



Written Calculation Policy

Introduction

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. (National Curriculum 2014)

At Our Lady of Lourdes RC Primary School, we endeavour to ensure that children develop a healthy and enthusiastic attitude towards mathematics that will stay with them for life.

About our Calculation Policy

The following calculation policy has been devised to meet the requirements of the 2014 National Curriculum for the teaching and learning of mathematics, and is also designed to give pupils a consistent and smooth progression in mastering calculation strategies across the school.

Teaching of mathematics in our Reception class is based on the objectives of the EYFS Framework (2023), working towards attaining the ELG for mathematics in Number and Numerical Patterns. To ensure teaching and learning in EYFS is in line with the updated framework (specific area – mathematics), teachers make use of the 'Master the Curriculum' toolkit; this calculation policy is designed to build on progressively from the content and methods established in the Early Years Foundation Stage.

Age-related expectations

The calculation policy is organised according to age-related expectations as set out in the 2014 National Curriculum. At Our Lady of Lourdes RC Primary School, teaching for mastery directs the emphasis towards designing calculation lessons that the whole class can access, moving away from the concept of differentiating according to ability i.e. prior attainment. At Our Lady of Lourdes RC Primary School, we have moved away from '*What can I do for my lower, middle and higher attainers?*' and are leaning more towards '*How can I teach this calculation concept in such a way that all children will master the process?*'

The general expectation is that the majority of pupils will master the relevant calculation methods appropriate to their year group at broadly the same pace. However, decisions about when to progress with mental and written calculation methods should always be based on the security of pupils' understanding and their readiness to move on to the next stage. In the instance that a child/minority of children with cognitive difficulties are identified, resulting in them struggling to follow the process of a particular method to at least a satisfactory level, a child may then require a more tailored approach/alternative strategy, whilst still using teaching for mastery principles, to allow them to achieve age-related expectations before moving on; pupils who grasp methods rapidly should be challenged through being offered rich and sophisticated problems in which to apply these methods before acceleration through subsequent age-related expectations.

Providing a context for calculation

It is important that any type of calculation is given a real life context or problem solving approach to help build children's understanding of the purpose of calculation, and to help them recognise when to use certain operations and methods when faced with problems. This must be a priority within calculation

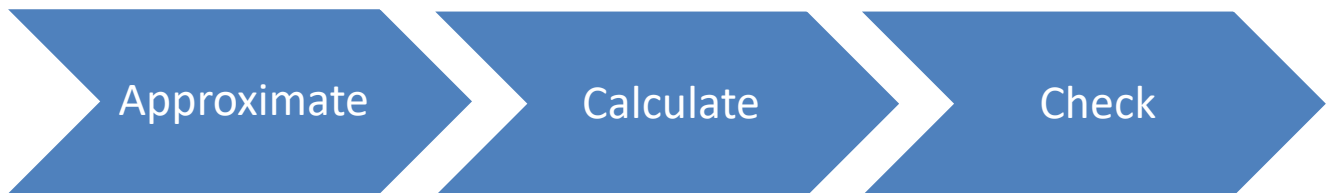
lessons. Our children will be taught to “*seek and recognise maths in ‘real life’* and solve problems by applying their mathematics to a variety of routine and non-routine problems.” (OLOL Maths Policy 2023)

Choosing a calculation method

Children need to be taught and encouraged to use the following processes in deciding what approach they will take to a calculation, to ensure they select the most appropriate method for the numbers involved:

- 1) Can I work this out mentally?
- 2) Could/should I use some jottings to help me?
- 3) Is a standard written method needed?
- 4) How can I check my answer?

To work out a tricky calculation:



Year 1

Add with numbers up to 20

Use numbered number lines to add, by counting on in ones. Encourage children to start with the **larger** number and count on. They should have access to a wide range of counting equipment, everyday objects, number tracks and number lines, and be shown numbers in different contexts.



Children should:

- 1) Read and write the addition (+) and equals (=) signs within number sentences.
- 2) Interpret addition number sentences and solve missing box problems, using concrete objects and pictorial representations, including number line addition to solve them:
 $8 + 3 = \square$ $15 + 4 = \square$ $5 + 3 + 1 = \square$ $\square + \square = 6$

This builds on from prior learning of adding by combining two sets of objects into one group (5 cubes and 3 cubes) in Early Years.

Example:

$$8 + 5$$

Bead strings or bead bars can be used to illustrate addition including bridging through ten by counting on 2 then counting on 3.



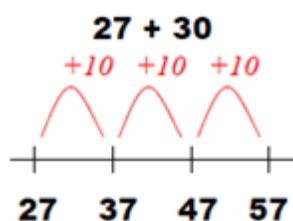
Year 2

Add with 2-digit numbers

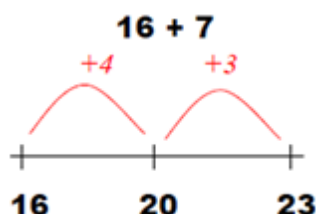
Developing mental fluency with addition and place value involving 2-digit numbers, then establish more formal written methods i.e. the number line.

