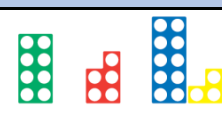
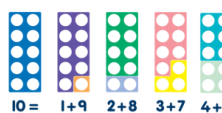
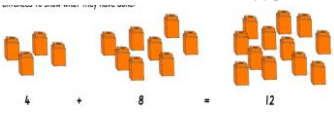
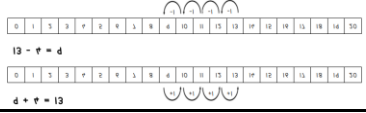
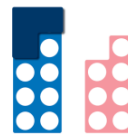

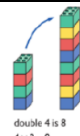

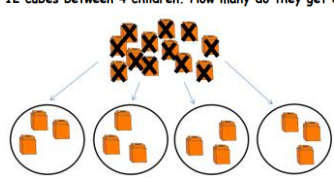
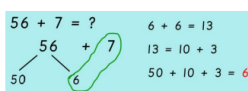
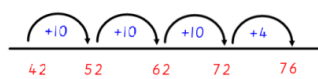
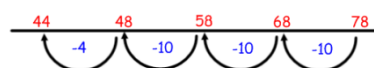
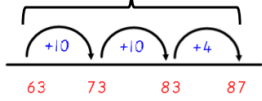
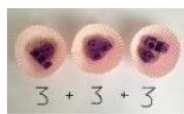
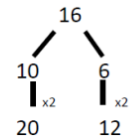
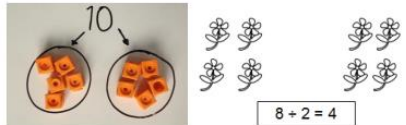
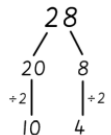
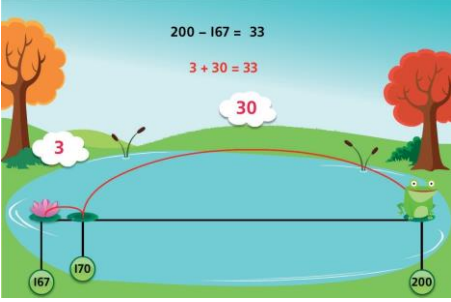
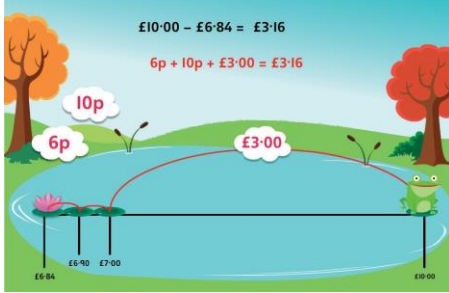


Maths Skills Progression

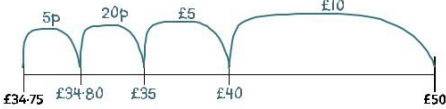
EARLY YEARS FOUNDATION STAGE (EYFS)	
Mental and Written Calculations	
+ Addition	<p>Children will engage in a wide variety of songs and rhymes, games and activities; They will begin to relate addition to combining two groups of objects, first by counting all and then by counting on from the largest number; They will find one more than a given number; In practical activities and through discussion they will begin to use the vocabulary involved in addition; e.g. $2+1=3$ 'What is one more than 2?'; e.g. $5+3=8$ 'You have five apples and I have three apples. How many apples altogether?'; Children are encouraged to develop a mental picture of the number system in their heads to use for calculation; They develop ways of recording calculations using pictures, symbols etc.; They use number lines and practical resources such as Multilink cubes, Dienes, Numicon etc. to support calculation and teachers demonstrate the use of the number line; Children then begin to use numbered lines to support their own calculations using a numbered line to count on in ones; Bead strings or bead bars can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3 etc.</p>
- Subtraction	<p>Children will engage in a variety of counting songs, rhymes and practical activities; In practical activities and through discussion they will begin to use the vocabulary associated with subtraction; They will find one less than a given number; They will begin to relate subtraction to 'taking away' using objects to count 'how many are left' after some have been taken away? e.g. $6-2=4$; 'Take two apples away. How many are left?'; $8-1=7$ 'What is one less than 8?'; Children will begin to count back from a given number; Children are encouraged to develop a mental picture of the number system in their heads to use for calculation; They develop ways of recording calculations using pictures, symbols etc.; They use number lines and practical resources such as Multilink cubes, Dienes, Numicon etc. to support calculation and teachers demonstrate the use of the number line; 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; Children then begin to use numbered lines to support their own calculations using a numbered line to count back in ones; Bead strings or bead bars can be used to illustrate subtraction including bridging through ten by counting back 3 then counting back 2 etc.</p>
x Multiplication	<p>Children will engage in a wide variety of songs and rhymes, games and activities; In practical activities and through discussion they will begin to use the vocabulary associated with multiplication and begin to solve problems involving doubling e.g. $3 \times 2 = 6$ 'Three apples for you and three apples for me. How many apples altogether?'; $4 \times 2 = 8$ 'What is double 4?'; Children will experience equal groups of objects and will count in 2s and 10s and begin to count in 5s; They will work on practical problem-solving activities involving equal sets or groups.</p>
