger hops on a number line.
	Children to subtract from 2 single digit numbers by counting back to find the answer	They will begin to relate subtraction by removing the given amount.	<p>Using objects and pictures, can subtract a single digit number</p> <p style="text-align: center;">  </p> <p style="text-align: center;">5 subtract 3 = 2</p> <p>Using a number line.</p>

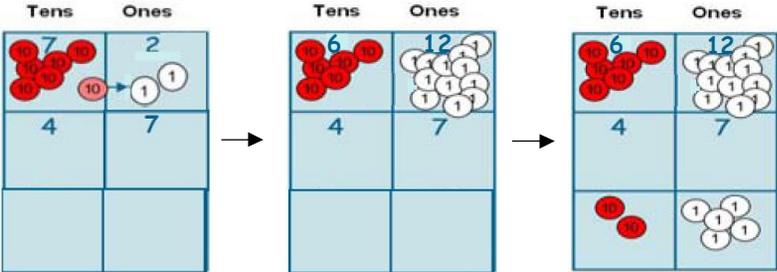
Year 1

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>
	<ul style="list-style-type: none"> • Pupils should be taught to: read, write & interpret mathematical statements involving addition subtraction (-) & equals (=) signs • Represent and use number bonds and related subtraction facts within 20 • subtract one-digit & two-digit numbers to 20, including zero. • Solve one-step problems that involve addition and subtraction, using concrete objects & pictorial representations, and missing number problems such as $7 = [] - 9$. 	<p>Understands subtraction as removing or hiding objects.</p> <p>Supported by objects, such as numicon, begin to understand place value in numbers beyond 20.</p> <p>Understand subtraction as taking away and counting on to find the difference.</p> <p>Understand the effect of subtracting zero</p> <p>Understand and use the symbols - and =</p> <p>Children use number lines and practical resources to support calculation.</p>	<p>Using objects, beads and pictures, can subtract a single digit number from a single digit number, counting back to find the answer.</p>  <p>Putting one numicon over the other to compare and counting on to find the difference.</p> 

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>															
Year 1		<p>The number line should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart.</p> <p>Children then begin to use numbered lines to support their own calculations - using a numbered line to count back in ones.</p> <p>Children will begin to use empty number lines to support calculations. (This can also be modelled on a 100-square)</p>	<p>Using a number line to take away/subtract (shown below the number line) http://www.topmarks.co.uk/Flash.aspx?f=Subtractdifference</p> <p>$6 - 3 = 3$</p>  <p>0 1 2 3 4 5 6 7 8 9 10</p>  <p>0 1 2 3 4 5 6 7 8 9 10</p> <p>$13 - 5 = 8$</p>  <p>-1 -1 -1 -1 -1</p> <p>Using a 100 square to add in steps of 1 or 10.</p> <table style="display: inline-table; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 2px;">12</td> <td style="border: 1px solid black; padding: 2px;">13</td> <td style="border: 1px solid black; padding: 2px;">14</td> <td style="border: 1px solid black; padding: 2px;">15</td> <td style="padding: 0 10px;">$15 - 2 = 13$</td> <td style="padding: 0 10px;">$66 - 20 = 4$</td> </tr> </table> <table style="display: inline-table; border-collapse: collapse; margin-left: 20px;"> <tr> <td style="border: 1px solid black; padding: 2px;">45</td> <td style="border: 1px solid black; padding: 2px;">46</td> <td style="border: 1px solid black; padding: 2px;">47</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">55</td> <td style="border: 1px solid black; padding: 2px;">56</td> <td style="border: 1px solid black; padding: 2px;">57</td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">65</td> <td style="border: 1px solid black; padding: 2px;">66</td> <td style="border: 1px solid black; padding: 2px;">67</td> </tr> </table>	12	13	14	15	$15 - 2 = 13$	$66 - 20 = 4$	45	46	47	55	56	57	65	66	67
12	13	14	15	$15 - 2 = 13$	$66 - 20 = 4$													
45	46	47																
55	56	57																
65	66	67																