*“Recording addition and subtraction **in columns** supports place value and prepares for formal written methods with larger numbers,” (National Curriculum 2014).*

a) Add 2-digit numbers and tens:



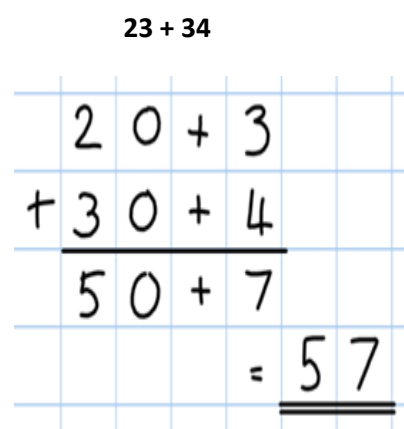
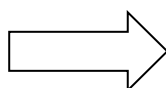
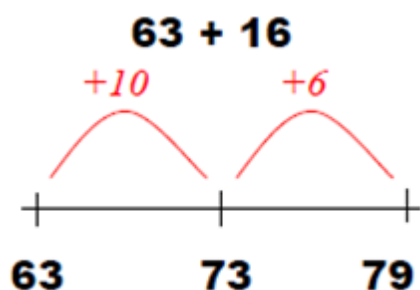
b) Add 2-digit numbers and ones:



Use empty number lines, concrete equipment, hundred squares etc. to build confidence and fluency in mental addition skills.

c) Add pairs of 2-digit numbers, moving to the partitioned column method when secure adding tens and ones:

STEP 1: Only provide examples that do **NOT** cross the tens boundary until they are secure with the method itself.



STEP 2: Once children can add a multiple of ten to a 2-digit number mentally (e.g. $80+11$), they are ready for adding pairs of 2-digit numbers that DO cross the tens boundary (e.g. $58 + 43$).

$58 + 43$

5	0	+	8	
4	0	+	3	
9	0	+	1	1
			<u>1</u>	<u>0</u>

STEP 3: Children who are confident and accurate with this stage should move onto the expanded addition methods with 2 and 3-digit numbers (see Y3).

To support understanding, pupils may physically make and carry out the calculation with Base 10 apparatus or place value counters, then compare their practical version to the written form, to help them to build an understanding of it.

Year 3

Add numbers with up to 3-digits

"...pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers," (National Curriculum 2014)

Introduce the **expanded column addition** method:

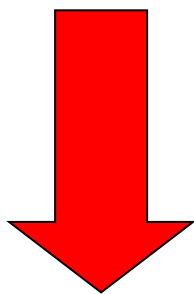
In order to carry out this method of addition:

Children need to recognise the value of the hundreds, tens and ones without recording the partitioning.

Pupils need to be able to add in columns.

	2	3	6
+		7	3
			9
	1	0	0
	2	0	0
			9
	3	0	9

Add the **ones** first, in preparation for the compact method.



Move to the compact **column addition** method, with 'carrying':

$$\begin{array}{r} 236 \\ + 73 \\ \hline 309 \end{array}$$

1

Children who are very secure and confident with 3-digit expanded column addition should be moved onto the **compact column addition** method, being introduced to „carrying“ for the first time. Compare the expanded method to the compact column method to develop an understanding of the process and the reduced number of steps involved.

Key Points:

- Add **ones** first.
- Carry" numbers **underneath** the bottom line.
- Remind pupils the actual value is '**three tens** add **seven tens**', not 'three add seven' which equals **ten** tens.

Year 4

Add numbers with up to 4 digits

Move from expanded addition to the compact column method, **adding ones first**, and „carrying” numbers **underneath** the calculation. Also include money and measures contexts.

Introduce the **compact column addition** method by asking children to add the two given numbers together using the method that they are familiar with (expanded column addition - see Y3). Teacher models the compact method with carrying, asking children to discuss similarities and differences and establish how it is carried out.

E.g. $3517 + 396 = 3913$

$$\begin{array}{r}
 3517 \\
 + 396 \\
 \hline
 3913
 \end{array}$$

Key Points:

- Add **ones** first.
- 'Carry' numbers **underneath** the bottom line.
- Reinforce correct place value by reminding them the actual value is 5 hundreds add 3 hundreds, **not 5 add 3**, for example.

Children should:

Use and apply this method to money and measurement values.

Year 5

Add numbers with more than 4 digits

Including money, measures and decimals with different numbers of decimal places.

$$\begin{array}{r} \text{£ } 23.59 \\ + \text{£ } 7.55 \\ \hline \text{£ } 31.14 \end{array}$$

The decimal point should be aligned in the same way as the other place value columns, and must be in the same column in the answer.

$$\begin{array}{r} 23,481 \\ + 1,362 \\ \hline 24,843 \end{array}$$

Numbers should exceed 4 digits.

$$\begin{array}{r} 19.01 \\ 3.65 \\ + 0.7 \\ \hline 23.36 \end{array}$$

Pupils should be able to add more than two values, carefully aligning place value columns.

Key Points:

- Say '6 tenths add 7 tenths' to reinforce place value.
- Empty decimal places can be filled with zero to show the place value in each column.