÷ Division	<p>Children will engage in a wide variety of songs and rhymes, games and activities; In practical activities and through discussion they will begin to use the vocabulary associated with division and begin to solve problems involving halving and sharing e.g. $6 \div 2 = 3$ 'Share the apples between two people. How many apples each?' e.g. 'Half of the apples are for you and half of the apples are for me.'; Children will understand equal groups and share items out in play and problem solving; They will count in 2s and 10s and later in 5s.</p>

YEAR 1		
	Mental Calculation	Written Calculation
<p>+ Addition</p>	<p>Number bonds ('story' of 5, 6, 7, 8, 9 and 10); Count on in 1s from a given 2-digit number; Add two 1-digit numbers; Add three 1-digit numbers, spotting doubles or pairs to 10; Count on in 10s from any given 2-digit number; Add 10 to any given 2-digit number; Use number facts to add 1-digit numbers to 2-digit numbers e.g. Use $4 + 3$ to work out $24 + 3$, $34 + 3$; Add by putting the larger number first;</p>	 <p>$8 + 5 = 13$</p> <p>Number bonds</p>  <p>$10 = 1+9 \quad 2+8 \quad 3+7 \quad 4+6$</p>  <p>$4 + 8 = 12$</p>  <p>$13 - 4 = 9$ $4 + 4 = 8$</p>
<p>- Subtraction</p>	<p>Number bonds ('story' of 5, 6, 7, 8, 9 and 10); Count back in 1s from a given 2-digit number; Subtract one 1-digit number from another; Count back in 10s from any given 2-digit number; Subtract 10 from any given 2-digit number; Use number facts to subtract 1-digit numbers from 2-digit numbers e.g. Use $7 - 2$ to work out $27 - 2$, $37 - 2$;</p>	 <p>$10 - 3 = 7$</p>  <p>$12 - 3 = 9$</p>
<p>x Multiplication</p>	<p>Begin to count in 2s, 5s and 10s; Begin to say what three 5s are by counting in 5s, or what four 2s are by counting in 2s, etc.; Double numbers to 10;</p>	 <p>double 4 is 8 $4 \times 2 = 8$</p> <p>Double 4 is 8</p>  <p>$2 + 2 + 2 + 2 = 10$</p> <p>$2 + 2 + 2 + 2 = 10$ 5 lots of 2 is 10 $5 \times 2 = 10$</p>
<p>÷ Division</p>	<p>Begin to count in 2s, 5s and 10s; Find half of even numbers to 12 and know it is hard to halve odd numbers; Find half of even numbers by sharing; Begin to use visual and concrete arrays or 'sets of' to find how many sets of a small number make a larger number;</p>	<p>Share 12 cubes between 4 children. How many do they get each?</p> 

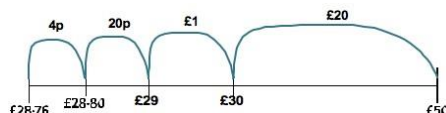
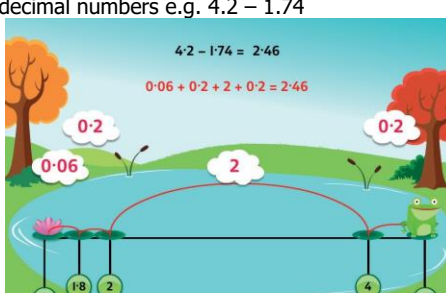
YEAR 2		
	Mental Calculation	Written Calculation
+	<p>Addition</p> <p>Number bonds – know all the pairs of numbers which make all the numbers to 12, and pairs with a total of 20; Count on in 1s and 10s from any given 2-digit number; Add two or three 1-digit numbers; Add a 1-digit number to any 2-digit number using number facts, including bridging multiples of 10 e.g. $45 + 4$ e.g. $38 + 7$ Add 10 and small multiples of 10 to any given 2-digit number; Add any pair of 2-digit numbers;</p>	<p><i>Adding a 2 digit number to a 1 digit number (with exchanging/rearranging)</i></p>  <p>Step 1: Partition the 2 digit number Step 2: Group the ones Step 3: Add the ones together Step 4: Partition the new 2 digit number Step 5: Add the partitioned number to the tens</p> <p>$42 + 34 = 76$</p> 
-	<p>Subtraction</p> <p>Number bonds – know all the pairs of numbers which make all the numbers to 12; Count back in 1s and 10s from any given 2digit number; Subtract a 1-digit number from any 2-digit number using number facts, including bridging multiples of 10 e.g. $56 - 3$ e.g. $53 - 5$ Subtract 10 and small multiples of 10 from any given 2-digit number; Subtract any pair of 2-digit numbers by counting back in 10s and 1s or by counting up;</p>	<p>$78 - 34 = 44$</p>  <p>$87 - 63 = 24$</p> <p>This is the difference between the two numbers.</p> 
x	<p>Multiplication</p> <p>Count in 2s, 5s and 10s; Begin to count in 3s; Begin to understand that multiplication is repeated addition and to use arrays e.g. 3×4 is three rows of 4 dots; Begin to learn the $\times 2$, $\times 3$, $\times 5$ and $\times 10$ tables, seeing these as 'lots of' e.g. 5 lots of 2, 6 lots of 2, 7 lots of 2; Double numbers up to 20; Begin to double multiples of 5 to 100; Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5;</p>	 <p>$3 + 3 + 3 = 9$ 3 groups of 3 is 9 $3 \times 3 = 9$</p> <p>What is double 16?</p> 
