



## Andrews' Endowed CE Primary School

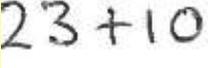
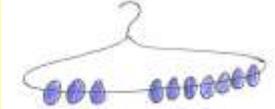
# Calculation Policy

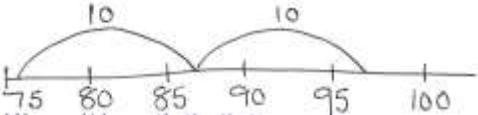
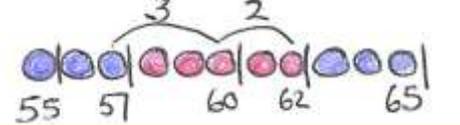


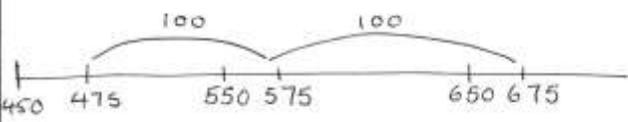
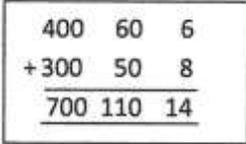
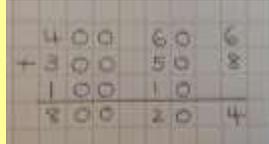
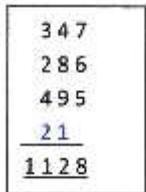
## Andrews' Endowed CE Primary School Calculation Policy

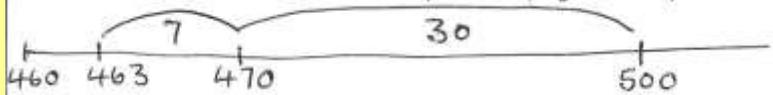
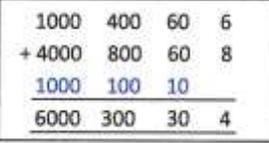
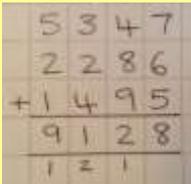
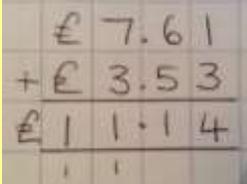
	<b>Mental calculation</b>	<b>Written Calculation</b>	<b>Default for ALL children</b>
<b>Overview of KSI</b>	<p>Children in Years 1 and 2 will be given a really solid foundation in the basic building blocks of mental and written arithmetic. Through being taught place value, they will develop an understanding of how numbers work, so that they are confident in 2-digit numbers and beginning to read and say numbers above 100. A focus on number bonds, first via practical hands-on experiences and subsequently using memorisation techniques, enables a good grounding in these crucial facts, and ensures that all children leave Y2 knowing the pairs of numbers which make all the numbers up to 10 at least. They will also have experienced and been taught pairs to 20. Their knowledge of number facts enables them to add several single-digit numbers, and to add/subtract a single digit number to/from a 2-digit number. Another important conceptual tool is their ability to add/subtract 1 or 10, and to understand which digit changes and why. This understanding is extended to enable children to add and subtract multiples of ten to and from any 2-digit number. The most important application of this knowledge is their ability to add or subtract any pair of 2-digit numbers by counting on or back in tens and ones. Children may extend this to adding by partitioning numbers into tens and ones. Children will be taught to count in 2s, 3s, 5s and 10s, and will have related this skill to repeated addition. They will have met and begun to learn the associated 2x, 3x, 5x and 10x tables. Engaging in a practical way with the concept of repeated addition and the use of arrays enables children to develop a preliminary understanding of multiplication, and asking them to consider how many groups of a given number make a total will introduce them to the idea of division. They will also be taught to double and halve numbers, and will thus experience scaling up or down as a further aspect of multiplication and division. Fractions will be introduced as numbers and as operators, specifically in relation to halves, quarters and thirds.</p>		
<b>Overview of LKS2</b>	<p>In the lower juniors, children build on the concrete and conceptual understandings they have gained in the Infants to develop a real mathematical understanding of the four operations, in particular developing arithmetical competence in relation to larger numbers. In addition and subtraction, they are taught to use place value and number facts to add and subtract numbers mentally and will develop a range of strategies to enable them to discard the 'counting in ones' or fingers-based methods of the infants. In particular, they will learn to add and subtract multiples and near multiples of 10, 100 and 1000, and will become fluent in complementary addition as an accurate means of achieving fast and accurate answers to 3-digit subtractions. Standard written methods for adding larger numbers are taught, learned and consolidated, and written column subtraction is also introduced. This key stage is also the period during which all the multiplication and division facts are thoroughly memorised, including all facts up to the 12 x 12 table. Efficient written methods for multiplying or dividing a 2-digit or 3-digit number by a single-digit number are taught, as are mental strategies for multiplication or division with large but friendly numbers, e.g. when dividing by 5 or multiplying by 20. Children will develop their understanding of fractions, learning to reduce a fraction to its simplest form as well as finding non-unit fractions of amounts and quantities. The concept of a decimal number is introduced and children consolidate a firm understanding of one-place decimals, multiplying and dividing whole numbers by 10 and 100.</p>		
<b>Overview of UKS2</b>	<p>Children move on from dealing mainly with whole numbers to performing arithmetic operations with both decimals and fractions. They will consolidate their use of written procedures in adding and subtracting whole numbers with up to 6 digits and also decimal numbers with up to two decimal places. Mental strategies for adding and subtracting increasingly large numbers will also be taught. These will draw upon children's robust understanding of place value and knowledge of number facts. Efficient and flexible strategies for mental multiplication and division are taught and practised, so that children can perform appropriate calculations even when the numbers are large, such as <math>40,000 \times 6</math> or <math>40,000 \div 8</math>. In addition, it is in Y5 and Y6 that children extend their knowledge and confidence in using written algorithms for multiplication and division. Fractions and decimals are also added, subtracted, divided and multiplied, within the bounds of children's understanding of these more complicated numbers, and they will also calculate simple percentages and ratios. Negative numbers will be added and subtracted.</p>		

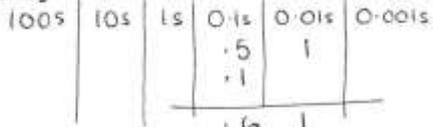
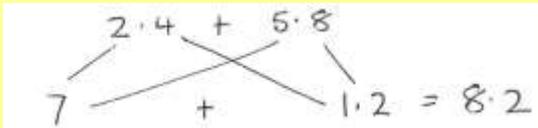
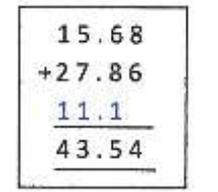
## ADDITION

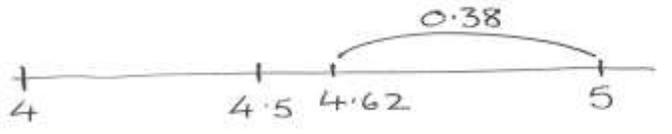
		Mental calculation	Written Calculation	Default for ALL children
<b>Addition</b>		<p>Using place value – count in ones / counting in tens e.g. knowing 45+1 or 45+10 without counting on in ones</p>  		<p>Pairs with a total of 10 Counting in ones Counting in tens Count on 1 from any given 2-digit number</p>
	Year 1	<p>Using number facts</p> <ul style="list-style-type: none"> <li>- 'story of' 5, 6, 7, 8, 9 and 10 e.g. <math>7 = 7+0</math> or <math>6+1</math> or <math>5+2</math> or <math>4+3</math></li> <li>- number bonds to 10 e.g. <math>5+5</math>, <math>6+4</math>, <math>7+3</math>, <math>8+2</math>, <math>9+1</math>, <math>10+0</math></li> </ul>   <p>Count on in ones from a given 2-digit number, e.g. <math>11+2 =</math> Count on in tens from any given 2-digit number e.g. <math>45+20</math> as 45, 55, 65 Add two single-digit numbers e.g. <math>7+4=</math></p> <p>Add three single-digit numbers spotting doubles or pairs to 10 Add 10 to any given 2-digit number</p> <p>Patterns using number facts to add single-digit numbers to two-digit numbers e.g. use <math>4 + 3</math> to work out <math>24 + 3</math>, <math>34 + 3...</math></p> <p>Add by putting the larger number first</p>		

		Mental calculation	Written Calculation	Default for ALL children
Addition		<p><u>Using Place Value</u>            Know 1 more or 10 more than any number e.g. 1 more than 67 or 10 more than 85.            Partitioning e.g. <math>55+37</math> as <math>50+30</math> and <math>5+7</math> finally combing the two totals:  <math>80+12</math></p> 	<p><i>Non-statutory guidance</i>  <i>For greater depth horizontal written methods should progress rapidly to more efficient column methods to help prepare pupils in Year 3.</i></p>	<p>Know pairs of numbers which make each total up to 10            Add two single digit numbers            Add a single-digit number to a 2-digit number by counting on in ones            Add 10 and small multiples of 10 to a 2-digit number by counting on in tens</p>
	Year 2	<p><u>Counting on</u>            Count on in ones and tens from any given 2-digit number            Add 10 and small multiples of 10 to any given 2-digit number e.g. <math>76+20</math> as 76, 86, 96 or in one hop <math>76+20</math></p>  <p>Add two 2-digit numbers by counting on in tens and then ones e.g. <math>55+37</math> as 55 add 30 (85) add 7 (92)            Add near multiples e.g. <math>46+19</math> or <math>63+21</math></p> <p><u>Using number facts</u>            Know pairs of numbers which make the numbers up to and including 10 e.g. <math>8 = 4+4, 3+5, 2+6, 1+7</math> and <math>10 = 5+5, 4+6, 3+7, 2+8, 1+9, 0+10</math>            Number bonds – knowing all the pairs of numbers which make all the numbers to 12, and pairs with a total of 20            Patterns of known facts e.g. <math>6+3 = 9</math> so we know <math>36+3=39, 66+3=69, 53+6=59</math>            Bridging ten e.g. <math>57+5</math> as 57 add 3 and then add 2 more</p>  <p>Add two or three single-digit numbers, spotting bonds to 10 or doubles            Add a single-digit number to any 2-digit number using number facts, including bridging multiples of 10. (E.g. <math>45 + 4, 38 + 7</math>)</p>		