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>
	<p>Subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> • A two digit number and ones • A two digit number and tens • Two two-digit numbers 	<p>Understand place value in two-digit numbers and how zero is a place holder.</p> <p>Recognise that subtraction is the inverse of addition</p> <p>Counting back/on First counting back in tens and ones.</p> <ul style="list-style-type: none"> • Then helping children to become more efficient by subtracting the units in one jump (by using the known fact $7 - 3 = 4$). • Subtracting the tens in one jump and the units in one jump. • Bridging through ten can help children become more efficient. <p>Understand that subtraction is not commutative e.g • $48 - 36 = 36 - 48$</p>	<p>Use concrete apparatus and pictures to show number families Ie $3+2 = 5$ $2+3=5$ $5-2 = 3$ $5-3=2$</p> <p>http://www.topmarks.co.uk/Flash.aspx?f=Subtractdifference</p> <p>$47 - 23 = 24$</p>  <p>$47 - 23 = 24$</p>  <p>$47 - 23 = 24$</p>  <p>$42 - 25 = 17$</p> 

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>
		<p>Children can use subtraction as the inverse of addition. e.g. $48 + 36 = 84$, $36 + 48 = 84$, $84 - 36 = 48$, $84 - 48 = 36$</p> <p>Children to begin to make choices about whether counting on or back is more efficient for different calculations.</p>	<p>Use understanding of inverse operation to solve subtraction by counting on using a number line.</p> <p>Counting on example:</p> <p>$42 - 25 = 17$</p>  <p>$25 + 17 = 42$</p> <p>http://www.topmarks.co.uk/Flash.aspx?f=diennesandcoinsv3</p> <p>Using rods (partitioning in different ways)</p>  <p>$42 - 27$ $42 - 20$</p> <p>subtract 7 by exchanging a ten rod for 10 units</p>  <p>$42 - 27 = 15$</p>

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>
	<p>Subtract numbers with up to three digits, using formal written method of columnar subtraction</p>	<p>Children will continue to use empty number lines with increasingly large numbers</p> <p>Understand place value in three-digit numbers.</p> <p>Understand how the inverse can be used to check answers.</p> <p>Partitioning and decomposition This process should be demonstrated using arrow cards to show the partitioning and base 10 materials to show the decomposition of the number.</p>	<p>Help children to become more efficient with counting back by:</p> <ul style="list-style-type: none"> ✓ Subtracting the units in one jump; ✓ Subtracting the tens in one jump and the units in one jump; ✓ Bridging through ten. <p>Apply skills with counting on .</p> <p>Using rods/counters on laminated grids to support column subtraction, when using money.</p> <p>72-47=25 always begin with ones</p>  <p style="text-align: center;"> $\begin{array}{r} 89 \\ - 57 \\ \hline \end{array} = \begin{array}{r} 80 \\ + 9 \\ \hline \end{array} = \begin{array}{r} 50 \\ + 7 \\ \hline \end{array} = \begin{array}{r} 30 \\ + 2 \\ \hline \end{array} = 32$ </p> <p>http://www.topmarks.co.uk/Flash.aspx?f=DecompExpandv2</p>