Children should:

Understand the place value of **tenths** and **hundredths** and use this to align numbers with different numbers of decimal places.

Year 6

Add several numbers of increasing complexity

Adding several numbers with different numbers of decimal places (including money and measures):

	2	3	.	3	6	1	
		9	.	0	8		
	5	9	.	7	7		
+		1	.	3			
	9	3	.	5	1	1	
	2	1		2			

Tenths, hundredths and thousandths should be correctly aligned, with the decimal point lined up vertically including in the answer row.

Zeros could be added into any empty decimal places, to show there is no value to add.

Key Points:

- Empty decimal places can be filled with zero to show the place value in each column.

- 1) Adding several numbers with more than 4 digits:

	8	1	,	0	5	9	
		3	,	6	6	8	
		1	5	,	3	0	1
+	2	0	,	5	5	1	
1	2	0	,	5	7	9	
	1	1		1	1		

Year 1

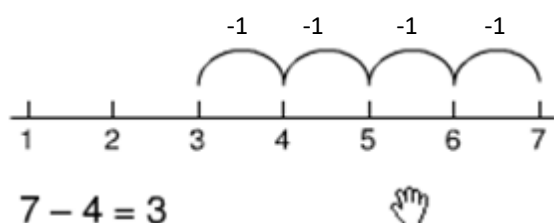
Subtract from numbers up to 20

Children consolidate understanding of subtraction practically, showing subtraction on bead strings, using cubes etc. and in familiar contexts, and are introduced to more **formal recording using number lines**.

Children should:

- 1) Subtract by taking away

Count back in ones on a numbered number line to take away, with numbers up to 20:

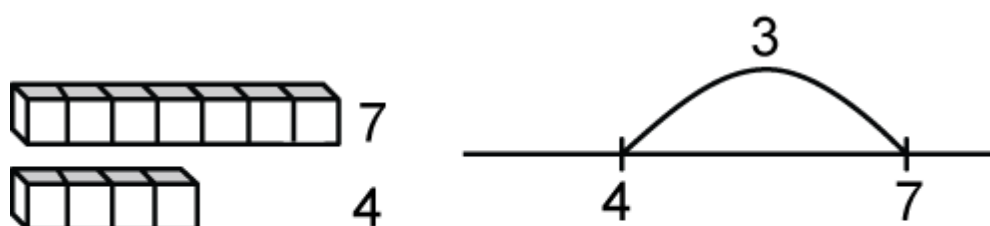


Key Points:

- Model subtraction using hundred squares and numbered number lines/tracks and practically.

- 2) Find the 'difference between'

This will be introduced practically with the language '**find the difference between**' and '**how many more?**' in a range of familiar contexts.



The difference between 7 and 4 is 3.

- 3) Read, write and interpret number sentences with - and = signs, including missing number problems such as $7 = \square - 9$

Year 2

Subtract with 2-digit numbers

Subtract on a number line by counting back, aiming to develop mental subtraction skills.

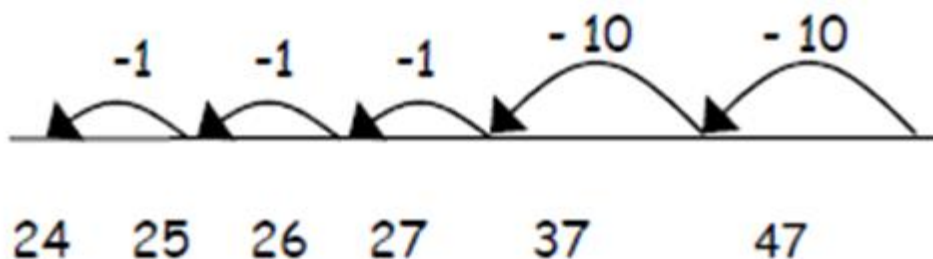
This strategy will be used for:

- **2-digit numbers subtract ones** (by taking away / counting back) e.g. $36-7$
- **2-digit numbers subtract tens** (by taking away / counting back) e.g. $48-30$
- **Subtracting pairs of 2-digit numbers** (see below:)

Subtracting pairs of 2-digit numbers on a number line:

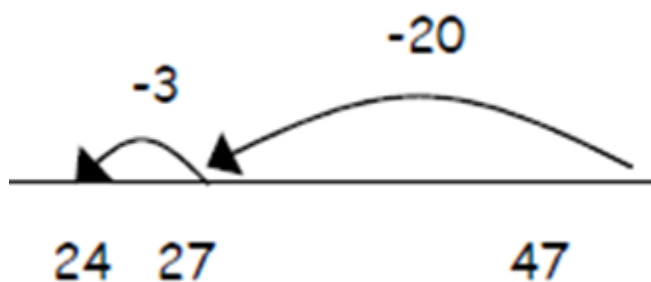
$$47 - 23 = 24$$

Partition the second number and subtract it in tens and ones, as below:



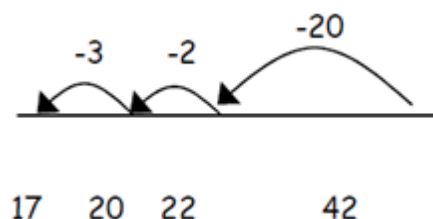
Subtract
tens first.

