

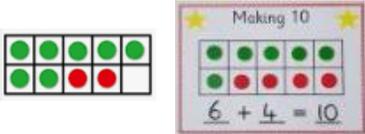
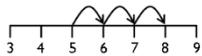


Madresfield C.E. Primary School Calculation Policy for Progression

(We follow White Rose Maths for whole school mapping and our small steps progression)



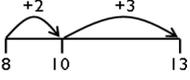
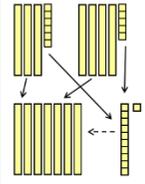
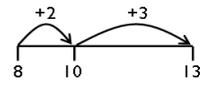
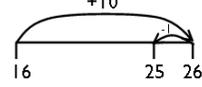
Addition

Level and Notes	Written Calculations	Models & Images	Mental Calculations	Known Facts
<p>Foundation Stage End of Year Early Learning Goals(ELG)</p>	<p>-Find one more than a number to 10</p> <p>-In practical activities & discussion, begin to use the vocabulary involved in addition.</p> <p>-Records using marks that they can interpret and explain.</p>	<p>In practical activities and discussion, using quantities and objects, (including models and manipulatives) add two single digit numbers.</p> <p>-Find the total number of objects in two groups by counting them all</p> <p>-In practical activities & discussion, begin to use the vocab of addition</p> <div style="text-align: center;">  </div>	<p>-Find the total number of objects in two groups by counting them all</p> <p>-In practical activities & discussion, begin to use the vocab of addition</p> <p>-Say which number is more than a given number to 20 (verbally)</p>	<ul style="list-style-type: none"> • Recognise some numerals of personal significance. • Recognise and order numbers to 20. • Use a range of strategies for +, incl some recall of number bonds. • Know some doubles to 10 and use these to solve practical problems.
<p>Year 1</p> <p>- Essential to develop cardinal and ordinal representations of number in parallel but DON'T let children rely on ordinal counting for calculating.</p> <p>- Understand + as finding the total of two or more sets of objects</p> <p>- Introduce 'How many more?'</p>	<p>Record their work, e.g.</p> <p>- record their work with objects, pictures or diagrams including part, part, whole. Begin to use the symbols '+' and '=' to record simple additions</p> <p><i>e.g. 10 + 5 = 15; 3 + ? = 7; 10 = 8 + 2</i></p> <p>- Uses numbers up to 20</p>	<p>Cardinal</p> <div style="text-align: center;">  <p>The 'eightness' of 8</p> </div> <p>Visual, word and digits.</p> <p>Ordinal</p> <p>Counting in 1s on a number line</p> <div style="text-align: center;">  <p>$5 + 3 = 8$</p> </div>	<p>Add numbers of objects to 10.</p> <p>- Begin to add by counting on from the number of objects in the first set BUT moving beyond counting on as an addition strategy.</p> <p>Children partition single digit numbers (eg $5 = 2 + 3$, read as "5 is made up of 2 and 3")</p> <p>-Know 1 more and 1 less.</p>	<p><u>Instant recall</u></p> <ul style="list-style-type: none"> • Doubles of numbers to 5 • Number bonds to 10 • Addition facts for totals to 5 <p><u>Derived</u></p> <ul style="list-style-type: none"> • $0 + 1$ (link to 'one more') • $0 + 2$ (link to odds /evens counting)



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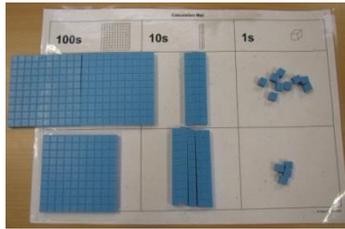
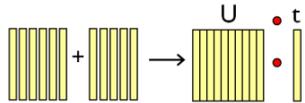
(We follow White Rose Maths for whole school mapping and our small steps progression)