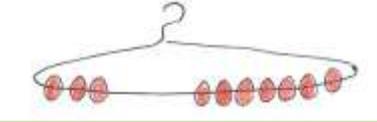
		Mental calculation	Written Calculation	Default for ALL children
<b>Addition</b>		<p><u>Using place value</u> Counting hundreds e.g. knowing <math>475+200</math> as 475, 575, 675</p>  <p>Perform place value additions without a struggle. (E.g. <math>300 + 8 + 50 = 358</math>) Add multiples of 10, 100 and £1 e.g. <math>746+200</math> or <math>746+40</math> or <math>£6.34+£5</math> as <math>£6+£5</math> and 34p Add any two 2-digit numbers by counting on in 10s and 1s or by using partitioning e.g. <math>68+74</math> as <math>60+70</math> and <math>8+4</math> and combine the totals: <math>130+12=142</math> or <math>£8.50+£3.70</math> as <math>£8+£3</math> and <math>50p+70p</math> and combine: <math>£11+£1.20</math> Begin to add amounts of money using partitioning. Use place value and number facts to add a 1-digit or 2-digit number to a 3-digit number e.g. <math>104 + 56</math> is 160 since <math>104+50=154</math> and <math>6+4=10</math> and <math>676 + 8</math> is 684 since <math>8=4+4</math> and <math>76+4+4=84</math>) Add pairs of 'friendly' 3-digit numbers, e.g. <math>320 + 450</math></p> <p><u>Counting on</u> Add two 2-digit numbers by adding the multiple of ten and the ones e.g. <math>67+55</math> as 67 add 50 (117) add 5 (122) Add near multiples of 10 and 100 e.g. <math>67+39</math> or <math>364+199</math> Count on from 3-digit numbers e.g. <math>247+34</math> as <math>247+30</math> (277) then <math>277+4=281</math></p> <p><u>Using number facts</u> Number bonds to 100 e.g. <math>35+65</math>, <math>46+54</math>, <math>73+27</math> Add to next ten and next hundred e.g. <math>176+4=180</math>, <math>435+65=500</math> Know pairs with each total to 20 Know pairs of multiples of 10 with a total of 100</p>	<p>Build on partitioning to develop expanded column addition with two 3-digit numbers</p>  <p>Use expanded column addition to add two or three 3-digit numbers or three 2-digit numbers with 'carrying'</p>  <p>Use compact column addition with two or more 3-digit numbers or towers if 2-digit numbers Use compact column addition with 3-digit and 4-digit numbers</p>  <p>Recognise fractions that add to 1. (E.g. <math>\frac{1}{4} + \frac{3}{4}</math> or <math>\frac{3}{5} + \frac{2}{5}</math>) Begin to add like fractions. (E.g. <math>\frac{3}{8} + \frac{1}{8} + \frac{1}{8}</math>)</p>	<p>Know pairs of numbers which make each total up to 10, and which total 20 Add two 2-digit numbers by counting on in tens and ones (E.g. <math>56 + 35</math> is <math>56 + 30</math> and then add the 5) Understand simple place value additions: <math>200 + 40 + 5 = 245</math> Use place value to add multiples of 10 or 100</p>
	Year 3			

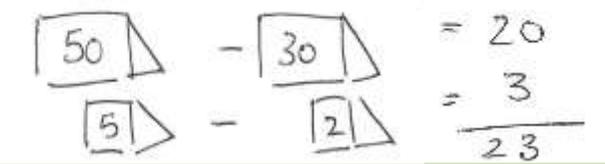
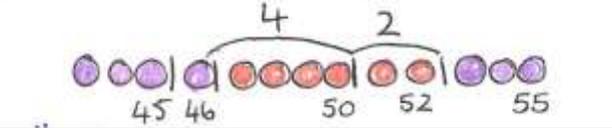
		Mental calculation	Written Calculation	Default for ALL children
Addition	Year 4	<p><u>Using place Value</u>            Count in thousands e.g. knowing <math>4750+200</math> as 4750, 5750, 6750            Partitioning e.g. <math>746+203</math> as <math>700+200</math> and <math>46+3</math> or <math>134+707</math> as <math>130+700</math> and <math>4+7</math>            Perform place value additions without a struggle. (E.g. <math>300 + 8 + 50 + 4000 = 4358</math>)</p> <p><u>Counting on</u>            Add two 2-digit numbers by partitioning - adding the multiple of ten and then the ones e.g. <math>67+55</math> as 67 add 50 (117) add 5 (122)</p>  <p>Add multiples and near multiples of 10, 100 and 1000 e.g.            Count on to add 3-digit numbers and money e.g. <math>463+124</math> as <math>463+100</math> (<math>563</math>)+20 (<math>583+4=587</math> or <math>£4.67+£5.30</math> as <math>£9.67</math> add 30p)</p> <p><u>Using number facts</u>            Know by heart/quickly derive number bonds to 100 and to £1            Number bonds to 100 and to next multiple of 100 e.g. <math>463+37</math>, <math>13353+47</math></p>  <p>Number bonds to £1 and to the next whole pound e.g. <math>£3.45 + 55p</math>            Add to the next hundred, pound and whole number. (E.g. <math>234 + 66 = 300</math>, <math>3.4 + 0.6 = 4</math>)            Add £1, 10p, 1p to amounts of money</p> <p>Use place value and number facts to add 1-, 2-, 3- and 4-digit numbers where a mental calculation is appropriate'. (E.g. <math>4004 + 156</math> by knowing that <math>6+4=10</math> and that <math>4004+150= 4154</math> so total is 4160)</p>	<p>Build on expanded column addition to develop compact column addition with larger numbers.</p>  <p>Use compact column addition with larger numbers (3-digit and 4-digit numbers).</p>  <p>Use expanded and compact column addition to add amounts of money            Add like fractions, e.g. <math>\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}</math>.            Be confident with fractions that add to 1 and fraction complements to 1. (E.g. <math>\frac{2}{3} + ? = 1</math>)</p> <p>Solving problems in the contexts of money and measure to 2 decimal places</p> 	<p>Add any 2-digit numbers by partitioning or counting on            Number bonds to 20            Know pairs of multiples of 10 with a total of 100            Add friendly larger numbers using knowledge of place value and number facts            Use expanded column addition to add 3-digit numbers</p>

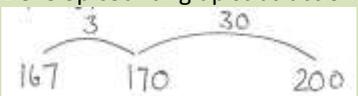
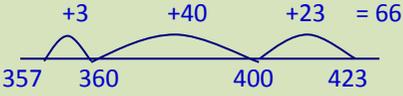
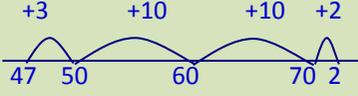
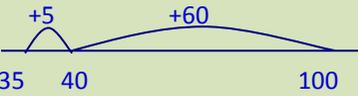
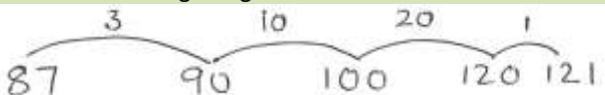
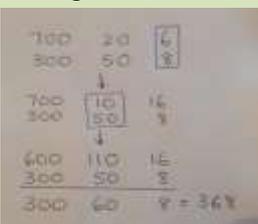
		Mental calculation	Written Calculation	Default for ALL children
Addition	Year 5	<p><u>Using place value</u> Count in 0.1's, 0.01s e.g. knowing what 0.1 more than 0.51 is</p>  <p>Partitioning e.g. <math>2.4+5.8</math> as <math>2+5</math> and <math>0.4=0.8</math> and combine the totals <math>7+1.2=8.2</math></p> 	<p>Expanded column addition for money leading to compact column addition for adding several amounts of money</p> 	<p>Add numbers with only 2-digits which are not zeros, e.g. <math>3.4 + 5.8</math> Derive swiftly and without any difficulty number bonds to 100 Add friendly large numbers using knowledge of place value and number facts Use expanded column addition to add pairs of 4- and 5-digit numbers</p>
		<p><u>Counting on</u> Add two decimal numbers by adding the ones then the tenths/hundredths, e.g. <math>5.72+3.05</math> as <math>5.72</math> add <math>3</math> (<math>8.72</math>) then add <math>0.05</math> (<math>8.77</math>) Add one or two-digit multiples of 10, 100, 1000, 10,000 and 100,000. (E.g. <math>8000 + 7000</math> or <math>600,000 + 700,000</math>) Add near multiples of 1 e.g. <math>6.34+0.99</math> or <math>5.63+0.9</math> Add decimal numbers which are near multiples of 1 or 10, including money. (E.g. <math>6.34 + 1.99</math> or <math>£34.59 + £19.95</math>) Count on from large number e.g. <math>6834+3005</math> as <math>9834+5</math> Add near multiples of 10, 100, 1000, 10,000 and 100,000 to other numbers. (E.g. <math>82,472 + 30,004</math>) Add numbers with two significant digits only, using mental strategies. (E.g. <math>3.4 + 4.8</math> or <math>23,000 + 47,000</math>)</p> <p><u>Using number facts</u> Know number bonds to 1 and to the next whole number e.g. <math>0.4+0.6</math> or <math>5.7+0.3</math> Add to the next 10 from a decimal number, e.g. <math>13.6 + 6.4 = 20</math> or <math>7.8+2.2=10</math> Use place value and number facts to add two or more friendly numbers including money and decimals. (E.g. <math>3 + 8 + 6 + 4 + 7</math>, <math>0.6 + 0.7 + 0.4</math>, or <math>2,056 + 44</math>)</p>	<p>Compact column addition to add two or three whole numbers with up to 5-digit numbers Continued to use column addition to add towers of several larger numbers. Use column addition to add any pair of two-place decimal numbers including amounts of money.</p>  <p>Adding fractions with related denominators e.g. <math>\frac{1}{4}+\frac{3}{8}=\frac{5}{8}</math> Begin to add related fractions using equivalences. (E.g. <math>\frac{1}{2} + \frac{1}{6} = \frac{3}{6} + \frac{1}{6}</math>) Choose the most efficient method in any given situation</p>	