Move towards more efficient jumps back, as below:



Key Points:

- Combine methods with use of a hundred square to reinforce understanding of number value and order.
- Teaching children to **bridge through ten** can help them to become more efficient, for example $42-25$:



Year 3

Subtracting with 2 and 3-digit numbers.

Introduce partitioned column subtraction method.

STEP 1

Introduce this method with examples where **no exchanging** is required@

$$89 - 35 = 54$$

$$\begin{array}{r} 80 + 9 \\ - 30 + 5 \\ \hline 50 + 4 \end{array}$$

STEP 2

Introduce this step ('exchanging') through practical subtraction. Make the larger number with Base 10, then subtract 47 from it:

$$72 - 47$$



$$\begin{array}{r} 70 + 2 \\ - 40 + 7 \\ \hline 20 + 5 = \underline{25} \end{array}$$

Before subtracting '7' from the 72 blocks, a row of 10 will need to be exchanged for ten ones. Then, subtract 7 and subtract 4 tens.

Once pupils are secure with the understanding of 'exchanging' through practical subtraction (see above), they can use the partitioned column method to subtract any 2 and 3-digit numbers.

	2	3	8	-	1	4	6	=	9	2
		1	0	0						
	2	0	0	+	3	0	+	8		
-	1	0	0	+	4	0	+	6		
			0	+	9	0	+	2		

Year 4

Subtract with up to 4-digit numbers

- 1) Partitioned column subtraction with 'exchanging' (decomposition):

As introduced in Y3, but moving towards more complex numbers and values. Use **place value counters** to reinforce 'exchanging'.

$$\begin{array}{r}
 2754 - 1562 = 1192 \\
 \\
 2000 + \overset{600}{\cancel{700}} + 50 + 4 \\
 - 1000 + 500 + 60 + 2 \\
 \hline
 1000 + 100 + 90 + 2
 \end{array}$$

Key Points:

- Subtracting money: partition into £1 + 30 + 5 for example.

- 1) Compact column subtraction

To introduce the compact method, ask children to perform a subtraction calculation using the familiar partitioned column subtraction method, then display the compact version for the calculation they have done. Ask pupils to consider how it relates to the method they know: what is similar and what is different?

$$\begin{array}{r}
 \overset{6}{2} \cancel{7} 5 4 \\
 - 1 5 6 2 \\
 \hline
 1 1 9 2
 \end{array}$$

Key Points:

- Always encourage children to consider the best method for the numbers involved—mental, counting on, counting back or written method
- Give plenty of opportunities to apply this to money and measures.

Year 5

Subtract with at least 4-digit numbers (*including money, measures and decimals*)

Compact column subtraction (with 'carrying')

Key Point:

- Children who are still not secure with number facts and place value will need to remain on the partitioned column method until ready for the compact method.

1) Subtracting with larger integers:

	2	1	0	5	6
-		2	1	2	8
	2	8	9	2	8

2) Subtract with decimal values, including mixtures of integers and decimals, aligning the decimal point:

	7	1	6	8	.	0
-		3	7	2	.	5
	6	7	9	6	.	5

Key Points:

- Add a 'zero' in any empty decimal places to aid understanding of what to subtract in that column.
- Create lots of opportunities for subtracting and finding differences with money and measures.

Year 6

Subtracting with increasingly large and more complex numbers and decimal values.

1) Using the compact column method to subtract more complex integers

$$\begin{array}{r}
 \cancel{9}^{\text{th}} \cancel{5}^{\text{th}} \cancel{10}^{\text{th}}, 699 \\
 - \quad 89,949 \\
 \hline
 60,750
 \end{array}$$

2) Using the compact column method to subtract money and measures, including decimals with different numbers of decimal places

$$\begin{array}{r}
 \cancel{9}^{\text{th}} \cancel{10}^{\text{th}} 15 \cdot \cancel{4}^{\text{th}} 119 \text{ kg} \\
 - \quad 36 \cdot 08 \text{ kg} \\
 \hline
 69 \cdot 339 \text{ kg}
 \end{array}$$

Key Points:

- Empty decimal places can be filled with **zero** to show the place value in each column.
- Pupils should be able to apply their knowledge of a range of mental strategies, mental recall skills, and informal and formal written methods when selecting **the most appropriate method** to work out subtraction problems.

Year 1

Multiply with concrete objects, arrays and pictorial representations.

- 1) Give children experience of counting equal group of objects in 2s, 5s and 10s.

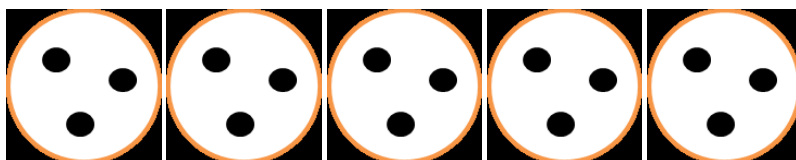
How many legs will 3 teddies have?



$$2 + 2 + 2 = 6$$

- 2) Present practical problem solving activities involving counting equal sets or groups, as above.