÷	<p>Division</p> <p>Count in 2s, 5s and 10s; 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 2s; Relate division to grouping e.g. How many groups of 5 in 15? Halve numbers to 20; Begin to halve numbers to 40 and multiples of 10 to 100; Find $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{3}{4}$ of a quantity of objects and of amounts (whole number answers);</p>	 <p>$8 \div 2 = 4$</p> <p>What is half of 28?</p> 

YEAR 3		
	Mental Calculation	Written Calculation
+	<p>Addition</p> <p>Know pairs with each total to 20 e.g. $2 + 6 = 8$, $12 + 6 = 18$, $7 + 8 = 15$; Know pairs of multiples of 10 with a total of 100; Add any two 2-digit numbers by counting on in 10s and 1s or by using partitioning; Add multiples and near multiples of 10 and 100; Perform place-value additions without a struggle e.g. $300 + 8 + 50 = 358$; Use place value and number facts to add a 1-digit or 2-digit number to a 3-digit number e.g. $104 + 56$ is 160 since $104 + 50 = 154$ and $6 + 4 = 10$ $676 + 8$ is 684 since $8 = 4 + 4$ and $76 + 4 + 4 = 84$; Add pairs of 'friendly' 3-digit numbers e.g. $320 + 450$; Begin to add amounts of money using partitioning;</p>	<p>Use expanded column addition to add two or three 3-digit numbers or three 2-digit numbers e.g. $466 + 358$</p> $\begin{array}{r} 400 & 60 & 6 \\ + 300 & 50 & 8 \\ \hline 700 & 110 & 14 = 824 \end{array}$ <p>Use expanded column addition where digits in a column add to more than the column value e.g. $466 + 358$</p> $\begin{array}{r} 400 & 60 & 6 \\ 300 & 50 & 8 \\ + 100 & 10 & \\ \hline 800 & 20 & 4 \end{array}$ <p>Begin to use compact column addition to add numbers with 3 digits e.g. $347 + 286 + 495$</p>
		$\begin{array}{r} 347 \\ + 286 \\ + 495 \\ \hline 1128 \end{array}$ <p>Begin to add like fractions e.g. $\frac{3}{8} + \frac{1}{8} + \frac{1}{8}$ Recognise fractions that add to 1 e.g. $\frac{1}{4} + \frac{3}{4}$ e.g. $\frac{3}{5} + \frac{2}{5}$</p>
-	<p>Subtraction</p> <p>Know pairs with each total to 20 e.g. $8 - 2 = 6$ e.g. $18 - 6 = 12$ e.g. $15 - 8 = 7$; Subtract any two 2-digit numbers; Perform place-value subtractions without a struggle e.g. $536 - 30 = 506$; Subtract 2-digit numbers from numbers > 100 by counting up e.g. $143 - 76$ is done by starting at 76. Then add 4 (80), then add 20 (100), then add 43, making the difference a total of 67; Subtract multiples and near multiples of 10 and 100; Subtract, when appropriate, by counting back or taking away, using place value and number facts; Find change from £1, £5 and £10;</p>	<p>Use counting up as an informal written strategy for subtracting pairs of 3-digit numbers e.g. $423 - 357$ e.g. $200 - 167$</p>  <p>Use counting up subtraction to find change from £1, £5 and £10 e.g. $\text{£}10.00 - \text{£}6.84$</p>  <p>Begin to subtract like fractions e.g. $\frac{7}{8} - \frac{3}{8}$</p>

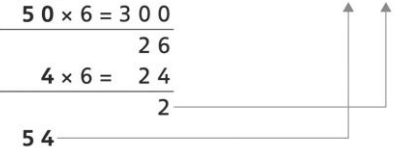
<p>× Multiplication</p>	<p>Know by heart all the multiplication facts in the $\times 2$, $\times 3$, $\times 4$, $\times 5$, $\times 8$ and $\times 10$ tables; Multiply whole numbers by 10 and 100; Recognise that multiplication is commutative; Use place value and number facts in mental multiplication e.g. 30×5 is 15×10; Partition teen numbers to multiply by a 1-digit number e.g. 3×14 as 3×10 and 3×4; Double numbers up to 50;</p>	<p>Use partitioning (grid multiplication) to multiply 2-digit and 3-digit numbers by 'friendly' 1-digit numbers e.g. 23×4</p> <table border="1" data-bbox="928 297 1190 394"> <tbody> <tr> <td>\times</td> <td>20</td> <td>3</td> <td></td> </tr> <tr> <td>4</td> <td>80</td> <td>12</td> <td>= 92</td> </tr> </tbody> </table>	\times	20	3		4	80	12	= 92
\times	20	3								
4	80	12	= 92							