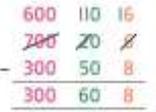
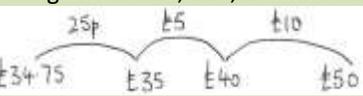
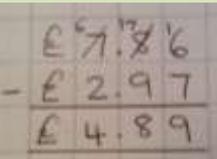
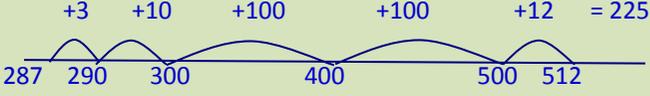
		Mental calculation	Written Calculation	Default for ALL children
Addition	Year 6	<p><u>Using place value</u> Count in 0.1s, 0.01s, 0.001s e.g. knowing what 0.001 more than 6.725 is</p>  <p>Partitioning e.g. <math>9.54+3.25</math> as <math>9+3</math> and <math>0.5+0.2</math> and <math>0.04+0.05</math> to get 12.79</p>	<p>Compact column addition for adding several large numbers (with up to 5 digits) and decimal numbers with up to 3 places. Compact column addition with money.</p> 	<p>Derive swiftly and without difficulty, number bonds to 100 Use place value and number facts to add friendly large or decimal numbers, e.g. <math>3.4 + 6.6</math> or <math>26,000 + 5,400</math> Use column addition to add numbers with up to 4-digits. Use column addition to add pairs of two-place decimal numbers.</p>
		<p><u>Counting on</u> Add two decimal numbers by adding the ones then the tenths/hundredths or thousandths e.g. <math>6.314+3.006</math> as <math>6.314</math> add 3 (<math>9.314</math>) then add 0.006 (<math>9.32</math>) Add two 1-place decimal numbers or two 2-place decimal numbers less than 1 (E.g. <math>4.5 + 6.3</math> or <math>0.74 + 0.33</math>) Add near multiples of 1 e.g. <math>6.345+0.999</math> or <math>5.673+0.9</math> Add multiples of powers of ten and near multiples of the same. (E.g. <math>6345 + 199</math>.) Count on from large numbers e.g. <math>16,375+12,003</math> Add negative numbers in a context such as temperature where the numbers make sense. Add positive numbers to negative numbers, e.g. calculate a rise in temperature, or continue a sequence beginning with a negative number</p> <p><u>Using number facts</u> Number bonds to 1 and to next multiple of 1 e.g. <math>0.63+0.37</math> or <math>2.355+0.645</math> Know by heart number bonds to 100 and use these to derive related facts. (E.g. <math>3.46 + 0.54 = 4</math>) Derive quickly and without difficulty, number bonds to 1000 Add to next ten, e.g. <math>4.62+0.38</math></p>  <p>Add small and large whole numbers where the use of place value or number facts makes the calculation do-able 'in our heads'. (E.g. <math>34,000 + 8000</math>.)</p>	<p>Add mixed numbers and fractions with different denominators. Add fractions with unlike denominators e.g. <math>\frac{3}{4}+1\frac{1}{3}=1\frac{1}{12}</math> or <math>\frac{13}{12}</math>... or <math>2\frac{1}{4}+1\frac{1}{3}=3\frac{7}{12}</math></p>	

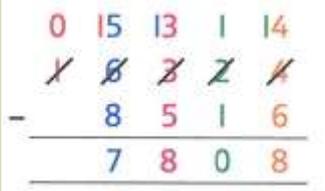
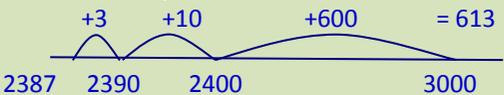
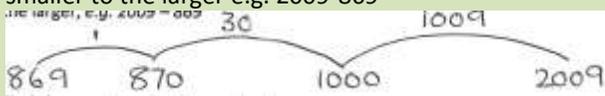
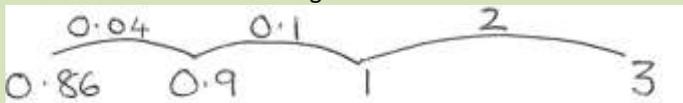
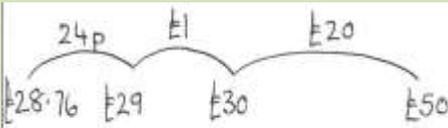
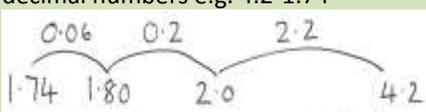
# SUBTRACTION

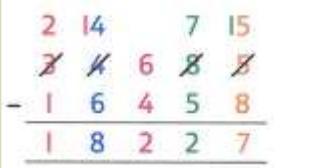
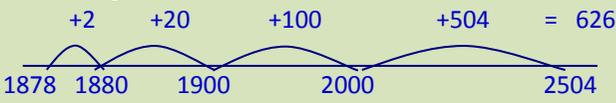
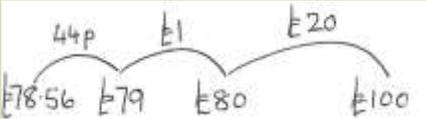
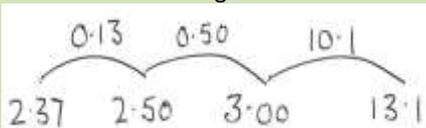
		Mental calculation	Written Calculation	Default for ALL children
<b>Subtraction</b>		<p><u>Using place value</u> Count back in ones / count back in tens e.g. knowing 53-1 or 53-10 without counting back in ones</p> 		<p>Pairs with a total of 10 Counting back in ones from 20 to 0 Counting back in tens from 100 to 0 Count back 1 from any given 2-digit number</p>
	Year 1	<p><u>Taking away</u> Count back in ones from a given 2-digit number Count back in tens from any given 2-digit number</p>  <p><u>Taking away</u> Subtract one single-digit number from another Count back in ones e.t. 11-3= 15-4= Subtract 10 from any given 2-digit number Count back in tens e.g. 53-20 as 53, 43, 33</p> <p><u>Using number facts</u> 'Story' of 4, 5, 6, 7, 8, and 9 e.g. 7-1=6, 7-2=5, 7-3=4 etc Number bonds to 10 e.g. 10-1=9, 10-2=8, 10-3=7 etc</p>  <p>Patterns using known facts to subtract single-digit numbers from two-digit numbers e.g. 7-3=4 so we know 27-3=, 47-3=</p>		

		Mental calculation	Written Calculation	Default for ALL children
Subtraction		<p><u>Using place value</u>            Count back in ones and tens from any given 2-digit number            Know 1 less or 10 less than any number e.g. 1 less than 73 or 10 less than 82            Partitioning e.g. 55-32 as 50-30 and 5-2 combing the answers;            20+3</p> 	<p><i>Non-statutory guidance</i>  <i>For greater depth horizontal written methods should progress rapidly to more efficient column methods to help prepare pupils in Year 3.</i></p>	<p>Know pairs of numbers which make each total up to 10            Subtract a single-digit number from a 2-digit number by counting back in ones            Subtract 10 and small multiples of 10 from a 2-digit number by counting back in tens</p>
	Year 2	<p><u>Taking away</u>            Subtract ten and multiples of ten e.g. 76-20 as 76,66,56 or in none hop 76-20=56            Subtract two 2-digit numbers by counting back in tens then in ones e.g. 67-33 as 67 subtract 30 (37) then count back 3 (34)            Subtracting near multiples e.g. 74-21 or 57-19</p> <p><u>Using number facts</u>            Number bonds – knowing all the pairs of numbers which make all the numbers to 12, e.g. 10-6=4, 8-3=5, 5-2=3 etc            Patterns of known facts, e.g. 9-6=3, so we know 39-6=33, 69-6 = 63, 89-6=83            Subtract a single-digit number from any 2-digit number using number facts, including bridging multiples of 10, e.g. 52-6 as 52 subtract 2 then subtract 4 more.</p>  <p><u>Counting up</u>            Find the difference between two number son a line e.g. 51-47            Subtract any pair of 2-digit numbers by counting back in tens and ones or by counting up.</p>		