		See appendix.		<ul style="list-style-type: none"> 10 + 0 (Using combining rather than counting in 1s)
<p>Year 2</p> <p>- Check that children are not getting stuck in a counting in 1s strategy. A good sense check is that they don't add 10 (e.g. 25 + 10) by counting on, on their fingers but instead think '2 tens and 5 ones plus 1 ten = 3 tens and 5 ones'</p>	<p>Partitioning</p> <p>Add two digit numbers using a written method, e.g.</p> <p>– <i>use written methods that involve bridging 10</i></p> <p>Eg</p> <p>e.g.</p>  $\begin{array}{r} 36 \\ + 45 \\ \hline 70 + 11 = 81 \end{array}$	<p>Partitioning (Numicon/Dienes)</p>  <p style="text-align: right;">$36 + 45 = 81$</p> <p>Bridging - Teach with 8 sandwich then represent on number line</p>  <p style="text-align: right;">$8 + 5 = 13$</p>	<p>Begin to add multiples of 10 to a 2 digit number, e.g. calculate 26 + 30</p> <p>(By counting on in 10s or partitioning)</p> <p>Record their work in writing, e.g.</p> <p>- <i>part, part, whole</i></p> <p>- <i>record their mental calculations as number sentences</i></p>	<p><u>Instant recall</u></p> <ul style="list-style-type: none"> Doubles of numbers to 10 and corresponding halves Number bonds to 20 Multiples of 10 which total 100 <p><u>Derived</u></p> <ul style="list-style-type: none"> All addition facts for totals to 10 Add 10 to any number to 90 (Model with Numicon)
<p>Year 3</p> <p>- Don't forget to show you can add more than 2 numbers in column addition</p> <p>- Look at adding strings of single digit numbers, e.g. 6 + 3 + 4 + 9 = by finding number bonds to 10 first</p>  $\begin{array}{r} 6 + 3 + 4 + 9 \\ \hline 10 + 12 = 22 \end{array}$	<p>Column addition</p> <p>Add three digit numbers involving bridging 10 or 100</p> $\begin{array}{r} 239 \\ 154 \\ 393 \\ \hline \end{array}$ <p><i>Add decimals in the context of money where bridging is not required.</i></p>	<p>Compensating</p> $16 + 9 = 25$  <p>Year 3.</p> <p>Column addition</p> <p>Model using dienes to show the carrying into the next column</p>	<p>Add 2 digit numbers mentally, e.g.</p> <ul style="list-style-type: none"> - Calculate 36 + 19 <p>(Partitioning, compensating, bridging or near doubles)</p> <ul style="list-style-type: none"> - Complements to 100 	<p><u>Instant recall</u></p> <ul style="list-style-type: none"> Double 15, 25, 35, 45 and corresponding halves <p><u>Derived</u></p> <ul style="list-style-type: none"> All addition facts for totals to 20 (Derived using compensating, bridging or near doubles) Addition facts for multiples of 10, e.g. 70 + 90 = 160 Multiples of 5 which total 100



Madresfield C.E. Primary School Calculation Policy for Progression

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		See appendix		
<p>Year 4</p> <p>When working with money, teach that e.g. £2.99 + £5.99 can quickly be added mentally using compensating (£3 + £6 – 2p)</p> <p>Children should ‘see’ decimals so that they are not saying 0.5+0.6 = 0.11</p>	<p>Column addition</p> <p>Use efficient written methods of addition, e.g.</p> <ul style="list-style-type: none"> - calculate $1202 + 45 + 367$ - add decimals to 2 places 	<p>Column addition</p> <p>Model using dienes to show the carrying into the next column. See above.</p> <p>Addition facts for decimals</p> <p>Introduce using dienes: $0.6+0.5=1.1$</p> 	<p>Calculation complements to 1000 for multiples of 10, e.g. $340 + \underline{\quad} = 1000$</p>	<p>Derived</p> <ul style="list-style-type: none"> • Doubles of tenths to 0.9 and corresponding halves • Addition facts for tenths up to 0.9, e.g. $0.7 + 0.9 = 1.6$
<p>Year 5</p>	<p>Column addition</p> <p>Add whole numbers with more than 4 digits.</p> <p>Add numbers that do not have the same number of decimal places.</p>		<p>Calculate decimal complements to 10 or 100</p>	<p>Derived</p> <ul style="list-style-type: none"> • Doubles of hundredths to 0.09 and corresponding halves • Addition facts for hundredths up to 0.09 e.g. $0.07 + 0.09 = 0.16$



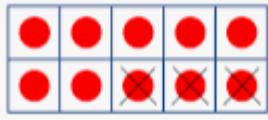
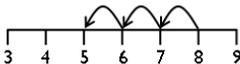
Madresfield C.E. Primary School Calculation Policy for Progression

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Year 6 will build on the addition skills taught in year 5.