There are 3 sweets in one bag. How many sweets are in 5 bags altogether?



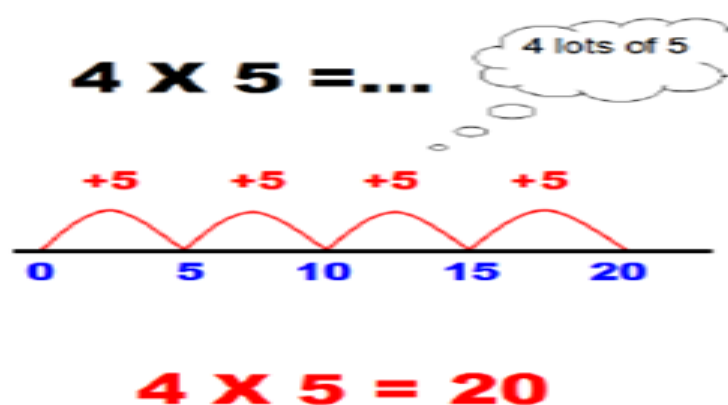
$$3+3+3+3+3 = 15$$

Year 2

Multiply using arrays and repeated addition (using at least 2s, 5s and 10s)

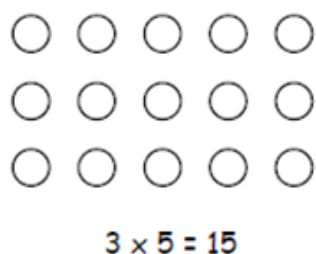
1) Use repeated addition on a number line:

Starting from zero, make equal jumps up on a number line to work out multiplication facts and write multiplication statements using x and = signs.



2) Use arrays:

Use arrays to help teach children to understand the commutative law of multiplication, and give examples such as $3 \times \underline{\quad} = 6$.



$$5 \times 3 = 15$$

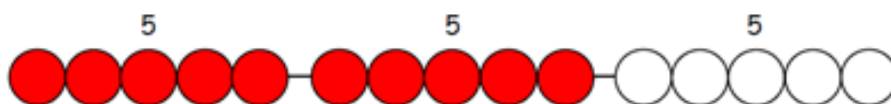


$$5 \times 3 = 3 + 3 + 3 + 3 = 15$$

$$3 \times 5 = 5 + 5 + 5 = 15$$

3) Use practical apparatus:

$$5 \times 3 = 5 + 5 + 5$$



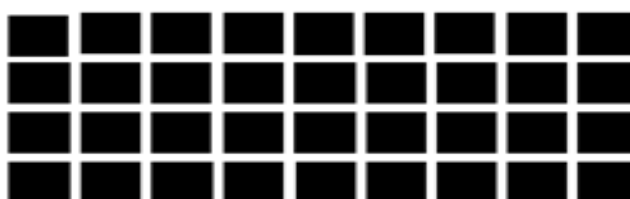
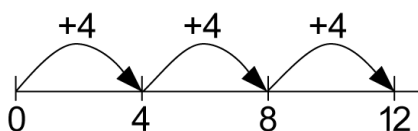
Year 3

Multiply 2-digits by a single digit number

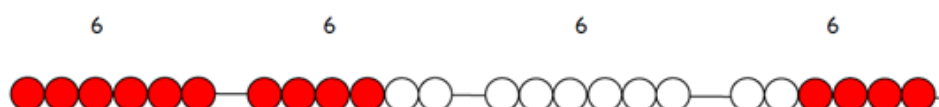
- Introduce the grid method for multiplying 2-digit by single-digits:

Before introducing the grid method, children need to be confident with:

- Partitioning 2-digit numbers into tens and ones
- Multiplying multiples of ten by a single digit (e.g. 20×4) using their knowledge of multiplication facts and place value
- Recalling and working out multiplication facts in the **2, 3, 4, 5, 8 and 10** times tables.
- Working out multiplication facts not known by repeated addition or other taught mental strategies (e.g. by commutative law, working out near multiples and adjusting, using doubling etc.) Strategies to support this are repeated addition using a number line, bead bars and arrays:



$$9 \times 4 = 36$$



Once the above is established:

Introduce the grid method (2 digit x 1 digit) with children physically making an array to represent the calculation (e.g. make 8 lots of 23 with 10s and 1s place value counters), then translate this to grid method format.

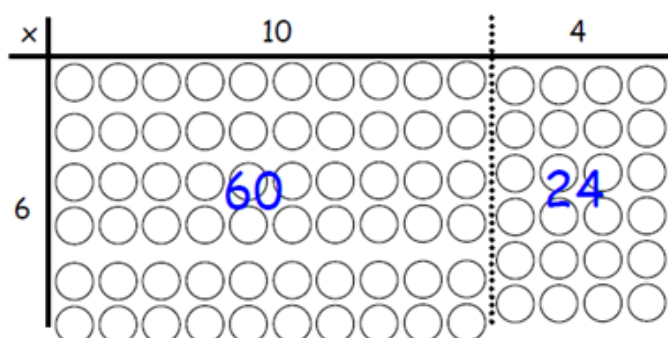
Eg. $23 \times 8 = 184$

X	20	3
8	160	24

$$160 + 24 = 184$$

Key Point:

Link the layout of the grid to an array initially:



Year 4**Multiply 2 and 3-digits by a single digit**Using all multiplication tables up to **12 x 12**

1) Developing the grid method:

Eg. $136 \times 5 = 680$

X	100	30	6
5	500	150	30

$$\begin{array}{r}
 500 \\
 150 \\
 + 30 \\
 \hline
 680
 \end{array}$$

Key Point:

- Encourage column addition to add accurately.