Year 3

	<i>Learning Objectives</i>	<i>Success criteria</i>	<i>Method</i>
		<p>From this the children will begin to exchange. To support the ability to see a number partitioned in different ways children need experience of building up calculation patterns.</p> <p>Partitioning and decomposition with HTU Initially children should exchange in only one column. This may be the units or the tens. (e.g. 754 - 37, 758 - 84) They then move on to calculations which require exchanges in more than one column.</p> <p>Children can subtract fractions of same denominator</p>	<p style="text-align: right;"><i>Method</i></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> $\begin{array}{r} 71 \\ - 46 \\ \hline \end{array}$ </div> <div style="width: 45%;"> <p>Step 1</p> $\begin{array}{r} 70 + 1 \\ - 40 + 6 \\ \hline \end{array}$ <p>Step 2</p> $\begin{array}{r} 60 + 11 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$ <p>When confident</p> <p>Step 3</p> $\begin{array}{r} \overset{60}{\cancel{70}} + 11 \\ - 40 + 6 \\ \hline 20 + 5 = 25 \end{array}$ </div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; width: fit-content;"> <p>The calculation should be read as e.g. 1 minus/take/subtract 6</p> </div> $\begin{array}{r} 754 \\ - 86 \\ \hline \end{array}$ <p>Step 1</p> $\begin{array}{r} 700 + 50 + 4 \\ - \quad \quad 80 + 6 \\ \hline \end{array}$ <p>Step 2</p> $\begin{array}{r} 700 + 40 + 14 \\ - \quad \quad 80 + 6 \\ \hline \end{array} \quad (\text{adjust from T to U})$ <p>Step 3</p> $\begin{array}{r} 600 + 140 + 14 \\ - \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array} \quad (\text{adjust from H to T})$ <p>Step 4</p> $\begin{array}{r} \overset{600}{\cancel{700}} + \overset{140}{\cancel{50}} + 14 \\ - \quad \quad 80 + 6 \\ \hline 600 + 60 + 8 = 668 \end{array}$ $\frac{6}{7} - \frac{1}{7} = \frac{5}{7}$
	<p>Subtract fractions with the same denominator within one whole</p>		

	<i>Learning Objectives</i>	<i>Success criteria</i>	<i>Method</i>															
Year 4	Subtract numbers with up to 4 digits using the formal written methods of columnar subtraction where appropriate • Estimate and use inverse operations to check answers to a calculation.	Decomposition Initially it may be necessary to write HTU above the appropriate columns to assist with place value of the exchanges. This is the most efficient method of recording. Understand how rounding can be used to estimate and check answers	$\begin{array}{r} 6 \text{ 14 1} \\ \cancel{7}54 \\ - 86 \\ \hline 668 \end{array}$ <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td></td><td>5</td><td>6⁵</td><td>12</td></tr> <tr><td>-</td><td>3</td><td>1</td><td>9</td></tr> <tr><td></td><td>2</td><td>4</td><td>3</td></tr> </table> <p>NOTE: In both examples, we have 'exchanged' one of the six tens for ten ones.</p>		5	6 ⁵	12	-	3	1	9		2	4	3			
		5	6 ⁵	12														
-	3	1	9															
	2	4	3															
	<i>Children should:</i> <ul style="list-style-type: none"> be able to subtract numbers with different numbers of digits (up to 4 digits); using this method, children should also begin to find the difference between two three-digit sums of money, with or without 'adjustment' from the pence to the pounds; know that decimal points should line up under each other. 		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td></td><td>9⁸</td><td>12</td><td>6⁵</td><td>10</td></tr> <tr><td>-</td><td>6</td><td>7</td><td>0</td><td>2</td></tr> <tr><td></td><td>2</td><td>5</td><td>5</td><td>8</td></tr> </table>		9 ⁸	12	6 ⁵	10	-	6	7	0	2		2	5	5	8
	9 ⁸	12	6 ⁵	10														
-	6	7	0	2														
	2	5	5	8														
	Subtract fractions with the same denominator	Children can subtract fractions of same denominator	$\frac{1}{6} - \frac{4}{6} = \frac{3}{6}$															