Subtraction.

Level and Notes	Written Calculations	Models & Images	Mental Calculations	Known Facts
Foundation Stage End of Year Early Learning Goals(ELG)	In practical activities and discussion, begin to use vocabulary of subtraction. Records using marks that they can interpret and explain. Finds one less than a number to 10	In practical activities and discussion, using quantities and objects, (including models and manipulatives) subtract two single digit numbers. Number line for 1 less only. 	-Say which number is one less than a given number to 20 (verbally)	Solve problems in a practical context involving halving.
Year 1 - Understand subtraction as 'taking away' objects from a set and finding how many are left BUT need to quickly move beyond counting to known fact strategies.	Record their work, e.g. - record their work with objects, pictures or diagrams - begin to use the symbols '-' and '=' to record calculations with numbers to 20 - part, part, whole.	 Subtraction as taking away objects from a set.  Counting back in 1s on a number line See appendix.	- Children start to express subtraction facts <i>for addition facts that they have instant recall of eg doubles of numbers to 5, number bonds to 10.</i> Subtract numbers of objects to 10 - Begin to subtract by counting back from the number of objects in the first set BUT moving onto known facts	<u>Instant recall</u> <ul style="list-style-type: none"> Halves of even numbers to 10 Know 'one less' than numbers to 20, e.g. 12 -1 <u>Derived</u> Subtract 2 from numbers to 10, using odds/evens counting pattern.
Year 2 - 'How many more' should be introduced in + and not related	Counting back on number line Subtract two digit numbers using a written method, e.g. 36	Subtraction facts w/ Numicon	Children partition single digit numbers (eg $9 = 3 + 6$, read as "9 is made up of 3 and 6")	<u>Instant recall</u> <ul style="list-style-type: none"> Halves of even numbers to 20



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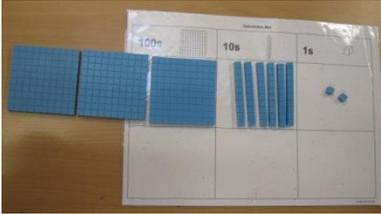
<p>to subtraction at this stage e.g. $8 + _ = 11$ - Count in 10s and 1s first then, quickly move to more efficient jumps (see bridging pic)</p>	<p>-13, (including bridging 10, e.g. $42 - 15$)</p>	<p>$9 - 3 = 6$</p> <p>Subtracting 10 with Numicon $25 - 10 = 15$</p> <p>Until children can do this seamlessly, don't start on number line</p>	<p>leading to subtraction facts from numbers to 10. Use part, part whole model to link to addition facts especially for those which bridge 10, eg $13 - 9 = 4$.</p>	<ul style="list-style-type: none"> Subtraction facts from 10 <p><u>Derived</u></p> <ul style="list-style-type: none"> Subtraction facts from numbers to 10 (e.g. $9 - 2 = 7$) Subtract 10 from any number to 100 (Model with Numicon)
<p>Year 3 Need to really work on building understanding of subtraction as 'finding the difference/counting on'. Reinforce constantly. 'Never partition for take away'. Need to teach this explicitly as otherwise children will partition -Give children lots of practice on choosing when to use counting on (small difference/numbers close together) vs counting back (large diff/ taking away a small amount) Begin to use column subtraction for 3 digit numbers</p>	<p>Subtract three-digit numbers including bridging 10 or 100 Counting back on a number line OR Counting on, on a number line for numbers close together e.g. $94 - 78$ Subtract decimals in the context of money where bridging not required this leads to year 4 mental calculations.</p>	<p>Bridging</p> <p>Compensating</p> <p>Year 3 Column subtraction Model exchanging using dienes, as shown fully on separate sheet.</p>	<p>Subtract 2 digit numbers mentally, e.g. - Calculate $63 - 26$ (Counting back or counting on including using compensating or bridging where relevant) - Complements to 100, e.g. $100 - 64$ (Counting on strategy)</p>	<p><u>Instant recall</u></p> <ul style="list-style-type: none"> Half of 90, 70, 50 and 30 <p><u>Derived</u></p> <ul style="list-style-type: none"> All subtraction facts from numbers to 20 (derived using bridging, compensating or near doubles) Subtraction facts for multiples of 10, e.g. $160 - 70 = 90$ Subtraction facts for HTO - O Eg $193 - 8 = 185$