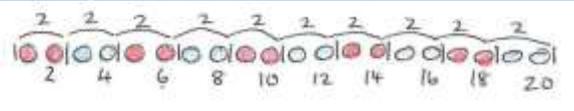
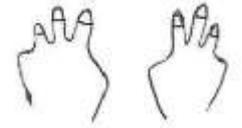
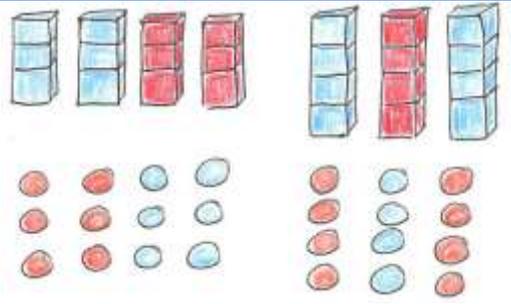
		Mental calculation	Written Calculation	Default for ALL children
Subtraction	Year 3	<p><u>Taking away</u> Use place value to subtract e.g. <math>348-300</math> or <math>348-40</math> or <math>348-8</math></p>  <p>Perform place value subtractions without a struggle. (E.g. <math>536 - 30 = 506</math>, etc.) Subtract any two 2-digit numbers Taking away multiples of 10, 100 and £1 e.g. <math>476-40=436</math>, <math>476-300=176</math>, <math>£4.76-£2=£2.76</math> Subtract multiples and near multiples of 10 and 100 Partitioning e.g. <math>68-42</math> as <math>60-40</math> and <math>8-2</math> or <math>£6.84-£2.40</math> as <math>£6-p£2</math> and <math>80p-40p</math> Count back in hundreds, tens then ones e.g. <math>763-121</math> as <math>763-100</math> (<math>663</math>) then subtract 20 (<math>643</math>) then subtract 1 (<math>642</math>) Find change from £1, £5 and £10.</p>	<p>Develop counting up subtraction</p>  <p>Use counting up as an informal written strategy for subtracting pairs of three-digit numbers, e.g. <math>423 - 357</math> is</p>  <p>Use counting up subtraction to find change from £1 and £10</p> 	<p>Know pairs of numbers which make each total up to 10, and which total 20 Count up to subtract 2-digit numbers: <math>72 - 47</math> is</p>  <p>Subtract multiples of 5 from 100 by counting up</p>  <p>Subtract multiples of 10 and 100</p>
		<p><u>Counting up</u> Find a difference between two numbers by counting up from the smaller to the larger e.g. <math>121-87</math></p>  <p>Subtract 2-digit numbers from numbers <math>&gt;100</math> by counting up. (E.g. <math>143 - 76</math> is done by starting at 76, add 4 (80) then add 20 (100) then add 43 making the difference a total of 67)</p> <p><u>Using number facts</u> Know pairs with each total to 20 Number bonds to 100 e.g. <math>100-35=65</math>, <math>100-48=52</math> etc</p> <p>Subtract, when appropriate, by counting back or taking away, using place value and number facts.</p>	<p>Recognise complements of any fraction to 1 e.g. <math>1-\frac{1}{4}=\frac{3}{4}</math> or <math>1-\frac{2}{3}=\frac{1}{3}</math> Begin to subtract like fractions. (E.g. <math>\frac{7}{8} - \frac{3}{8}</math>)</p> <p>Use expanded column subtraction for up to 3 digit numbers</p>  <p>Indicate the problem numbers using a box</p>	

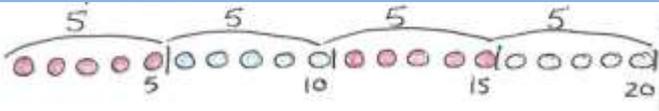
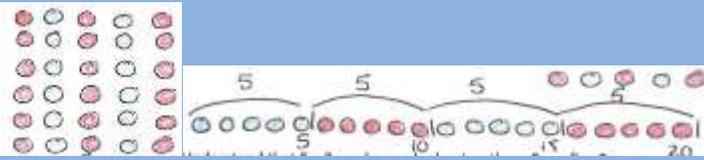
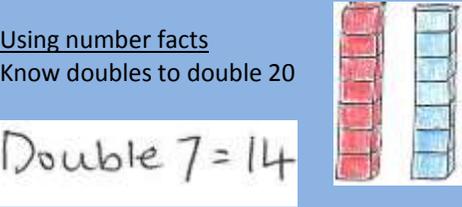
		Mental calculation	Written Calculation	Default for ALL children
<b>Subtraction</b>	Year 4	<p><u>Taking away</u>            Subtract any two 2-digit numbers            Know by heart/quickly derive number bonds to 100            Perform place value subtractions without a struggle. (E.g. <math>4736 - 706 = 4030</math>, etc.)            Use place value to subtract e.g. <math>4748 - 4000</math> or <math>4748 - 8</math> etc            Take away multiples of 10, 1000, 10000, £1, 10p or 0.1 e.g. <math>8392 - 50</math> or <math>6723 - 3000</math> or <math>£3.74 - 30p</math> or <math>5.6 - 0.2</math>            Partitioning e.g. <math>£5.87 - £3.04</math> as <math>£5 - £3</math> and <math>7p - 4p</math> or <math>7493 - 2020</math> as <math>7000 - 2000</math> and <math>90 - 20</math>            Count back e.g. <math>6482 - 1301</math> as <math>6482 - 1000</math> then <math>-300</math> then <math>-1</math> (5181)            Subtract near multiples of 10, 100 and 100e.g. <math>3522 - 1999</math> or <math>£34.96 - £19.99</math>            Subtract £1, 10p, 1p from amounts of money            Find change from £10, £20 and £50.</p> <p><u>Counting up</u>            Find difference between two numbers by counting up from the smaller to the large e.g. <math>506 - 387</math></p>  <p>Subtract by counting up. (E.g. <math>503 - 368</math> is done by adding: <math>368 + 2 + 30 + 100 + 3</math> so we added 135)</p> <p><u>Using number facts</u>            Number bonds to 10, 100 and derive facts e.g. <math>100 - 76 = 24</math>, <math>1.0 - 0.6 = 0.4</math>            Number bonds to £1 and £10 e.g. <math>£1.00 - 86p = 14p</math> or <math>£10 - £3.40 = £6.60</math></p> <p>Subtract, when appropriate, by counting back or taking away, using place value and number facts.</p>	<p>Use expanded column subtraction for 3-digit and 4-digit numbers</p>  <p>Begin to use compact column subtraction</p>  <p>Use counting up subtraction to find change from £10, £20, £50 and £100</p>  <p>Use complementary addition to subtract amounts of money, and for subtractions where the larger number is a near multiple of 1000 or 100            E.g. <math>2002 - 1865</math> is</p>  <p>Subtract like fractions, e.g. <math>\frac{1}{4} + \frac{1}{8} = \frac{3}{8}</math>            Use fractions that add to 1 to find fraction complements to 1, e.g. <math>1 - \frac{2}{3} = \frac{1}{3}</math>            Solving problems in the contexts of money and measure to 2 decimal places</p> 	<p>Use counting up with confidence to solve most subtractions, including finding complements to multiples of 100. (E.g. <math>512 - 287</math> is done by</p>  <p><math>67 + ? = 100</math></p> 