2) Move onto short multiplication if and when children are confident and accurate multiplying 2 and 3-digit numbers by a single digit using the grid method, and are already confident in 'carrying' for written addition.

	3	2	7
x			4
1	3	0	8
	1	2	

Children should be able to:

- **Approximate before they calculate**, and make this a regular part of their calculating, going back to the approximation to check the reasonableness of their answer:

$$346 \times 9 \text{ is approximately } 350 \times 10 = 3500$$

Children record an approximation to check the final answer against.

- Multiply multiples of ten and one hundred by a single-digit, using their multiplication table knowledge.
- Recall all times tables **up to 12 x 12**

Year 5**Multiply up to 4-digits by 1 or 2 digits.**

Introducing column multiplication

- Introduce by comparing a grid method calculation to a short multiplication method, to see how the steps are related, but notice how there are less steps involved in the column method.
- Children need to be aware of the importance of approximating answers and be confident in doing so:

E.g. For **72 x 38**, they will use rounding:
 $70 \times 40 = 2800$

Children use the approximation to check the reasonableness of their answer.

1) Short multiplication for multiplying by a single digit

x	300	20	7
4	1200	80	28



	3	2	7
x			4
	1	3	0
		1	2

2) Introduce long multiplication for multiplying by 2 digits

The grid is to be used alongside the formal long multiplication method seen below as the relationship can be seen in the answers in each row.

	10	8
10	100	80
3	30	24

	1	8
x	1	3
	5	4
1	8	0
2	3	4

Formal Written Method:

- 3 x 18 on the 1st row
 - $3 \times 8 = 24$, carrying the 2 for twenty, then 3×1 .
- 10 x 18 on the 2nd row.
 - Put a zero in ones first (as the multiplication is by the tens digit not the ones – chn should understand the concept of x by 10, 100, 1000 etc.), then complete as 1×8 , and 1×1 .

3) Moving towards more complex numbers:

	3	6	5	2
x				8
2	9	2	1	6
	5	4	,	

	1	2	3	4
x			1	6
	7	4	0	4
1	2	3	4	0
1	9	7	4	4

Year 6

Short and long multiplication, as in Y5, and multiply decimals with up to 2d.p by a single digit.

Short Multiplication:

$$\begin{array}{r} 3.19 \\ \times 8 \\ \hline 25.52 \\ \text{1} \quad \text{7} \end{array}$$

Key Points:

- Line up the decimal points in the question and the answer.
- Remind children that the single digit belongs in the ones column.

Long Multiplication:

$$\begin{array}{r} 18 \\ \times 13 \\ \hline 54 \\ 180 \\ \hline 234 \end{array}$$

$$\begin{array}{r} 1234 \\ \times 16 \\ \hline 7404 \\ 12340 \\ \hline 19744 \end{array}$$

Formal Written Method Long Multiplication:

- i) 3×18 on the 1st row
 - $3 \times 8 = 24$, carrying the 2 for twenty, then 3×1 .
- ii) 10×18 on the 2nd row.
 - Put a zero in ones first (as the multiplication is by the tens digit not the ones – chn should understand the concept of $\times$ by 10, 100, 1000 etc.), then complete as 1×8 ,

Children will be able to:

- Use rounding and place value to make approximations before calculating and use these to check answers against.
- Use **short multiplication** to multiply numbers with **more than 4-digits by a single digit**; to multiply money and measures, and to **multiply decimals with up to 2d.p. by a single digit**.
- Use **long multiplication** to multiply numbers with **at least 4 digits by a 2-digit number**.

Year 1

Group and share small quantities

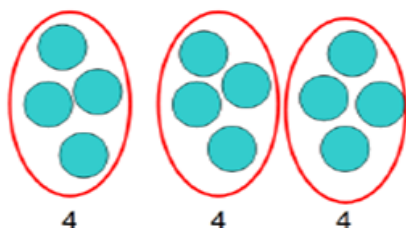
Use objects, diagrams and pictorial representations to **solve problems** involving **both grouping and sharing**.

How many groups of 4 can be made with 12 stars? = 3

Grouping:



Sharing:



12 shared between 3 is 4

Pupils should:

- Use lots of practical apparatus, arrays and picture representations
- Be taught to understand the difference between 'grouping' objects (How many groups of 2 can you make?) and 'sharing' (Share these sweets between 2 people).
- Be able to count in multiples of 2s, 5s and 10s.
- Find **half** of a group of objects by sharing into 2 equal groups.

Example division problem in a familiar context:

There are 6 pupils on this table and there are 18 pieces of fruit to share between us. If we share them equally, how many will we each get?