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		 <p>See appendix.</p>		
<p>Year 4</p> <p>When working with money, teach that when finding change from a round number (e.g. £5, £10, £20) it is easier to count on, on a number line than use column subtraction.</p> <p>Keep children visualising the starting number to help them to remember to exchange when necessary</p>	<p>Column subtraction</p> <p>Use efficient written methods of subtraction, e.g.</p> <p>- Calculate $1025 - 336$</p> <p>- Subtract decimals to 2 places</p>	<p>Column subtraction</p> <p>Model exchanging using dienes, as shown fully above.</p>	<p>Continue to use counting on/ counting back for all calculations that can and should be done mentally</p>	<p>Instant recall</p> <p>Half of 9, 7, 5 and 3</p> <p>Derived</p> <p>Halves of decimals to 1 dp for even tenths, e.g. half of 5.8</p>
<p>Year 5</p> <p>- Reinforcing alignment of decimal places for column subtraction. Show how children can write in 0 for e.g. empty hundredths as a place holder.</p>	<p>Column subtraction</p> <p>Subtract whole numbers with more than 4 digits.</p> <p>Subtract numbers that do not have the same number of decimals places.</p>	<p>Continue to support children's understanding using models from previous years.</p>	<p>Continue to use counting on/ counting back for all calculations that can and should be done mentally</p>	<p>Derived</p> <p>Halves of decimals to 1 dp for odd tenths, e.g. half of 5.7</p>

Year 6 will build on the subtraction skills taught in year 5.

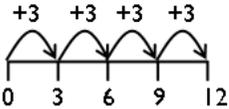
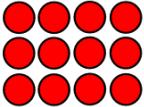


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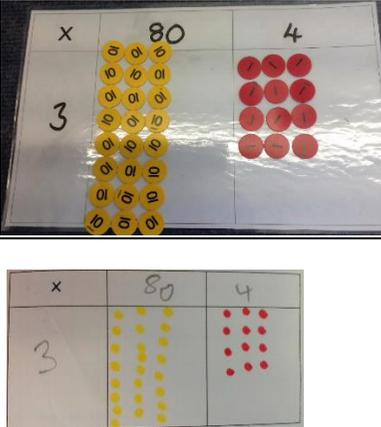
Multiplication.

Level and Notes	Written Calculations	Models & Images	Mental Calculations	Known Facts
Foundation Stage End of Year Early Learning Goals(ELG)	Record using marks that they can interpret and explain. Informal jottings, mathematical mark making, problem solving process, use of blank paper.	Repeated groups of the same size. Begin to count in 2's, 5's and 10's. Use models to solve problems linked to doubling.	Count repeated groups of the same size. Respond to/make up number stories.	Begin to count in 2's, 5's and 10's.
Year 1 Practise counting in 2s, 5s and 10s, including using visual images for support 		Numicon Practise showing the difference between an addition sentence and a multiplication sentence.  $2+3 = 5$ $3 \times 2 = 6$ 3×2 is said as 3 two times. - Start to use arrays (See Y2)	Use 2s, 5s and 10s, skip counting to answer questions such as, what is 6 groups of 5? Supported by manipulatives e.g. counters, numicon, straws.	<u>Instant recall</u> Doubles of numbers to 5.
Year 2 Practise counting in 3s Use repeated addition to solve multiplication problems.	Repeated addition on a number line for less familiar counting patterns  e.g. $3 \times 4 = 12$	Arrays $4 \times 3 = 12$  Counting stick times tables 	- Use counting up in 3s, 5s and 10s (using fingers to keep track of groups) to start to derive multiplication facts, phrased as 'what is 4 times 3' or how many in four groups of 3'	<u>Instant recall</u> Doubles of numbers to 10. Begin to know times table facts for 3, 5 and 10 times tables.