<p>÷ Division</p>	<p>Know by heart all the division facts derived from the $\times 2$, $\times 3$, $\times 4$, $\times 5$, $\times 8$ and $\times 10$ tables; Divide whole numbers by 10 or 100 to give whole number answers; Recognise that division is not commutative; Use place value and number facts in mental division e.g. $84 \div 4$ is half of 42; Divide larger numbers mentally by subtracting the 10^{th} multiple as appropriate, including those with remainders e.g. $57 \div 3$ is $10 + 9$ as $10 \times 3 = 30$ and $9 \times 3 = 27$; Halve even numbers to 100, halve odd numbers to 20;</p>	<p>Perform divisions just above the 10^{th} multiple using horizontal or vertical jottings and understanding how to give a remainder as a whole number;</p> <p>Find unit fractions of quantities and begin to find non-unit fractions of quantities;</p>								

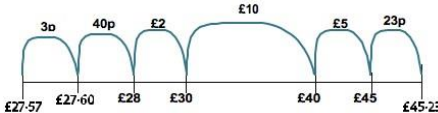
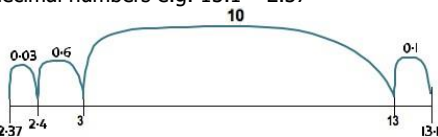
YEAR 4		
	Mental Calculation	Written Calculation
+ Addition	Add any two 2-digit numbers by partitioning or counting on; Know by heart/quickly derive number bonds to 100 and to £1; Add to the next 100, £1 and whole number e.g. $234 + 66 = 300$ e.g. $3\cdot4 + 0\cdot6 = 4$; Perform place-value additions without a struggle e.g. $300 + 8 + 50 + 4000 = 4358$; Add multiples and near multiples of 10, 100 and 1000;	Build on expanded column addition to develop compact column addition with larger numbers e.g. $1466 + 4868$ $\begin{array}{r} 1000 & 400 & 60 & 6 \\ 4000 & 800 & 60 & 8 \\ + & 1000 & 100 & 10 \\ \hline 6000 & 300 & 30 & 4 \end{array}$ Column addition for 3-digit and 4-digit
	Add £1, 10p, 1p to amounts of money; Use place value and number facts to add 1-, 2-, 3- and 4-digit numbers where a mental calculation is appropriate e.g. $4004 + 156$ by knowing that $6 + 4 = 10$ and that $4004 + 150 = 4154$ so the total is 4160;	numbers e.g. $5347 + 2286 + 1495$ $\begin{array}{r} 5347 \\ 2286 \\ + 1495 \\ \hline 9128 \end{array}$ Add like fractions e.g. $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$ Be confident with fractions that add to 1 and fraction complements to 1 e.g. $\frac{2}{3} + \frac{1}{3} = 1$
- Subtraction	Subtract any two 2-digit numbers; Know by heart/quickly derive number bonds to 100; Perform place-value subtractions without a struggle e.g. $4736 - 706 = 4030$; Subtract multiples and near multiples of 10, 100, 1000, £1 and 10p; Subtract multiples of 0·1; Subtract by counting up e.g. $503 - 368$ is done by adding $368 + 2 + 30 + 100 + 3$ (so we added 135); Subtract, when appropriate, by counting back or taking away, using place value and number facts; Subtract £1, 10p, 1p from amounts of money; Find change from £10, £20 and £50;	Use expanded column subtraction for 3- and 4-digit numbers e.g. $726 - 358$ $\begin{array}{r} 600 & 110 & 16 \\ \cancel{700} & \cancel{20} & \cancel{8} \\ - & 300 & 50 & 8 \\ \hline 300 & 60 & 8 \end{array}$ Begin to develop compact column subtraction e.g. $726 - 358$ $\begin{array}{r} 6 & 11 & 16 \\ \cancel{7} & \cancel{2} & \cancel{8} \\ - & 3 & 5 & 8 \\ \hline 3 & 6 & 8 \end{array}$ 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. $2002 - 1865$; Use counting up subtraction to find change from £10, £20, £50 and £100 e.g. $£50 - £34.75$  (Answer found as $£10 + £5 + 20p + 5p$); Subtract like fractions e.g. $\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$ Use fractions that add to 1 to find fraction complements to 1 e.g. $1 - \frac{2}{3} = \frac{1}{3}$

