St. Oswald's Catholic Primary School

Calculation Policy

2024-2025

Approved by:	Approval date	Renewal date
Standards Committee		

Nigel Mosaid, Jack Cummings and Anna Black Sept 24

This Calculation Policy is set within the context of the whole school aims and mission statement:

Together with Jesus,
We will Learn and Grow in Faith

St Oswald's Catholic Primary School

Policy Statement: Updated September 2024

This Calculation Policy has been developed to support the effective implementation of the 2014 Primary National Curriculum. It should be looked at in conjunction with the Maths Policy and the 'Progression in Bar Modelling' Policy.

At St. Oswald's Catholic Primary School, we implement the Mastery approach. At the centre of this approach is the belief that all children have the potential to succeed. Children should have access to the same curriculum content outlined in the National Curriculum programmes of study for their year group. The Mastery approach encourages depth before breadth, so that children become fluent in the fundamentals of mathematics and can apply their knowledge rapidly and accurately.

Purpose

This policy outlines the progression of calculation strategies from EYFS – Year 6, in line with the requirements of the 2014 Primary National Curriculum. It also supports teachers in identifying appropriate pictorial representations and concrete materials to help develop understanding.

The policy only details the calculation strategies; teachers must plan opportunities for pupils to apply these; for example when problem solving or when opportunities emerge elsewhere in the curriculum.

It is expected that children will be encouraged to build their fluency, problem solving and reasoning in all 4 operations by taking this approach:
Concrete– children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.
Pictorial – alongside this, children should use pictorial representations. These representations can then be used to help reason and solve problems.
Abstract – both concrete and pictorial representations should support children's understanding of abstract methods; using numbers and key concepts with confidence.

True understanding of a mathematical concept may require going back and forth between these representations and using them alongside one another.

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There is a clear focus on manipulatives and visual images to support understanding in every year group. Each new concept or calculation strategy is introduced using appropriate manipulatives. It is important that the children have access to a wide range of manipulatives in every year group, when and where applicable.

These include:

Addition	Subtraction	Multiplication	Division
100 square	100 square	Place value counters	Arrays
Number lines/tracks	Number lines/tracks	Dienes	Multiplication
Bead strings	Bead strings	Place value charts	squares
Straws	Straws	Arrays	100 square
Dienes	Dienes	Multiplication	Number lines
Place value cards	Counting stick	squares	Blank number lines
Place value dice	Place value dice	100 square	Counting stick
Place value counters	Place value cards	Number lines	Place value counters
Numicon	Place value counters	Blank number lines	Dienes
Multi-link cubes	Multi-link cubes	Counting stick	Numicon
Blank number lines	Blank number lines	Multi-link cubes	Counting Stick
Counting stick	Numicon	Numicon	Multi-link cubes
Cuisenaire rods	Cuisenaire rods	Counters	Counters
Ten frames	Ten frames	Cuisenaire rods	Cuisenaire rods
		Ten frames	Ten frames

Addition, Subtraction, Multiplication and Division

It is important that children's mental methods of calculation are practised on a regular basis and secured alongside their learning and use of written methods for all 4 operations.
The aim is that children use mental methods when appropriate, but for calculations that they cannot do in their heads they use a written method accurately and with confidence.
Children are taught and acquire secure mental methods of calculation and one written method of calculation for the 4 operations, which they know they can rely on when mental methods are not appropriate.

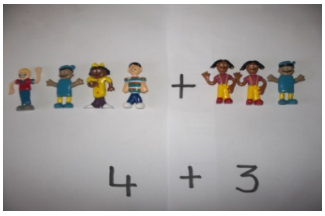
Addition

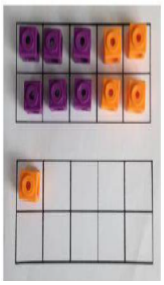
This policy shows the stages of each written method for addition, each stage building towards a more refined method.

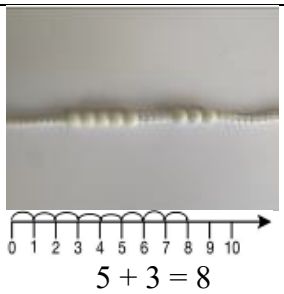
There are some key basic skills that children need to help with addition, which include:
• counting
• estimating
• recalling all addition **pairs** to 10, 20 and 100 (7 + 3 = 10, 17 + 3 = 20, 70 + 30 = 100)
• knowing number **facts** to 10 (6 + 2 = 8)
• adding mentally a series of one-digit numbers (5 + 8 + 4)
• adding multiples of 10 (60 + 70) or of 100 (600 + 700) using the related addition fact, 6 + 7, and their knowledge of place value
• partitioning two-digit and three-digit numbers into multiples of 100, 10 and 1 in different ways (432 into 400 + 30 + 2 and also into 300 + 120 + 12)
• understanding and using addition and subtraction as inverse operations