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<p>Year 3</p> <p>Children need to become VERY confident with all times tables: 2, 3, 4, 5, 8, 10 should be instant recall; Can use double of 3 and 4 times tables for 6 and 8 times tables; Use finger method to begin to learn 9 times tables; 7 times tables</p>	<p>Short multiplication for single digit multiplication</p> <p>- Use efficient methods of short multiplication.</p> $\begin{array}{r} 239 \\ \times 4 \\ \hline 956 \\ 13 \end{array}$ <p>Grid method</p> <p>Multiply a 2 digit number by 2, 3, 4, 5 & 8</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; border-bottom: 1px solid black; padding: 5px;">x</td> <td style="border-bottom: 1px solid black; padding: 5px;">80</td> <td style="border-bottom: 1px solid black; padding: 5px;">4</td> <td></td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">3</td> <td style="padding: 5px;">240</td> <td style="padding: 5px;">12</td> <td style="padding: 5px;">= 252</td> </tr> </table> <p>This leads to mental calculation in year 4.</p>	x	80	4		3	240	12	= 252	<p>Array as visual representation of grid method</p> 	<p>Multiply a number by doubling and doubling again</p> <p>Multiply a 2 digit whole number by 10</p>	<p>Instant recall</p> <p>Double 15, 25, 35, 45</p> <p>Mental recall of 2, 3, 4, 5, 8 and 10 times tables</p> <p>Begin to know times table facts for 6, 7, 8 and 9 times tables</p> <p>Derived</p> <p>Times table facts for 6, 7 and 9 times tables</p> <p>Times tables & place value calculations such as 70 x 3</p>
x	80	4										
3	240	12	= 252									
<p>Year 4</p> <p>Recognise and describe number relationships, including multiple, factors and squares.</p> <p>Instant recall of all times tables to 12x12.</p> <p>MTC</p>	<p>Short multiplication for single digit multiplication</p> <p>- Use efficient methods of short multiplication.</p> $\begin{array}{r} 239 \\ \times 4 \\ \hline 956 \\ 13 \end{array}$ <p>- Multiply a simple decimal by a single digit, e.g. 36.2 x 8.</p> <p>Grid method</p>	<p>Grid method</p> <p>Extend grid method to use with a single digit x decimal</p>	<p>Use place value to multiply a whole number by 10 or 100.</p> <p>Multiply two multiples of 10 together, e.g. 40 x 30.</p> <p>Partitioning</p> <p>Multiply teens numbers by single digit by visualised Partitioning.</p> $\begin{array}{r} 14 \times 6 \\ / \quad \backslash \\ 60 + 24 \\ \hline = 84 \end{array}$	<p>Instant recall</p> <p>Recall multiplication facts up to 10 x 12.</p> <p>Quickly derive corresponding division facts.</p> <p>Derived</p> <p>Times tables & Place Value calculations with decimals such as 0.7 x 3</p>								

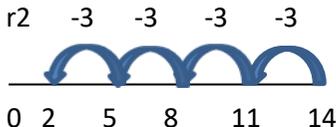
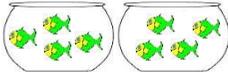


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Division.