<p>x Multiplication</p>	<p>Know by heart all the multiplication facts up to 12×12; Recognise factors up to 12 of 2-digit numbers; Multiply whole numbers and 1-place decimals by 10, 100, 1000; Multiply multiples of 10, 100 and 1000 by 1-digit numbers e.g. 300×6 e.g. 4000×8; Use understanding of place value and number facts in mental multiplication e.g. 36×5 is half of 36×10 e.g. $50 \times 60 = 3000$; Partition 2-digit numbers to multiply by a 1-digit number mentally e.g. 4×24 as 4×20 and 4×4; Multiply near multiples by rounding e.g. 33×19 as $(33 \times 20) - 33$; Find doubles to double 100 and beyond using partitioning; Begin to double amounts of money e.g. $\pounds 35.60$ doubled is $\pounds 71.20$;</p>	<p>Use grid multiplication to multiply 3-digit numbers by 1-digit numbers e.g. 253×6</p> <table border="1" data-bbox="885 297 1185 389"> <tr> <td>x</td> <td>200</td> <td>50</td> <td>3</td> <td></td> </tr> <tr> <td>6</td> <td>1200</td> <td>300</td> <td>18</td> <td>= 1518</td> </tr> </table> <p>Use a vertical written method to multiply a 3-digit number by a 1-digit number (ladder method) e.g. 253×6</p> $\begin{array}{r} 253 \\ \times 6 \\ \hline 1200 \leftarrow 6 \times 200 \\ 300 \leftarrow 6 \times 50 \\ + 18 \leftarrow 6 \times 3 \\ \hline 1518 \end{array}$ <p>Use an efficient written method to multiply a 2-digit number by a number between 10 and 20 by partitioning (grid method) e.g. 48×16</p> <table border="1" data-bbox="911 842 1233 1014"> <tr> <td>x</td> <td>10</td> <td>6</td> <td></td> </tr> <tr> <td>40</td> <td>400</td> <td>240</td> <td>= 640</td> </tr> <tr> <td>8</td> <td>80</td> <td>48</td> <td>= 128</td> </tr> <tr> <td></td> <td></td> <td></td> <td><u>768</u></td> </tr> </table>	x	200	50	3		6	1200	300	18	= 1518	x	10	6		40	400	240	= 640	8	80	48	= 128				<u>768</u>
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40	400	240	= 640																									
8	80	48	= 128																									
			<u>768</u>																									
<p>÷ Division</p>	<p>Know by heart all the division facts up to $144 \div 12$; Divide whole numbers by 10, 100, to give whole number answers or answers with 1 decimal place;</p>	<p>Use a written method to divide a 2-digit or a 3-digit number by a 1-digit number e.g. $86 \div 3$ as 20×3 (60) and 8×3 (24), remainder 2</p>																										
	<p>Divide multiples of 100 by 1-digit numbers using division facts e.g. $3200 \div 8 = 400$; Use place value and number facts in mental division e.g. $245 \div 20$ is half of $245 \div 10$; Divide larger numbers mentally by subtracting the 10th or 20th multiple as appropriate e.g. $156 \div 6$ is $20 + 6$ as $20 \times 6 = 120$ and $6 \times 6 = 36$; Find halves of even numbers to 200 and beyond using partitioning; Begin to halve amounts of money e.g. half of $\pounds 52.40$ is $\pounds 26.20$;</p>	<p>$86 \div 3 = \square$</p> $\begin{array}{r} \square \times 3 = 86 \\ 20 \times 3 = 60 \\ \hline 26 \\ 8 \times 3 = 24 \\ \hline 2 \end{array}$ <p>$86 \div 3 = 28 \text{ r}2$</p> <p>Give remainders as whole numbers; Begin to reduce fractions to their simplest forms; Find unit and non-unit fractions of larger amounts;</p>																										

YEAR 5		
	Mental Calculation	Written Calculation
+ Addition	<p>Know number bonds to 1 and to the next whole number; Add to the next 10 from a decimal number e.g. $13.6 + 6.4 = 20$; Add numbers with 2 significant digits only, using mental strategies e.g. $3.4 + 4.8$ e.g. $23\ 000 + 47\ 000$; Add 1- or 2-digit multiples of 10, 100, 1000, 10 000 and 100 000 e.g. $8000 + 7000$ e.g. $600\ 000 + 700\ 000$; Add near multiples of 10, 100, 1000, 10 000 and 100 000 to other numbers e.g. $82\ 472 + 30\ 004$; Add decimal numbers which are near multiples of 1 or 10, including money e.g. $6.34 + 1.99$ e.g. $£34.59 + £19.95$; Use place value and number facts to add two or more 'friendly' numbers, including money and decimals e.g. $3 + 8 + 6 + 4 + 7$ e.g. $0.6 + 0.7 + 0.4$ e.g. $2056 + 44$;</p>	<p>Use column addition to add two or three whole numbers with up to 5 digits; Use expanded column addition to add several amounts of money (2 decimal places) e.g. $£14.64 + £28.78 + £12.26$</p> $\begin{array}{r} £14\ 60p\ 4p \\ £28\ 70p\ 8p \\ +\ £12\ 20p\ 6p \\ \hline £55\ 60p\ 8p \end{array}$ <p>Leading to a compact column addition to add any pair of 2-place decimal numbers, including amounts of money e.g. $15.68 + 27.86$</p> $\begin{array}{r} 15.68 \\ +\ 27.86 \\ \hline 43.54 \end{array}$ <p>Begin to add related fractions using equivalences e.g. $\frac{1}{2} + \frac{1}{6} = \frac{3}{6} + \frac{1}{6}$ Choose the most efficient method in any given situation;</p>