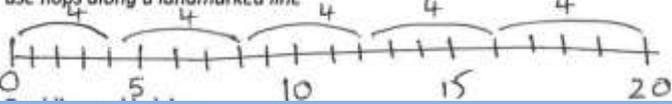
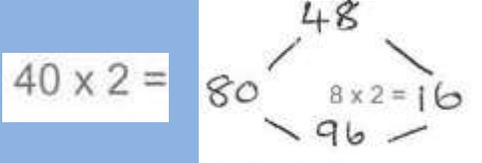
		Mental calculation	Written Calculation	Default for ALL children
Subtraction	Year 5	<p><u>Taking away</u>                      Subtract numbers with two significant digits only, using mental strategies. (E.g. <math>6.2 - 4.5</math> or <math>72,000 - 47,000</math>)                      Use place value to subtract decimals e.g. <math>4.58 - 0.08</math> or <math>6.26 - 0.2</math>                      Take away multiples of powers of 10 e.g. <math>15,672 - 300</math> or <math>4.82 - 2</math> or <math>2.71 - 0.5</math> or <math>4.68 - 0.02</math>                      Partition or count back e.g. <math>3964 - 1051</math> or <math>5.72 - 2.01</math>                      Subtract one or two-digit multiples of 100, 1000, 10,000 and 100,000. (E.g. <math>8000 - 3000</math> or <math>600,000 - 200,000</math>)                      Subtract one or two digit near multiples of 100, 1000, 10,000 and 100,000 from other numbers. (E.g. <math>82,472 - 30,004</math>)                      Subtract decimal numbers which are near multiples of 1 or 10, including money. (E.g. <math>6.34 - 1.99</math> or <math>£34.59 - £19.95</math>)</p>	<p>Use compact column subtraction to subtract numbers with up to 5 digits.</p> 	<p>Derive swiftly and without difficulty number bonds to 100                      Use counting up with confidence to solve most subtractions, including finding complements to multiples of 1000. (E.g. <math>3000 - 2387</math> is done by</p> 
		<p><u>Counting up</u>                      Find a difference between two numbers by counting up from the smaller to the larger e.g. <math>2009 - 869</math></p>  <p>Find change using shopkeepers' addition e.g. buy toy for £6.89 using £10</p>  <p>Use counting up subtraction, with knowledge of number bonds to 10/100 or £1, as a strategy to perform mental subtraction. (E.g. <math>£10 - £3.45</math> or <math>1000 - 782</math>)</p> <p><u>Using number facts</u>                      Derived facts from number bonds to 10 and 100 e.g. <math>2 - 0.45</math> using <math>45 - 55 = 100</math> or <math>3.00 - 0.86</math> using <math>86 + 14 = 100</math></p>  <p>Number bonds to £1, £10 and £100 e.g. <math>£4.00 - £3.86p = 14p</math> or <math>£100 - £66</math> using <math>66 + 34 = £100</math>                      Recognise fraction complements to 1 and to the next whole number. (E.g. <math>1\frac{2}{5} + \frac{3}{5} = 2</math>) <math>4 - 5</math></p>	<p>Use complementary addition for subtractions of decimals with up to two places incl. amounts of money                      Continued to use counting up subtraction for subtractions involving money, including finding change ro e.g. <math>£50 - £28.76</math></p>  <p>Use counting up subtraction to subtract decimal numbers e.g. <math>4.2 - 1.74</math></p>  <p>Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000.                      Subtracting fractions with like denominators e.g. <math>1\frac{1}{4} - \frac{2}{8}</math> as <math>1\frac{2}{8} - \frac{3}{8}</math> or <math>\frac{10}{8} - \frac{3}{8} = \frac{7}{8}</math>                      Begin to subtract related fractions using equivalences. (E.g. <math>\frac{1}{2} - \frac{1}{6} = \frac{2}{6}</math>)                      Choose the most efficient method in any given situation</p>	

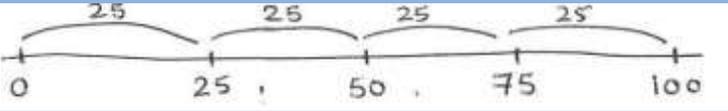
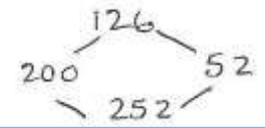
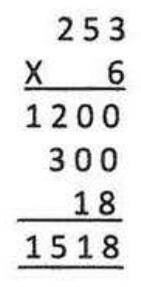
		Mental calculation	Written Calculation	Default for ALL children
Subtraction	Year 6	<p><u>Taking away</u> Use place value to subtract decimal e.g. <math>7.782 - 0.08</math> or <math>16.263 - 0.2</math> etc Take away multiples of powers of 10 e.g. <math>132,956 - 400</math> or <math>686,109 - 40,000</math> or <math>7.823 - 0.5</math> Partition or count back, e.g. <math>3964 - 1051</math> or <math>5.72 - 2.01</math> Subtract near multiples e.g. <math>360,078 - 99,998</math> or <math>12.831 - 0.99</math> Subtract multiples of powers of ten and near multiples of the same. Subtract negative numbers in a context such as temperature where the numbers make sense.</p>	<p>Use compact column subtraction to subtract numbers with up to 6 digits.</p> 	<p>Use number bonds to 100 to perform mental subtraction of numbers up to 1000 by complementary addition. (E.g. <math>1000 - 654</math> as <math>46 + 300</math> in our heads.) Use complementary addition for subtraction of integers up to 10,000. E.g. <math>2504 - 1878</math> as</p> 
		<p><u>Counting up</u> Count up to subtract numbers from multiples or 10, 100, 1000, 10,000 Find the difference between two decimal numbers by counting up from the smaller to the larger e.g. <math>1.2 - 0.87</math></p>  <p><u>Using number facts</u> Use number bonds to 100 to perform mental subtraction of any pair of integers by complementary addition. (E.g. <math>1000 - 654</math> as <math>46 + 300</math> in our heads) Use number bonds to 1 and 10 to perform mental subtraction of any pair of one-place or two-place decimal numbers using complementary addition and including money. (E.g. <math>10 - 3.65</math> as <math>0.35 + 6</math>, <math>£50 - £34.29</math> as <math>71p + £15</math>) Derived facts from number bonds to 10 and 100 e.g. <math>0.1 - 0.075</math> using <math>75 + 25 = 100</math> or <math>5 - 0.65</math> using <math>65 + 35 = 100</math></p>  <p>Number bonds to £1, £10 and £100 e.g. <math>£7.00 - £4.37</math> or <math>£100 - £66.20</math> using <math>20p + 80p = £1</math> and <math>£67 + £33 = £100</math> Use number facts and place value to perform mental subtraction of large numbers or decimal numbers with up to two places. (E.g. <math>467,900 - 3,005</math> or <math>4.63 - 1.02</math>)</p>	<p>Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000 or 10,000. Use complementary addition for subtractions of decimal numbers with up to three places including money. Use counting up subtraction when dealing with money e.g. <math>£100 - £78.56</math> or <math>£45.23 - £27.57</math></p>  <p>Use counting up subtraction to subtract decimal numbers e.g. <math>13.1 - 2.37</math></p>  <p>Subtract mixed numbers and fractions with different denominators e.g. <math>1\frac{1}{4} - \frac{2}{3}</math> as <math>1\frac{3}{12} - \frac{8}{12}</math> or <math>15/12 - 8/12 = 7/12</math></p>	<p>Use complementary addition for subtractions of one-place decimal numbers and amounts of money. (E.g. <math>£7.30 - £3.55</math> as</p> 

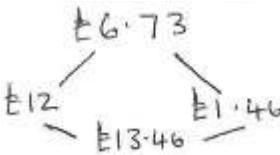
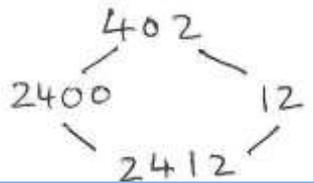
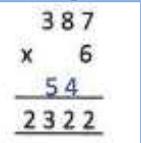
# MULTIPLICATION

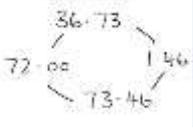
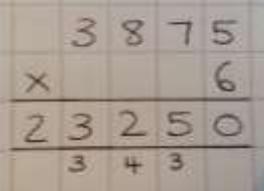
		Mental calculation	Written Calculation	Default for ALL children
<b>Multiplication</b>	<b>Year 1</b>	<p><u>Counting steps ('Clever' counting)</u> Counting 2s, 5s and 10s</p> 		<p>Begin to count in 2s and 10s Double numbers to 5 using fingers</p>
		<p><u>Doubling and halving</u> Find doubles to 6 using fingers</p>  <p>Double numbers to 10</p> <p><u>Grouping</u> Begin to use visual and concrete arrays and 'sets of' objects to find the answers to '3 lots of 4' or '2 lots of 5' etc</p>  <p>Begin to say what three 5s are by counting in 5s or what four 2s are by counting in 2s, etc.</p>		

		Mental calculation	Written Calculation	Default for ALL children
Multiplication	Year 2	<p><u>Counting in steps ('Clever counting')</u> Count in 2s, 5s and 10s</p>  <p>Begin to count in 3s.</p> <p><u>Doubling and halving</u> Begin to know doubles of multiples of 5 to 100 e.g. double 35 is 70</p> <p><u>Grouping</u> Use arrays to find answers to multiplication and relate to 'clever' counting e.g. <math>3 \times 4</math> as three lots of four things and <math>6 \times 5</math> as six steps in the 5s count as well as six lots of five</p>  <p>Begin to understand that multiplication is repeated addition and to use arrays (E.g. <math>3 \times 4</math> is three rows of 4 dots) Understand that <math>5 \times 3</math> can be worked out as three 5s or five 3s</p> <p><u>Using number facts</u> Know doubles to double 20</p>  <p>Start learning 2x, 5x, 10x tables, relating these to 'Clever counting' in 2s, 5s, and 10s e.g. <math>5 \times 10 = 50</math>, and 10, 20, 30, 40, 50 is five steps in then tens count and seeing these as 'lots of', e.g. 5 lots of 2, 6 lots of 2, 7 lots of 2, etc. Begin to double two-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5</p>		<p>Count in 2s, 5s and 10s Begin to use and understand simple arrays, e.g. <math>2 \times 4</math> is two lots of four buns. Double numbers up to 10 Double multiples of 10 to 50</p>