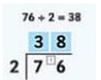
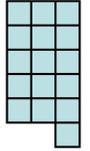
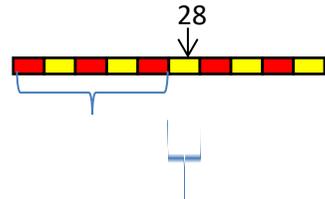
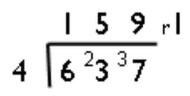
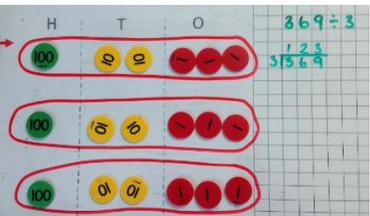
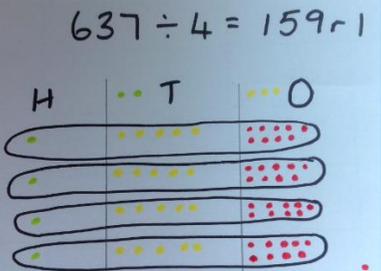
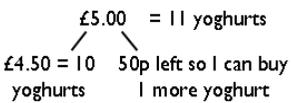
Level and Notes	Written Calculations	Models & Images	Mental Calculations	Known Facts
<p>A note about grouping and sharing in division: When asked to show a picture or tell a story for a division sentence, e.g. $8 \div 4$, most people give a sharing example (sweets model rather than fish model in image). However, mathematically, grouping is a MUCH more useful way into division in that it allows children to use their skip counting patterns to move beyond and inefficient '1 for you, 1 for me' counting approach which teaching a sharing approach forces children into using. As such all year 1 and year 2 division should be taught through grouping only, and should mainly use patterns that the children are familiar with (ie 2s, 5s, 5s and 10s). Until sharing for division is introduced in year 3, the DIVISION SIGN should always be read as 'divided into groups of' rather than 'divided by'. This is SUCH an important idea!</p>				
<p>Foundation Stage End of Year Early Learning Goals(ELG)</p>	<p>Record using marks that they can interpret and explain.</p>		<p>Share objects into equal groups and count how many in each group.</p>	
<p>Year 1 Practise grouping and sharing in realistic class contexts. Practise counting in 2s, 5s and 10s.</p>		<p>Sharing 8 sweets shared between 4 children</p> 	<p>Use 2s, 5s and 10s, skip counting to answer questions such as 'how many groups of 10 make 30?' with reference to manipulatives.</p>	<p><u>Instant recall</u> Halves of even numbers to 10.</p>
<p>Year 2 Practise counting in 3s Begin to use repeated addition to solve division problems. Lots of practice reading $8 \div 4$ as "8 divided into groups of 4"</p>	<p>Repeated subtraction on a number line.</p> <p>$14 \div 3 = 4 \text{ r } 2$</p> 	<p>Grouping 4 fish can live in 1 bowl. How many bowls do 8 fish need?</p> 	<p>-Use counting up in 3s, 5s and 10s (using fingers to keep track of groups) to start to derive division facts phrased as 'how many groups of 3 in 12?' presented as a number sentence Eg $12 \div 3 = 4$</p>	<p><u>Instant recall</u> Halves of even numbers to 20, including recognising e.g. $14 \div 2$ as finding a half.</p>