Can children work it out and give a division statement:

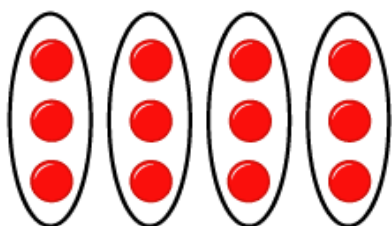
- 18 shared between 6 people gives you 3 each

Year 2

Group and share, using the $\div$ and $=$ sign

1) Use objects, arrays, diagrams and pictorial representations, and grouping on a number line.

- Arrays:



$$12 \div 3 = 4$$

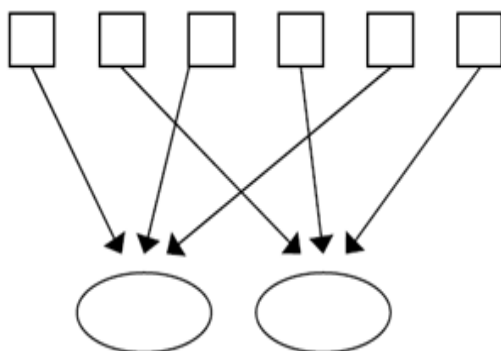
This represents $12 \div 3$, posed as how many groups of 3 are in 12?

Pupils should also show that the same array can represent $12 \div 4 = 3$ if grouped horizontally.

- Know and understand **sharing and grouping**:

Sharing

6 sweets shared between 2 people, how many do they each get?



*This is an important stage in teaching the difference between **grouping** and **sharing**.*

Grouping

There are 6 sweets, how many people can have 2 sweets each?



Children should be taught to recognise whether problems require sharing or grouping.

- **Grouping using a number line:**

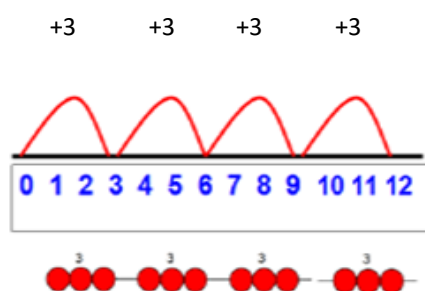
Group from zero in equal jumps of the divisor to find out:

E.g. 'How many groups of 3 in 12?'

Pupils could use a bead string or practical apparatus to work out problems like:

'A CD costs £3. How many CDs can I buy with £12?'

This is an important method to develop understanding of division as grouping.



Pose $12 \div 3$ as 'How many groups of 3 are in 12?'

$$12 \div 3 = 4$$

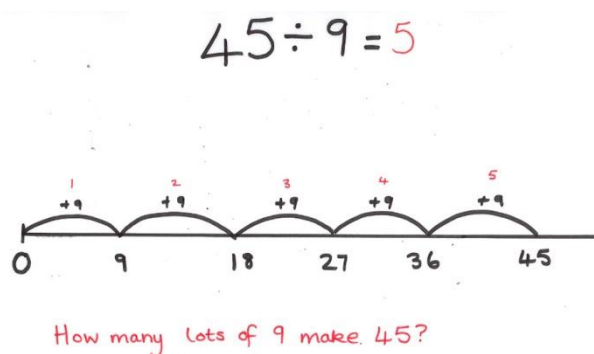
Year 3

Divide 2-digit numbers by a single digit

Real life contexts need to be used routinely to help pupils gain a full understanding when teaching the strategies below, and the ability to recognise the place of division and how to apply it to problems.

Step 1: Grouping on a number line:

Children continue to work out unknown division facts by grouping on a number line from zero.



Step 2: Short Division Formal Method

Once children are secure with division as grouping and demonstrate this using number lines, arrays etc. **short division** (for larger 2-digit numbers) should be introduced, initially with carefully selected examples: (i.e. digits must be a multiple of the divisor).

$$\begin{array}{r} 32 \\ 3 \overline{) 96} \end{array}$$

Remind children of correct place value, that 96 is equal to 90 and 6, but in short division, pose:

- How many 3's in 9? = 3, and record it above the **9 tens**.
- How many 3's in 6? = 2, and record it above the **6 units**.

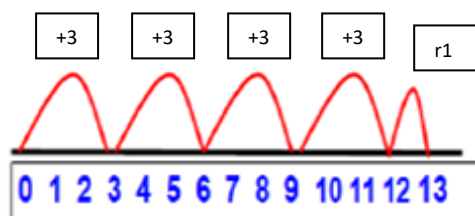
Year 4

Divide up to 3-digit numbers by a single digit including those with remainders

Children should be secure in their understanding of division as grouping and demonstrate using number lines.

Step 1: They are now taught the concept of **remainders**. This should be introduced practically and with arrays, as well as being translated to a number line (see below). Children should work towards calculating some basic division facts with remainders mentally for the 2s, 3s, 4s, 5s, 8s and 10s, ready for 'carrying' remainders across within the short division method.

$$13 \div 3 = \boxed{4r1}$$



Step 2: Pupils must be secure with the using the short division method for dividing 2-digit numbers by a single digit (without remainders) and demonstrate a full understanding of remainders (see Step 1 above) before using the short division method where remainders occur within the calculation (e.g. $96 \div 4$), and be taught to 'carry' the remainder onto the next digit.