- Subtraction	<p>Subtract numbers with 2 significant digits only, using mental strategies e.g. $6.2 - 4.5$ e.g. $72\ 000 - 47\ 000$; Subtract 1- or 2-digit multiples of 10, 100, 1000, 10 000 and 100 000 e.g. $8000 - 3000$ e.g. $60\ 000 - 200\ 000$; Subtract 1- or 2-digit near multiples of 10, 100, 1000, 10 000 and 100 000 from other numbers e.g. $82\ 472 - 30\ 004$; Subtract decimal numbers which are near multiples of 1 or 10, including money e.g. $6.34 - 1.99$ e.g. $£34.59 - £19.95$; Use counting up subtraction, with knowledge of number bonds to 10, 100 or £1, as a strategy to perform mental subtraction e.g. $£10 - £3.45$ e.g. $1000 - 782$; Recognise fraction complements to 1 and to the next whole number e.g. $1\frac{2}{5} + \frac{3}{5} = 2$;</p>	<p>Use compact or expanded column subtraction to subtract numbers with up to 5 digits e.g. $16324 - 8516$</p> $\begin{array}{r} 0\ 15\ 13\ 1\ 14 \\ \cancel{X}\ \cancel{8}\ \cancel{Z}\ \cancel{Z}\ \cancel{X} \\ -\ 8\ 5\ 1\ 6 \\ \hline 7\ 8\ 0\ 8 \end{array}$ <p>Continue to use counting up subtraction for subtractions involving money, including finding change e.g. $£50 - £28.76$</p>  <p>(Answer found as $£20 + £1 + 20p + 4p$); Use counting up subtraction to subtract decimal numbers e.g. $4.2 - 1.74$</p> 

		<p>Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000;</p> <p>Use complementary addition for subtractions of decimal numbers with up to 2 places, including amounts of money;</p> <p>Begin to subtract related fractions using equivalences e.g. $\frac{1}{2} - \frac{1}{6} = \frac{2}{6}$</p> <p>Choose the most efficient method in any given situation;</p>										
<p>x Multiplication</p>	<p>Know by heart all the multiplication facts up to 12×12;</p> <p>Multiply whole numbers and 1- and 2-place decimals by 10, 100, 1000, 10 000; Use knowledge of factors and multiples in multiplication</p> <p>e.g. 43×6 is double 43×3</p> <p>e.g. 28×50 is $\frac{1}{2}$ of $28 \times 100 = 1400$; Use knowledge of place value and rounding in mental multiplication</p> <p>e.g. 67×199 as $67 \times 200 - 67$;</p> <p>Use doubling and halving as a strategy in mental multiplication</p> <p>e.g. 58×5 is half of 58×10</p> <p>e.g. 34×4 is 34 doubled twice;</p> <p>Partition 2-digit numbers, including decimals, to multiply by a 1-digit number mentally</p> <p>e.g. 6×27 as 6×20 (120) plus 6×7 (42)</p> <p>e.g. $6 \cdot 3 \times 7$ as 6×7 (42) plus $0 \cdot 3 \times 7$ (2.1);</p> <p>Double amounts of money by partitioning</p> <p>e.g. £37.45 doubled is £37 doubled (£74) plus 45p doubled (90p) giving a total of £74.90;</p>	<p>Use short multiplication to multiply a 1-digit number by a number with up to 4 digits e.g. 435×8</p> $\begin{array}{r} 435 \\ \times 8 \\ \hline 24 \\ \hline 3480 \end{array}$ <p>Use long multiplication to multiply 3-digit and 4-digit numbers by a number between 11 and 20 e.g. 48×16</p> $\begin{array}{r} 48 \\ \times 16 \\ \hline 480 \\ 288 \\ \hline 768 \end{array}$ <p>Grid multiplication of numbers with up to 2 decimal places by 1-digit numbers e.g. 1.34</p> <table border="1" data-bbox="869 1149 1177 1243"> <tr> <td>x</td> <td>1</td> <td>0.3</td> <td>0.04</td> <td></td> </tr> <tr> <td>6</td> <td>6</td> <td>1.8</td> <td>0.24</td> <td>= 8.04</td> </tr> </table> <p>x 6</p> <p>Choose the most efficient method in any given situation;</p> <p>Find simple percentages of amounts e.g. 10%, 5%, 20%, 15% and 50%;</p> <p>Begin to multiply fractions and mixed numbers by whole numbers ≤ 10</p> <p>e.g. $4 \times \frac{2}{3} = \frac{8}{3} = 2 \frac{2}{3}$</p>	x	1	0.3	0.04		6	6	1.8	0.24	= 8.04
x	1	0.3	0.04									
6	6	1.8	0.24	= 8.04								