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>																		
	Subtract whole numbers with more than 4 digits, including using formal written method (columnar subtraction)	<p><i>Children should:</i></p> <ul style="list-style-type: none"> • <i>be able to subtract numbers with different numbers of digits (more than 4 digits);</i> • <i>begin to find the difference between two decimal fractions with up to three digits and the same number of decimal places;</i> • <i>know that decimal points should line up under each other.</i> 	<p>Use compact ('decomposition') method and the vocabulary 'exchange'</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td>8⁷</td> <td>16</td> <td>.</td> <td>3²</td> <td>10</td> </tr> <tr> <td>-</td> <td>1</td> <td>9</td> <td>.</td> <td>0</td> <td>4</td> </tr> <tr> <td></td> <td>6</td> <td>7</td> <td>.</td> <td>2</td> <td>6</td> </tr> </table> <p>In this example, we have 'exchanged' one of the three tenths for ten hundredths</p>		8 ⁷	16	.	3 ²	10	-	1	9	.	0	4		6	7	.	2	6
	8 ⁷	16	.	3 ²	10																
-	1	9	.	0	4																
	6	7	.	2	6																
	Subtract fractions with the same denominator and multiples of the same number	<p><i>Children will subtract fractions with the same denominator and multiples of the same number ie $\frac{1}{2}$ and $\frac{1}{4}$</i></p>	$\frac{1}{6} - \frac{4}{6} = \frac{3}{6}$ $\frac{1}{4} - \frac{1}{8} = \frac{2}{8} - \frac{1}{8} = \frac{1}{8}$																		

	<i>Learning Objectives</i>	<i>Success Criteria</i>	<i>Method</i>
Year 6	<p>Other than subtraction of fractions there are no objectives included in the programmes of study explicitly related to written methods for subtraction in Y6. However, there is an expectation that children will continue to practice and use the formal written method for larger numbers and decimals and use these methods when solving problems, when appropriate (see previous years' guidance for methods).</p> <p>Pupils should subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions</p> <p>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.</p>	<p>Children will be able to subtract fractions of the same denominator including mixed numbers.</p> <p>Children will be able to subtract fractions of different denominators using equivalent fractions</p>	$1 \frac{1}{7} - \frac{5}{7} = \frac{8}{7} - \frac{5}{7} = \frac{3}{7}$ $\frac{3}{4} - \frac{2}{3} = \frac{9}{12} - \frac{8}{12} = \frac{1}{12}$

Models and images for understanding addition and subtraction

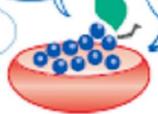
 $5 = 3 + 2$
 $3 + 2 = 5$

 $20 = 12 + 8$

 $10 = 5 + 5$
 $10 = 1 + 9$
 $10 = 2 + 8$

 $2 + 5 = 7$ 2 count on 5
 $5 + 2 = 7$ 5 count on 2


How many more forks do we need?
 $3 + \square = 5$


10 grapes, eat two. How many left?
 9, 8, 8 left
 10 grapes, eat one, how many left? 9. And another? 8. Another, 7...

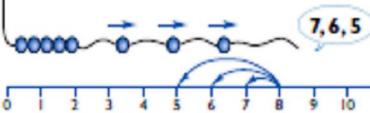



9 and 1 more is 10
 9 add 1 equals 10
 $9 + 1 = 10$



 $6 + 3 + 4$
 $10 + 3 = 13$

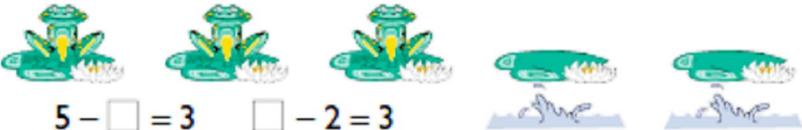
5 and 1 more is? 6
 5 and 2 more is? 6, 7
 5 and 3 more is? 6, 7, 8


1 less than 8 is? 7
 2 less than 8 is? 7, 6
 3 less than 8 is? 7, 6, 5


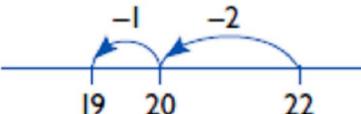


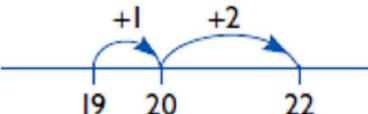
1 less than 10 is 9
 10 subtract 1 equals 9
 $10 - 1 = 9$





$5 - \square = 3$ $\square - 2 = 3$

$22 - 3$


$22 - 19 = 3$




The difference is?




The difference between 11 and 14 is 3.
 $14 - 11 = 3$
 $11 + \square = 14$


 Which line has most money?
 How much more?


 6 and how many more make 10?
 $6 + \square = 10$