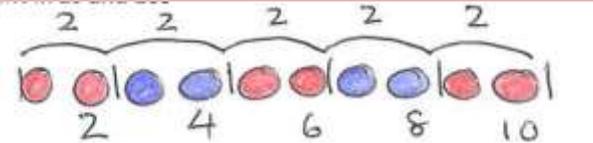
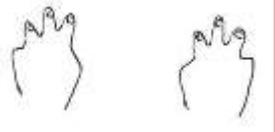
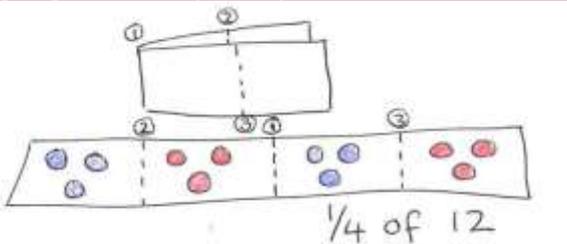
		Mental calculation	Written Calculation	Default for ALL children
<b>Multiplication</b>		<p><u>Counting in steps ('Clever counting')</u> Count in 2s, 3s, 4s, 5s, 8s and 10s e.g. colour the multiples on a 1-100 grid or use hops along a landmarked line</p> 	<p>Use partitioning (grid multiplication) to multiply 2-digit and 3-digit numbers by 'friendly' single digit numbers.</p> 	<p>Know by heart the 2x, 3x, 4x, 5x, 8x and 10x tables Double given tables facts to get others Double numbers up to 25 and multiples of 5 to 50</p>
	Year 3	<p><u>Doubling and halving</u> Find doubles to double 50 using partitioning Use doubling as a strategy in multiplying by 2 e.g. <math>18 \times 2</math> is double 18 (36)</p>  <p><u>Grouping</u> Recognise that multiplication is commutative e.g. <math>4 \times 8 = 8 \times 4</math> Multiply multiples of 10 by single digit numbers, e.g. <math>30 \times 8 = 240</math> Multiply friendly 2-digit numbers by single digit numbers e.g. <math>13 \times 4</math> Multiply whole numbers by 10 and 100</p> <p><u>Using number facts</u> Know doubles to 20 and doubles of multiples of 5 to 100 e.g. double 45 is 90 Know by heart all the multiplication facts in the 2x, 3x, 4x, 5x, 8x and 10x tables Use place value and number facts in mental multiplication. (E.g. <math>30 \times 5</math> is <math>15 \times 10</math>) Partition teen numbers to multiply by a single-digit number. (E.g. <math>3 \times 14</math> as <math>3 \times 10</math> and <math>3 \times 4</math>)</p>		

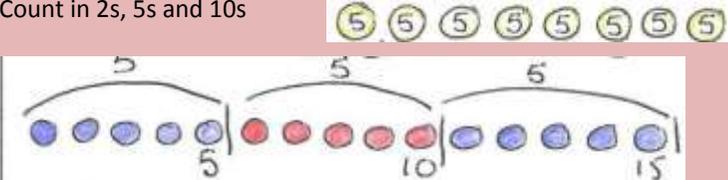
		Mental calculation	Written Calculation	Default for ALL children												
Multiplication	Year 4	<p><u>Counting in steps – sequences</u> Count in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 50s, 100s and 1000s</p> 	<p>Use grid multiplication to multiply 3-digit by 1-digit numbers</p> <table border="1" data-bbox="1010 225 1402 300"> <tr> <td>x</td> <td>200</td> <td>50</td> <td>3</td> </tr> <tr> <td>6</td> <td>1200</td> <td>300</td> <td>18</td> </tr> </table>	x	200	50	3	6	1200	300	18	<p>Know by heart multiplication tables up to 10 x 10 Multiply whole numbers by 10 and 100 Use grid method to multiply a 2-digit or a 3-digit number by a number up to and including 6</p>				
		x	200	50	3											
6	1200	300	18													
<p><u>Doubling and halving</u> Find doubles to double 100 and beyond using partitioning</p>  <p>Begin to double amounts of money e.g. £3.50 doubled is £7 or £35.60 doubled = £71.20 Use doubling as a strategy in multiplying by 2, 4 and 8 e.g. 34x4 = double 34 (68) double again (136)</p> <p><u>Grouping</u> Use partitioning to multiply 2-digit numbers by single digit numbers mentally. (E.g. 4 x 24 as 4 x 20 and 4 x 4) Multiply multiples of 10, 100, 1000 by single digit number using tables facts e.g. 400x8 = 3200 or 4000 x 8 = 32000 Multiply whole numbers and one-place decimals by 10, 100, 1000 Multiply using near multiples by rounding e.g. 24x19 as (24x20) – 24</p> <p><u>Using numbers facts</u> Know by heart all the multiplication facts up to 12 x 12. Recognise factors up to 12 of two-digit numbers. Use understanding of place value and number facts in mental multiplication. (E.g. 36 x 5 is half of 36 x 10 and 50 x 60 = 3000)</p>	<p>Use grid multiplication to multiply 2-digit numbers by 2-digit numbers</p> <table border="1" data-bbox="1010 448 1402 663"> <tr> <td>x</td> <td>40</td> <td>6</td> </tr> <tr> <td>10</td> <td>400</td> <td>60</td> </tr> <tr> <td>8</td> <td>320</td> <td>48</td> </tr> <tr> <td></td> <td>720</td> <td>108</td> </tr> <tr> <td></td> <td></td> <td>= 828</td> </tr> </table> <p>Use a vertical written method to multiply a one-digit by a 3-digit number (ladder)</p> 	x	40	6	10	400	60	8	320	48		720	108			= 828
x	40	6														
10	400	60														
8	320	48														
	720	108														
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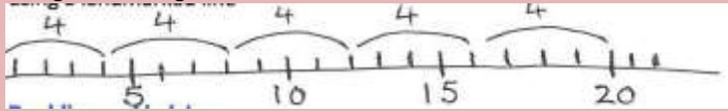
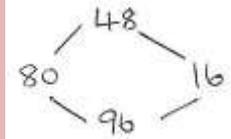
		Mental calculation	Written Calculation	Default for ALL children
Multiplication	Year 5	<p><u>Doubling and halving</u> Double amounts of money using partitioning e.g. £6.73 doubles to double £6 (£12) plus double 73p (£1.46) or £37.45 doubled = £37 doubled (£74) plus 45p doubled (90p) £74.90</p>  <p>Use doubling and halving as a strategy in multiplying by 2, 4, 8, 5 and 20 e.g. <math>58 \times 5 = \frac{1}{2}</math> of <math>58 \times 10</math> (290)</p> <p><u>Grouping</u> Multiply whole numbers and one-and two-place decimals by 10, 100, 1000, 10,000 Multiply decimals by 10, 100, 1000 e.g. <math>3.4 \times 100 = 340</math> Use partitioning to multiply friendly 2-digit and 30digit numbers by single-digit numbers e.g. <math>402 \times 6</math> as <math>400 \times 6</math> (2400) and <math>2 \times 6</math> (12)</p>  <p>Use partitioning to multiply decimal numbers by single-digit numbers e.g. <math>4.5 \times 3</math> as <math>(4 \times 3) + (4 \times 0.5)</math> Partition 2-digit numbers, including decimals, to multiply by a single-digit number mentally. (E.g. <math>6 \times 27</math> as <math>6 \times 20</math> (120) plus <math>6 \times 7</math> (42) making 162 or <math>6.3 \times 7</math> as <math>6 \times 7</math> plus <math>0.3 \times 7</math>) Multiply using near multiples by rounding e.g. <math>32 \times 29</math> as <math>(32 \times 30) - 32</math></p> <p><u>Using number facts</u> Use times tables facts up to <math>12 \times 12</math> to multiply multiples of the multiplier e.g. <math>4 \times 6 = 24</math> so <math>40 \times 6 = 240</math> and <math>400 \times 6 = 2400</math> Use knowledge of factors and multiples in multiplication. (E.g. <math>43 \times 6</math> is double <math>43 \times 3</math>, and <math>28 \times 50</math> is <math>\frac{1}{2}</math> of <math>28 \times 100 = 1400</math>) Know square numbers and cube numbers Know by heart all the multiplication facts up to <math>12 \times 12</math>. Use knowledge of place value and rounding in mental multiplication. (E.g. <math>67 \times 199</math> as <math>67 \times 200 - 67</math>)</p>	<p>Use short multiplication to multiply a 1-digit number by a number with up to 4 digits</p>  <p>Use long multiplication to multiply 2-digit, 3-digit and 4-digit number by a number between 11 and 20</p>  <p>Grid multiplication of numbers with up to 2 decimal places by single digit numbers</p>  <p>Choose the most efficient method in any given situation Find simple percentages of amounts 9e.g. 10%, 5%, 20%, 155 and 50%) Multiplying fractions by single digit numbers e.g. <math>\frac{3}{4} \times 6 = \frac{18}{4}</math> which is <math>4 \frac{2}{4} = 4 \frac{1}{2}</math> Begin to multiply fractions and mixed numbers by whole numbers <math>\leq 10</math>, e.g. <math>4 \times \frac{2}{3} = \frac{8}{3} = 2 \frac{2}{3}</math>. <i>NB grid multiplication provides a default methods for ALL children</i></p>	<p>Know multiplication tables to <math>11 \times 11</math> Multiply whole numbers and one-place decimals by 10, 100 and 1000 Use knowledge of factors as aids to mental multiplication. (E.g. <math>13 \times 6 =</math> double <math>13 \times 3</math> and <math>23 \times 5</math> is <math>\frac{1}{2}</math> of <math>23 \times 10</math>) Use grid method to multiply numbers with up to 4-digits by one-digit numbers. Use grid method to multiply 2-digit by 2-digit numbers.</p>