<div data-bbox="236 232 312 286" data-label="Section-Header"> <p>÷ Division</p> </div>	<div data-bbox="379 232 831 875" data-label="Text"> <p>Know by heart all the division facts up to $144 \div 12$; Divide whole numbers by 10, 100, 1000, 10 000 to give whole number answers or answers with 1, 2 or 3 decimal places; Use doubling and halving as mental division strategies e.g. $34 \div 5$ is $(34 \div 10) \times 2$; Use knowledge of multiples and factors, as well as tests for divisibility, in mental division e.g. $246 \div 6$ is $123 \div 3$ e.g. We know that 525 divides by 25 and by 3; Halve amounts of money by partitioning e.g. $\frac{1}{2}$ of £75.40 = $\frac{1}{2}$ of £75 (£37.50) plus half of 40p (20p) which is £37.70; Divide larger numbers mentally by subtracting the 10th or 100th multiple as appropriate e.g. $96 \div 6$ is $10 + 6$, as $10 \times 6 = 60$ and $6 \times 6 = 36$ e.g. $312 \div 3$ is $100 + 4$ as $100 \times 3 = 300$ and $4 \times 3 = 12$; Know tests for divisibility by 2, 3, 4, 5, 6, 9 and 25; Know square numbers and cube numbers; Reduce fractions to their simplest form;</p> </div>	<div data-bbox="858 232 1283 338" data-label="Text"> <p>Use a written version of a mental strategy to divide 3-digit numbers by 1-digit numbers e.g. $326 \div 6$ as 50×6 (300) and 4×6 (24), remainder 2</p> </div> <div data-bbox="884 353 1283 600" data-label="Equation-Block"> $326 \div 6 = \square$ $\square \times 6 = 326 \quad 326 \div 6 = 54 \text{ r}2$ $\begin{array}{r} 50 \times 6 = 300 \\ \hline 26 \\ 4 \times 6 = 24 \\ \hline 2 \end{array}$ <p style="text-align: center;">54</p>  </div> <div data-bbox="858 611 1313 663" data-label="Text"> <p>Use short division to divide a number with up to 4 digits by a 1-digit number e.g. $139 \div 3$</p> </div> <div data-bbox="871 674 1050 741" data-label="Equation-Block"> $\begin{array}{r} 46 \text{ r}1 \\ 3 \overline{) 139} \end{array}$ </div> <div data-bbox="858 752 1299 929" data-label="Text"> <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> </div>
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YEAR 6		
	Mental Calculation	Written Calculation
+ Addition	<p>Know by heart number bonds to 100 and use these to derive related facts e.g. $3\cdot46 + 0\cdot54$; Derive, quickly and without difficulty, number bonds to 1000; Add small and large whole numbers where the use of place value or number facts makes the calculation do-able mentally e.g. $34\ 000 + 8000$; Add multiples of powers of 10 and near multiples of the same e.g. $6345 + 199$; Add negative numbers in a context such as temperature where the numbers make sense; Add two 1-place decimal numbers or two 2-place decimal numbers less than 1 e.g. $4\cdot5 + 6\cdot3$ e.g. $0\cdot74 + 0\cdot33$; Add positive numbers to negative numbers; e.g. Calculate a rise in temperature or continue a sequence beginning with a negative number</p>	<p>Use compact column addition to add numbers with up to 5 digits and decimal numbers up to 2 decimal places, including money e.g. $\pounds 14\cdot64 + \pounds 28\cdot78 + \pounds 12\cdot26$</p> $\begin{array}{r} \pounds 14\cdot64 \\ + \pounds 28\cdot78 \\ \pounds 12\cdot26 \\ \hline \pounds 55\cdot68 \end{array}$ <p>Use column addition to add decimal numbers with up to 3 decimal places; Add mixed numbers and fractions with different denominators;</p>
- Subtraction	<p>Use number bonds to 100 to perform mental subtraction of any pair of integers by complementary addition e.g. $1000 - 654$ as $46 + 300$ in our heads; Use number bonds to 1 and 10 to perform mental subtraction of any pair of 1-place or 2-place decimal numbers using complementary addition and including money e.g. $10 - 3\cdot65$ as $0\cdot35 + 6$ e.g. $\pounds 50 - \pounds 34\cdot29$ as $71\text{p} + \pounds 15$; Use number facts and place value to perform mental subtraction of large numbers or decimal numbers with up to 2 places e.g. $467\ 900 - 3005$ e.g. $4\cdot63 - 1\cdot02$; Subtract multiples of powers of 10 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 e.g. $34685 - 16458$</p> $\begin{array}{r} 2\ 14\ 7\ 15 \\ \cancel{3}\ \cancel{4}\ 6\ \cancel{8}\ \cancel{5} \\ - 1\ 