If needed, children should use the number line to work out individual division facts that occur which they are not yet able to recall mentally.

Limit numbers to **NO** remainders in the final answer, but with remainders occurring within the calculation.

Points to consider:

- When the answer for the **first column** is zero ($1 \div 5$, as in example), children could initially write a zero above to acknowledge its place, and must always 'carry' the number (1) over to the next digit as a remainder.

A handwritten long division problem on a blue grid. The divisor is 5, written to the left of the dividend. The dividend is 185, written below the division bar. The quotient is 037, written above the division bar. The first column shows 1 divided by 5, resulting in 0, with a remainder of 1 carried over to the next column. The second column shows 18 divided by 5, resulting in 3, with a remainder of 3 carried over to the next column. The third column shows 35 divided by 5, resulting in 7, with no remainder.

$$\begin{array}{r} 037 \\ 5 \overline{) 185} \end{array}$$

- Real life contexts need to be used routinely to help pupils gain a full understanding, and the ability to recognise the place of division and how to apply it to problems.
- Include money and measure contexts when confident.

Year 5

Divide up to 4 digits by a single digit, including those with remainders.

1) Short division, including remainder answers:

Pupils are introduced to examples that give rise to remainder answers; division needs to have a real life problem solving context, where **pupils consider the meaning of the remainder and how to express it**, i.e. a fraction, a decimal, or as a rounded number or value, depending upon the context of the problem.

$$\begin{array}{r} 0663r5 \\ 8 \overline{)5309} \end{array}$$

Key Points:

- The answer to $5309 \div 8$ could be expressed as 663 and five eighths, $663 r 5$, as a decimal 663.625 or rounded as appropriate to the problem involved (663 or 664).
- Include money and measure contexts.

2) If children are confident and accurate, introduce **chunking** for pupils who are ready to divide any number by a 2-digit number (e.g. $9720 \div 36$):

- Find out how many 36s are in 9720 by subtracting 'chunks' of 36^* , until zero is reached (or until there is a remainder).
- Teach pupils to write a list of multiples of the divisor first at the side of the page.

$$\begin{array}{r} 0573r7 \\ 17 \overline{)9748} \\ \underline{-85} \\ 124 \\ \underline{-119} \\ 58 \\ \underline{-51} \\ 7 \end{array}$$

Key Points:

- Digits must be aligned in place value for subtracting.
- Where **remainders** occur, pupils should express them as fractions, decimals or use rounding, depending on context.

Year 6

Divide at least 4 digits by both single-digit and 2-digit numbers (including decimal numbers and quantities)

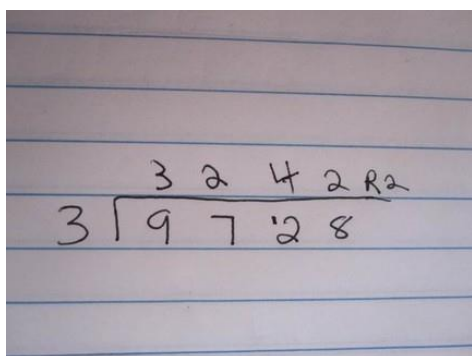
1) Short division, for dividing by a single digit:

For example:

a) $2548 \div 7$ (no remainder)

$$\begin{array}{r} 0364 \\ 7 \overline{) 2548} \end{array}$$

b) $9728 \div 3$ (with remainder)



$$\begin{array}{r} 3242R2 \\ 3 \overline{) 9728} \end{array}$$

Pupils should continue to use this method, but with numbers to at least 4 digits, and understand how to express remainders as fractions, decimals, whole number remainders, or rounded numbers.

Real life problem solving contexts need to be the starting point, where pupils have to consider the most appropriate way to express the remainder.

2) Consolidate long division method for dividing by 2-digit numbers.

In Year 5, children were introduced to dividing by 2-digit numbers through the 'chunking' method. Children should consolidate this in Y6 to ensure they are able to divide numbers with 3 digits+ by a 2-digit number.

$$\begin{array}{r}
 0 \ 5 \ 7 \ 3 \ r7 \\
 17 \overline{) 9 \ 7 \ 4 \ 8} \\
 \underline{- 8 \ 5} \\
 1 \ 2 \ 4 \\
 \underline{- 1 \ 1 \ 9} \\
 5 \ 8 \\
 \underline{- 5 \ 1} \\
 7
 \end{array}$$

$$\begin{array}{r}
 14 \\
 51 \overline{) 748} \\
 \underline{- 51} \\
 238 \\
 \underline{- 204} \\
 34
 \end{array}$$

An alternative to the above method, when dividing by a two-digit number, is for children to use 'short-division' method. This is also recognised as a formal written method.

$$547 \div 23 =$$

$$\begin{array}{r}
 2 \ 3 \ r18 \\
 23 \overline{) 5 \ 4 \ 7}
 \end{array}$$

$$547 \div 23 = 23 \text{ r}18$$

Policy Reviewed by: Miss M Fitton

Reviewed: November 2023

To be reviewed annually