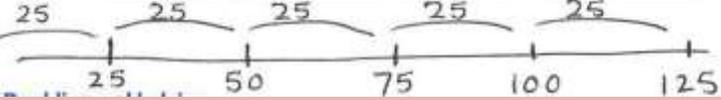
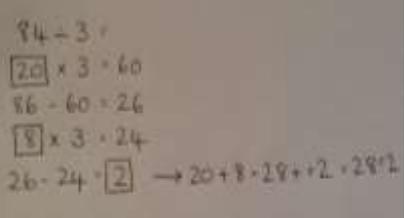
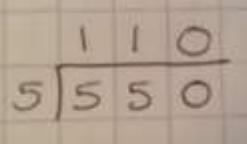
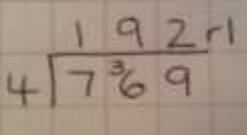
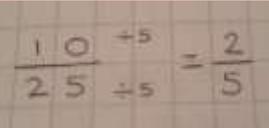
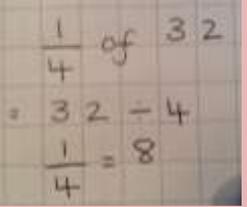
		Mental calculation	Written Calculation	Default for ALL children
Multiplication	Year 6	<p><u>Doubling and halving</u> Double decimal numbers with up to 2 places using partitioning e.g. 36.73 doubled is double 36 (72) plus double 0.73 (1.46)</p>  <p>Using doubling and halving as a strategy in mental multiplication, including to multiply by 2, 4, 8, 5, 20, 50 and 25 (E.g. <math>28 \times 25</math> is <math>\frac{1}{4}</math> of <math>28 \times 100 = 700</math>)</p> <p><u>Grouping</u> Use partitioning as a strategy in mental multiplication, as appropriate, e.g. <math>3060 \times 4</math> as <math>(3000 \times 4) + (60 \times 4)</math> or <math>8.4 \times 8</math> as <math>8 \times 8</math> (64) and <math>0.4 \times 8</math> (3.2) Use factors in mental multiplication e.g. <math>421 \times 6</math> as <math>421 \times 3</math> (1263) doubled (2526) or <math>3.42 \times 5</math> as half of <math>(3.42 \times 10)</math> Multiply whole numbers and decimals with up to three places by 10, 100 or 1000, e.g. <math>234 \times 1000 = 234,000</math> and <math>0.23 \times 1000 = 230</math> Multiply decimal numbers using near multiples by rounding e.g. <math>4.3 \times 19</math> as <math>4.3 \times 20</math> (86-4.3) Multiply one and two-place decimals by numbers up to and including 10 using place value and partitioning. (E.g. <math>3.6 \times 4</math> is <math>12 + 2.4</math> or <math>2.53 \times 3</math> is <math>6 + 1.5 + 0.09</math>)</p> <p><u>Using number facts</u> Know by heart all the multiplication facts up to <math>12 \times 12</math>. Use times table facts up to <math>12 \times 12</math> in mental multiplication of larger numbers or numbers with up to two decimal places e.g. <math>6 \times 4</math> 24 and <math>0.06 \times 4 = 0.24</math> Identify common factors, common multiples and prime numbers and use factors in mental multiplication. (E.g. <math>326 \times 6</math> is <math>652 \times 3</math> which is 1956) Use place value and number facts in mental multiplication. (E.g. <math>40,000 \times 6 = 24,000</math> and <math>0.03 \times 6 = 0.18</math>) Use rounding in mental multiplication. (<math>34 \times 19</math> as <math>(20 \times 34) - 34</math>)</p>	<p>Use short multiplication to multiply a 1-digit number by a number with up to 4 digits</p>  <p>Use long multiplication to multiply a 2-digit by a number with up to 4 digits Short multiplication of decimal numbers using <math>\times 100</math> and <math>\div 100</math> e.g. <math>13.72 \times 6</math> as <math>1372 \times 6</math></p> <p>Use short multiplication to multiply a 1-digit number by a number with one or two decimal places, including amounts of money e.g. <math>\pounds 13.72 \times 6</math> Grid multiplication of numbers with up to 2 decimal places by single digit numbers Multiplying proper and improper fractions. Multiply fractions and mixed numbers by whole numbers. Multiply fractions by proper fractions. Use percentages for comparison and calculate simple percentages.</p> <p><i>NB grid multiplication provides a default methods for ALL children</i></p>	<p>Know by heart all the multiplication facts up to <math>12 \times 12</math>. Multiply whole numbers and one-and two-place decimals by 10, 100 and 1000. Use an efficient written method to multiply a one-digit or a teens number by a number with up to 4-digits by partitioning (grid method). Multiply a one-place decimal number up to 10 by a number <math>\leq 100</math> using grid method.</p>

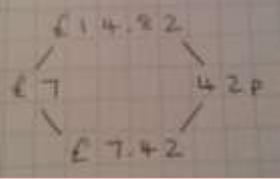
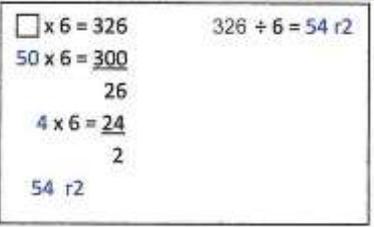
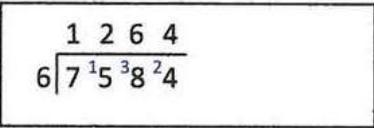
## DIVISION

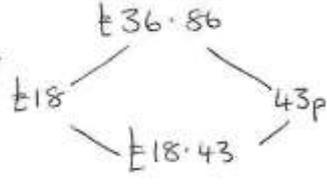
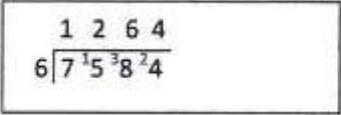
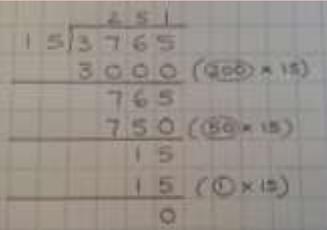
		Mental calculation	Written Calculation	Default for ALL children
<b>Division</b>		<p><u>Counting in steps ('Clever counting')</u> Count in 2s, 5s and 10s</p> 		<p>Begin to count in 2s and 10s Find half of even numbers by sharing</p>
	Year 1	<p><u>Doubling and halving</u> Find half of even numbers up to 12 and know it is hard to halve odd numbers</p>  <p><u>Grouping</u> Begin to use visual and concrete arrays and 'sets of' to find how many sets of a small number make a larger number ('how many towers of 3 can I make with 12 cubes?')</p> <p><u>Sharing</u> Begin to find half of a quantity using sharing e.g. half of 16 cubes by giving one each repeatedly to two children.</p> 		

		Mental calculation	Written Calculation	Default for ALL children
Division		<p><u>Counting in steps ('Clever' counting)</u> Count in 2s, 5s and 10s</p>  <p>Begin to count in 3s Using fingers, say where a given number is in the 2s, 5s or 10s count. (E.g. 8 is the fourth number when I count in twos.)</p> <p><u>Doubling and halving</u> Find half of numbers up to 40, including realising that half of an odd number gives a remainder of 1 or an answer containing a <math>\frac{1}{2}</math> Begin to know half of multiples of 10 to 100 e.g. half of 70 is 35</p> <p><u>Grouping</u> Relate division to grouping. (E.g. how many groups of five in fifteen?) Relate division to multiplication by using arrays or towers of cubes to find answers to division e.g. how many towers of five cubes can I make from 20 cubes as <math>\_ \times 5 = 20</math> and also <math>20 \div 5 = ?</math></p>  <p>Relate division to 'clever' counting and hence to multiplication e.g. how many 5s do I count to get to 20?</p> <p><u>Sharing</u> Begin to find half or a quarter of a quantity using sharing e.g. <math>\frac{1}{4}</math> of 16 cubes by sorting the cubes into four piles Find <math>\frac{1}{4}</math>, <math>\frac{1}{2}</math>, <math>\frac{3}{4}</math> of a quantity of objects and of amounts (whole number answers)</p> <p><u>Using number facts</u> Know halves of even numbers to 24 Know 2x, 5x and 10x division facts Being to know 3x division facts</p>		<p>Count in 2s, 5s and 10s Say how many rows in a given array. (E.g. how many rows of 5 in an array of 3 x 5) Halve numbers to 12 Find <math>\frac{1}{2}</math> of amounts</p>
	Year 2			

		Mental calculation	Written Calculation	Default for ALL children
Division		<p><u>Counting in steps ('Clever' counting)</u> Count in 2s, 3s, 4s, 5s, 8s and 10s by colouring numbers on the 1-100 grid or using landmarked line</p> 	<p>Perform divisions just above the 10<sup>th</sup> multiple using the written layout and understanding how to give a remainder as a whole number. Find unit fractions of quantities and begin to find non-unit fractions of quantities</p>	<p>Know by heart the division facts derived from the 2x, 3x, 4x, 5x, 8x and 10x tables Halve even numbers up to 50 and multiples of ten to 100 Perform divisions within the tables including those with remainders, e.g. <math>38 \div 5</math>.</p>
	Year 3	<p><u>Doubling and halving</u> Find half of even numbers to 100 using partitioning Use halving as a strategy in dividing by 2 e.g. <math>36 \div 2</math> is half of 26</p>  <p><u>Grouping</u> Recognise that division is not commutative e.g. <math>16 \div 8</math> does not equal <math>8 \div 16</math> Relate division to multiplications 'with holes in' e.g. <math>\_x5=30</math> if the same calculation as <math>30 \div 5=?</math> thus we can count in 5s to find the answer Divide whole numbers by 10 or 100 to give whole number answers Divide multiples of 10 by single digit numbers e.g. <math>240 \div 8=30</math> Divide larger numbers mentally by subtracting the tenth multiple, including those with remainders. (E.g. <math>57 \div 3</math> is <math>10 + 9</math> as <math>10 \times 3=30</math> and <math>9 \times 3=27</math>)</p> <p><u>Using numbers facts</u> Know halves of even numbers to 40 Halve even numbers to 100, halve odd numbers to 20 Know halves of multiples of 10 to 200 e.g. half of 170 is 85 Know by heart all the division facts derived from the 2x, 3x, 4x, 5x, 8x and 10x tables. Use division facts to find unit and simple nonunit-fractions of amounts within the times tables e.g. <math>\frac{3}{4}</math> of 48 is <math>3 \times (48 \div 4)</math> Use place value and number facts in mental division. (E.g. <math>84 \div 4</math> is half of 42)</p>		