6\ 4\ 5\ 8 \\ \hline 1\ 8\ 2\ 2\ 7 \end{array}$ <p>Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000 or 10 000; Use counting up subtraction when dealing with money e.g. $\pounds 45\cdot23 - \pounds 27\cdot57$</p>  <p>(Answer found as $\pounds 10 + \pounds 5 + \pounds 2 + 40\text{p} + 23\text{p} + 3\text{p}$); Use counting up subtraction to subtract decimal numbers e.g. $13\cdot1 - 2\cdot37$</p>  <p>(Answer found as $10 + 0\cdot6 + 0\cdot1 + 0\cdot03$); Use complementary addition for subtractions of decimal numbers with up to 3 places, including money; Subtract mixed numbers and fractions with different denominators;</p>

<p>x Multiplication</p>	<p>Know by heart all the multiplication facts up to 12×12; Multiply whole numbers and decimals with up to 3 places by 10, 100 or 1000 e.g. $234 \times 1000 = 234\,000$ e.g. $0.23 \times 1000 = 230$; Identify common factors, common multiples and prime numbers and use factors in mental multiplication e.g. 326×6 is 652×3 which is 1956; Use place value and number facts in mental multiplication e.g. $4000 \times 6 = 24\,000$ e.g. $0.03 \times 6 = 0.18$; Use doubling and halving as mental multiplication strategies, including to multiply by 2, 4, 8, 5, 20, 50 and 25 e.g. 28×25 is a quarter of $28 \times 100 = 700$; Use rounding in mental multiplication e.g. 34×19 as $(34 \times 20) - 34$; Multiply 1- and 2-place decimals by numbers up to and including 10 using place value and partitioning</p>	<p>Use short multiplication to multiply numbers with up to 4 digits by 1-digit numbers e.g. 3743×6</p> $\begin{array}{r} 3743 \\ \times 6 \\ \hline 4218 \\ 22458 \end{array}$ <p>Use long multiplication to multiply numbers with up to 4 digits by a 2-digit number e.g. 456×38</p> $\begin{array}{r} 456 \\ \times 38 \\ \hline 13680 \\ 36480 \\ \hline 17328 \end{array}$ <p>Use short multiplication to multiply a 1-digit</p>
	<p>e.g. 3.6×4 is $12 + 2.4$ e.g. 2.53×3 is $6 + 1.5 + 0.09$; 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>number by a number with 1 or 2 decimal places, including amounts of money e.g. $\pounds 13.72 \times 6$</p> $\begin{array}{r} \pounds 13.72 \\ \times 6 \\ \hline 2412 \\ \pounds 82.32 \end{array}$ <p>Multiply fractions and mixed numbers by whole numbers; Multiply fractions by proper fractions; Use percentages for comparison and calculate simple percentages;</p>
<p>÷ Division</p>	<p>Know by heart all the division facts up to $144 \div 12$; Divide whole numbers by powers of 10 to give whole number answers or answers with up to 3 decimal places; Identify common factors, common multiples and primes numbers and use factors in mental division e.g. $438 \div 6$ is $219 \div 3$ which is 73; Use tests for divisibility to aid mental calculation; Use doubling and halving as mental division strategies, for example to divide by 2, 4, 8, 5, 20 and 25 e.g. $628 \div 8$ is halved three times: 314, 157, 78.5; Divide 1- and 2-place decimals by numbers up to and including 10 using place value e.g. $2.4 \div 6 = 0.4$ e.g. $0.65 \div 5 = 0.13$ e.g. $\pounds 6.33 \div 3 = \pounds 2.11$; 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); 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>Use short division to divide a number with up to 4 digits by a 1-digit or a 2-digit number e.g. $139 \div 3$</p> $\begin{array}{r} 46 \text{ r } 1 \\ 3 \overline{) 139} \\ \underline{12} \\ 19 \\ \underline{18} \\ 1 \end{array}$ <p>Use long division to divide 3-digit and 4-digit numbers by 2-digit numbers e.g. $4176 \div 13$</p> $\begin{array}{r} 300 + 20 + 1, \text{ r } 3 \\ 13 \overline{) 4176} \\ \underline{-3900} \\ 276 \\ \underline{-260} \\ 16 \\ \underline{-13} \\ 3 \end{array}$ <p>$4176 \div 13 = 321 \text{ r } 3$</p> <p>Give remainders as whole numbers or as fractions or as decimals;</p> <p>Divide a 1-place or a 2-place decimal number by a number ≤ 12 using multiples of the divisors;</p> <p>Divide proper fractions by whole numbers;</p>