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<p>Year 3</p> <p>Start to use vocab of factors Children should be comfortable with concept of factors by year 4.</p> <p>-Get children to visualise where 28 lies on e.g. a 5 times table counting stick, then identify how many groups of 5 can be made, plus remainder.</p>	<p>Bus stop method for single digit division</p> <p>Divide a 2 digit number by a single digit.</p>  <p>Continue to repeated subtraction on a number line.</p> <p>$65 \div 4 = 16 \text{ r } 1$</p> <p>See year 2 model.</p>	<p>Arrays with remainders</p>  <p>$16 \div 3 = 5 \text{ r } 1$</p> <p>Counting stick</p> <p>$28 \div 5 = 5 \text{ r } 3$</p> 	<p>Use half and half again for $\div 4$.</p> <p>Divide whole numbers by 10 (using place value to move digits to the right)</p> <p>Calculate division facts with remainders for 2, 3, 4, 5 and 10 times table.</p> <p>Jottings to support mental chunking e.g. $2000 \div 250$</p> <p>$2 \times 250 = 500$ $4 \times 250 = 1000$ $8 \times 250 = 2000$</p>	<p>Instant recall</p> <p>Half of 30, 50, 70, 90.</p> <p>Begin to know division facts for 3, 4, 5 and 10 times table.</p>
<p>Year 4</p> <p>Working out division facts with remainders is often neglected. Children need lots of practice. Can count up on fingers at first but should move to using times tables facts as soon as possible.</p> <p><u>Essential prerequisite</u> to bus stop.</p>	<p>Bus stop method for single digit division</p> <p>Divide a 2 or 3 digit number by a single digit.</p> 	<p>Use place value counters to introduce bus stop method</p>  	<p>- Divide whole numbers by 10 or 100.</p> <p>Mental chunking for 'simple' calculations, e.g. Yoghurts cost 45p each; how many can I buy for £5?</p> 	<p>Instant recall</p> <p>Half of 1, 3, 5, 7, 9</p> <p>Derived</p> <p>Quickly derive division facts for times tables up to 10 x 10,</p> <p>Division facts with remainders for all times tables up to 10 x 10.</p> <p>Division facts & place value calculations such as $180 \div 3$</p>



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<p>Year 5 Children should be comfortable with concept of square roots.</p>	<p>Bus stop method Divide decimal numbers by a single digit, e.g. $31.62 \div 8$ Divide any 3 or 4 digit number by any 1 digit number. $1652 \div 4 =$ Using the formal written method of short division and interpret remainders appropriately for the context.</p>		<p>Multiply and divide decimals and whole numbers by 10, 100 and 1000 Multiply a two digit number by a single digit</p>	<p>Derived Division facts & place value calculations such as $1.8 \div 3$</p>
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In year 6 use the bus stop method as in year 5 and long division method for dividing 3 or 4 digit numbers by 2 digits. Remainders should be expressed as a remainder, decimal fraction, fraction or rounding depending on the context.

Long division method.

$5634 \div 13 = 433 \text{ remainder } 5$

			0	4	3	3	r	5		
1	3		5	6	3	4				
			5	2	↓				1	3
			4	3					2	6
			3	9	↓				3	9
				4	4				5	2
				3	9				6	5
					5					



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Fractions.

Level and Notes	Written Calculations	Models & Images	Mental Calculations	Known Facts
<p>Consistent, accurate language for fractions is essential. Children must understand that a fraction is a group, object or a shape which is equally divided. Across the school they should be given a range of images and representations to help them to identify a range of fractions. These images should be split in different ways to show fractions for example $\frac{4}{7}$ will have 4 parts coloured, but they may not be the 4 parts that are adjacent. Misconceptions (where the image is not split equally) should also be shared with children for discussion. Children should also be exposed to a fraction as a number on a number line – many children struggle to see $\frac{1}{2}$ as between 0 and 1 on a 0-10 number line.</p>				
<p>Foundation Stage End of Year Early Learning Goals(ELG) Children will be exposed to the idea, and language, of full, empty and half full in relation to capacity. This will be done through practical activities.</p>			<p>Using resources children can find half of numbers to 10.</p>	
<p><u>Year 1</u></p>	<p>Children should understand $\frac{1}{2}$ and $\frac{1}{4}$. As 1 of 2 equal parts and 1 of 4 equal parts.</p>		<p>Half of whole numbers to 20</p>	<p><u>Instant recall</u> Halves of even numbers to 10.</p>



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	<p>Order fractions with the same denominator/numerator using images.</p> <p>Add and subtract fractions within 1 with the same denominator. $\frac{2}{9} + \frac{4}{9} = \frac{6}{9}$ Images should always be used to support this. $\frac{5}{9} - \frac{3}{9} = \frac{2}{9}$</p>			<p>Star to make the link between fractions of an amount and division.</p> <p>Begin to know division facts for 3, 4, 5 and 10 times table.</p>
<p>Year 4 Year 4 fractions builds on Y3 and should continue to use resources and visual representations for all work as shown in Y3. Many children will add and subtract fractions with the denominator without images by the end of the year.</p>	<p>Link fractions to decimals and percentages through visual representations and understanding % as part of 100.</p>		<p>Mentally calculate quarter and fifth of a number through use of known facts.</p>	<p><u>Instant recall</u> Half of 1, 3, 5, 7, 9 Tenths of numbers including some decimals.</p> <p><u>Derived</u> Link between fractions of an amount and division. Quickly derive division facts for times tables up to 10 x 10, Division facts with remainders for all times tables up to 10 x 10. Division facts & place value calculations such as $180 \div 3$</p>