		Mental calculation	Written Calculation	Default for ALL children
Division	Year 4	<p><u>Counting in steps – sequences</u> Counting 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s, 10s, 11s, 12s, 25s, 100s and 1000s</p>  <p><u>Doubling and halving</u> Find halves of even numbers to 200 and beyond using partitioning Begin to half amounts of money e.g. £9 halved is £4.50 or Half of £52.40 = £26.20 Use halving as a strategy in dividing y 2, 4 and 8 e.g. <math>164 \div 4</math> is half of 164 (82) and halved again (41)</p> <p><u>Grouping</u> Use multiples of 10 times the divisor to divide by number &lt;9 above the tables facts e.g. <math>45 \div 3</math></p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p><math>45 \div 3 = \square</math></p> <p><math>\square \times 3 = 45</math></p> <p><math>10 \times 3 = 30</math></p> <p style="padding-left: 20px;">15</p> <p><math>5 \times 3 = 15</math></p> </div> <p>Divide multiples of 100 by single digit numbers using division facts e.g. <math>3200 \div 8 = 400</math> Divide whole numbers by 10, 100 to give whole number answers or answers with one decimal place Divide larger numbers mentally by subtracting the 10<sup>th</sup> or 20<sup>th</sup> multiple as appropriate. (E.g. <math>156 \div 6</math> is <math>20 + 6</math> as <math>20 \times 6 = 120</math> and <math>6 \times 6 = 36</math>)</p> <p><u>Using number facts</u> Know times tables up to <math>12 \times 12</math> and all related division facts (up to <math>144 \div 12</math>). Use division facts to find unit and non-unit fractions of amounts within the times tables e.g. <math>7/8</math> of 56 is <math>7 \times (56 \div 8)</math> Use place value and number facts in mental division. (E.g. <math>245 \div 20</math> is double <math>245 \div 10</math>)</p>	<p>Written version of a mental method</p>  <p>Use a written method to divide a 2-digit or a 3-digit number by a single-digit number.</p>  <p>Give remainders as whole numbers.</p>  <p>Begin to reduce fractions to their simplest forms.</p>  <p>Find unit and non-unit fractions of larger amounts.</p> 	<p>Know by heart all the division facts up to <math>100 \div 10</math>. Divide whole numbers by 10 and 100 to give whole number answers or answers with one decimal place Perform divisions just above the 10<sup>th</sup> multiple using the written layout and understanding how to give a remainder as a whole number. Find unit fractions of amounts</p>

		Mental calculation	Written Calculation	Default for ALL children
Division		<p><u>Doubling and halving</u> Halve amounts of money using partitioning e.g. half of £14.84 as half of £15 and half of 84p or half of £75.40 = half of £75 (37.50) plus half of 40p (20p) which is £37.70</p> 	<p>Written version of a mental strategy for 3-digit <math>\div</math> 1 digit numbers</p> 	<p>Know by heart division facts up to <math>121 \div 11</math> Divide whole numbers by 10, 100 or 1000 to give answers with up to one decimal place. Use doubling and halving as mental division strategies Use efficient chunking to divide numbers <math>\leq 1000</math> by 1-digit numbers. Find unit fractions of 2 and 3-digit numbers</p>
	Year 5	<p>Use doubling and halving as a strategy in dividing by 2, 4, 8, 5 and 20 e.g. <math>115 \div 5</math> as double <math>115 (230) \div 10</math> Use doubling and halving as mental division strategies. (E.g. <math>34 \div 5</math> is <math>(34 \div 10) \times 2</math>)</p> <p><u>Grouping</u> Divide numbers by 10, 100, 1000 to obtain decimal answer with up to three places e.g. <math>340 \div 100 = 3.4</math> Use the <math>10^{\text{th}}</math>, <math>20^{\text{th}}</math>, <math>30^{\text{th}}</math>... multiple of the divisor to divide friendly 2-digit and 3-digit numbers by single-digit numbers e.g. <math>186 \div 6</math> as <math>30 \times 6 (180)</math> and <math>1 \times 6 (6)</math> Divide larger numbers mentally by subtracting the <math>10^{\text{th}}</math> or <math>100^{\text{th}}</math> multiple as appropriate. (E.g. <math>96 \div 6</math> is <math>10 + 6</math>, as <math>10 \times 6 = 60</math> and <math>6 \times 6 = 36</math>; <math>312 \div 3</math> is <math>100 + 4</math> as <math>100 \times 3 = 300</math> and <math>4 \times 3 = 12</math>) Find unit and non-unit fractions of large amounts e.g. <math>3/5</math> of 265 is <math>3 \times (265 \div 5)</math> Use knowledge of multiples and factors, also tests for divisibility in mental division. (E.g. <math>246 \div 6</math> is <math>123 \div 3</math> and we know that 525 divides by 25 and by 3) Reduce fractions to their simplest form.</p> <p><u>Using number facts</u> Know by heart all the division facts up to <math>144 \div 12</math> Use division facts from the times table up to <math>12 \times 12</math> to divide multiples of powers of ten of the divisor e.g. <math>3600 \div 9</math> using <math>36 \div 9</math> Know square numbers and cube numbers</p>	<p>Short division of 3-digit and 4-digit numbers by single digit numbers. Use short division to divide a number with up to 4 digits by a number <math>\leq 12</math>.</p>  <p>Give remainders as whole numbers or as fractions. Find non-unit fractions of large amounts. Turn improper fractions into mixed numbers and vice versa. Choose the most efficient method in any given situation</p>	

		Mental calculation	Written Calculation	Default for ALL children
Division	Year 6	<p><u>Doubling and halving</u> Halve decimal numbers with up to 2-places using partitioning e.g. half of 36.86 is half of 36 (18) plus half of 0.86 (0.43)</p> 	<p>Use short division to divide a number with up to 4 digits by a 1-digit or a 2-digit number</p> 	<p>Know by heart all the division facts up to <math>144 \div 12</math>. Divide whole numbers by 10, 100, 1000 to give whole number answers or answers with up to two decimal places. Use efficient chunking involving subtracting powers of 10 times the divisor to divide any number of up to 1000 by a number <math>\leq 12</math>. (E.g. <math>836 \div 11</math> as <math>836 - 770</math> (<math>70 \times 11</math>) leaving 66 which is <math>6 \times 11</math>. So that we have <math>70 + 6 = 76</math> as the answer). Divide a one-place decimal by a number <math>\leq 10</math> using place value and knowledge of division facts.</p>
		<p>Use doubling and halving as strategies in mental division .g. to divide by 2, 4, 8, 5, 20 and 25. (e.g. <math>216 \div 4</math> is half of 216 (108) and half of 108 (54) or <math>628 \div 8</math> is halved three times: 314, 157, 78.5)</p> <p><u>Grouping</u> Divide whole numbers by powers of 10 to give whole number answers or answers with up to three decimal places. Use <math>10^{\text{th}}</math>, <math>20^{\text{th}}</math>, <math>30^{\text{th}}</math>, ... or <math>100^{\text{th}}</math>, <math>200^{\text{th}}</math>, <math>300^{\text{th}}</math>... multiples of the divisor to divide large numbers e.g. <math>378 \div 9</math> as <math>40 \times 9 = 360</math> and <math>2 \times 9 = 18</math> so the answer is 42 Divide one and two place decimals by numbers up to and including 10 using place value. (E.g. <math>2.4 \div 6 = 0.4</math> or <math>0.65 \div 5 = 0.13</math>, <math>\pounds 6.33 \div 3 = \pounds 2.11</math>) Use tests for divisibility e.g. 135 divide by 3 as <math>1+3+5=9</math> and 9 is in the 3x table Identify common factors, common multiples and prime numbers and use factors in mental division. (E.g. <math>438 \div 6</math> is <math>219 \div 3</math> which is 73) Use tests for divisibility to aid mental calculation. Know and use equivalence between simple fractions, decimals and percentages, including in different contexts. Recognise a given ratio and reduce a given ratio to its lowest terms.</p> <p><u>Using number facts</u> Know by heart all the division facts up to <math>144 \div 12</math>. Use division facts from the times tables up to <math>12 \times 12</math> to divide decimal numbers by single-digit numbers e.g. <math>1.17 \div 3</math> is <math>1/100</math> of <math>117 \div 3</math> (0.39)</p>	<p>Use chunking to divide 3-digit and 4-digit numbers by 'friendly' 2-digit numbers.</p> 	
<p>Give remainders as whole numbers or as fractions or as decimals Divide a one-place or a two-place decimal number by a number <math>\leq 12</math> using multiples of the divisors. Divide proper fractions by whole numbers e.g. <math>\frac{1}{4} \div 3 = \frac{1}{12}</math></p>				