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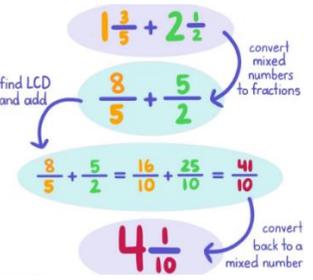
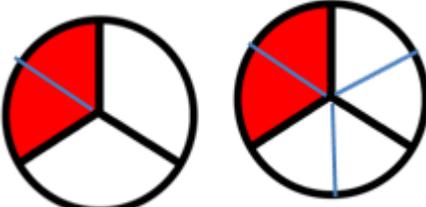
<p>Year 5 In year 5 children will start to use more abstract methods to show equivalence and addition of fractions. <i>Jottings should be used with all written methods.</i></p>	<p>Equivalent fractions and comparing by using the same denominator.</p> <p>Convert between mixed number and improper fractions.</p> $2 \times 4 + 1 = 9$ $\frac{9}{4}$ $9 \div 4 = 2 \frac{1}{4}$ <p>Adding and subtracting fractions with different denominators.</p> $\frac{3}{10} + \frac{2}{5} = \frac{7}{10}$ <p>Multiply fractions. Children need to understand that a whole number is a number over 1. It will help children to show the whole number as</p>	<div style="text-align: center;"> $\begin{array}{c} \times 5 \\ \frac{5}{6} \end{array} \quad \begin{array}{c} \frac{25}{30} \\ \times 5 \end{array}$ </div> <div style="text-align: center;"> $2 \frac{1}{4} = \frac{9}{4}$ </div> <div style="text-align: center;"> $\begin{array}{c} \times 2 \\ \frac{2}{5} \end{array} \quad \begin{array}{c} \frac{4}{10} \\ \times 2 \end{array}$ $\frac{4}{10} + \frac{3}{10} = \frac{7}{10}$ </div> <div style="text-align: center;"> </div>	<p>Find tenths, hundredth, halves, quarters, fifths quickly.</p>	<p><u>Derived</u> Link between fractions of an amount and division. Start to use division facts & place value calculations such as $1.8 \div 3$ and understand that this is the same as $\frac{1}{3}$ of 1.8. Children should use place value to support this.</p>
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	<p>over 1 for multiplication – so 4 becomes 4/1.</p> $\frac{5}{6} \times 4 = \frac{20}{6}$ <p>(See converting fractions.)</p> $\frac{20}{6} = 3 \frac{2}{6}$ $\frac{5}{6} \times 4 = 3 \frac{2}{6}$			
<p>Year 6 By Y6 the children will have a good understanding of how to represent fractions and will mostly use abstract methods to calculate. <i>Jottings should continue to be used with all written methods.</i></p>	<p>Adding and subtracting mixed number fractions.</p>  <p>Multiplication. Children need to know that x also can be described as 'of', so 1/2 of 1/3 is how the number sentence could be said.</p>		<p>Continue to develop mental maths from year 5.</p>	<p><u>Derived</u> Continue to link fractions of an amount and division. Division facts & place value calculations such as $1.8 \div 3$ and understand that this is the same as $1/3$ of 1.8. Children should use place value to support this.</p>



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$$\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$$

Division.

$$\frac{3}{4} \div 5 =$$

$$\frac{3}{4} \div \frac{5}{1} =$$

$$\frac{3}{4} \times \frac{1}{5} = \frac{3}{20}$$

Show how $\frac{1}{3}$ is cut into $\frac{1}{2}$, but as all parts are equal all thirds need to be cut into half.



or