Using and applying is a key theme and one of the aims of National Curriculum and before children move onto the next stage in written calculation it is important that their skills are broadened through their use and application in a range of contexts, these include:
• using inverse
• missing box questions
• using units of measure including money and time
• word problems
• open ended investigations

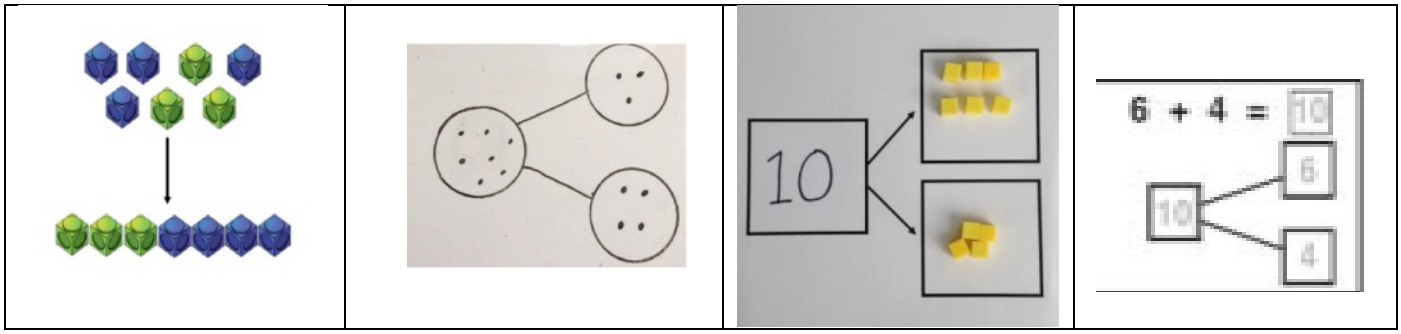
Stage 1 : Practical (combining) and adding on (increasing)
Prior to recording addition steps on a number line, children will work practically with equipment where they are **combining** sets of objects. As they become more confident, this practical addition of sets of objects will be mirrored on a number line so that the two are being done together and children are **adding on**. This will prepare them for the abstract concept of adding numbers rather than objects.



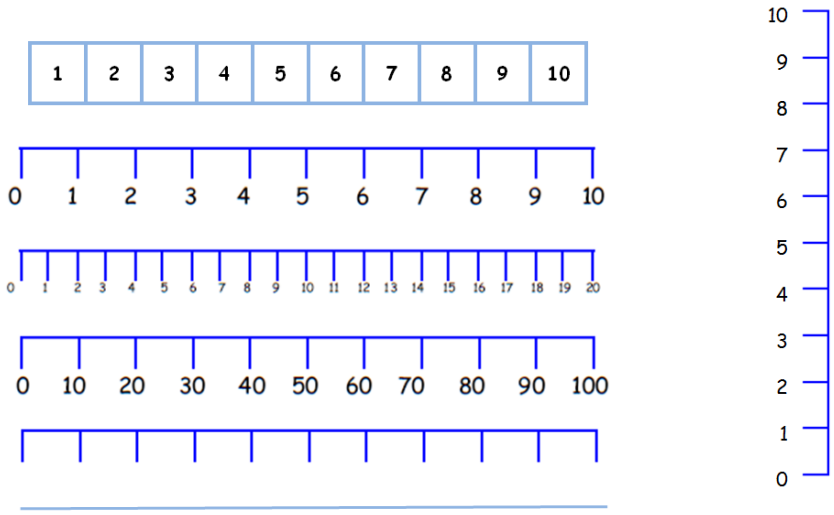




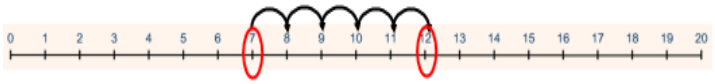
Part –part- whole
This model begins to develop the understanding of the commutativity of addition, as pupils become aware that the parts will make the whole in any order.



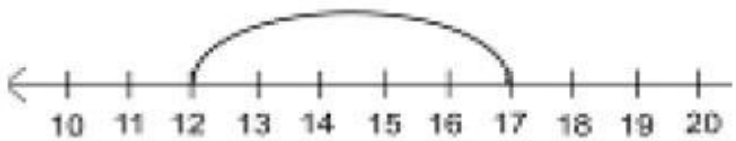
Stage 2 :Number Tracks and Number Lines



Steps in addition can be recorded on a number line.



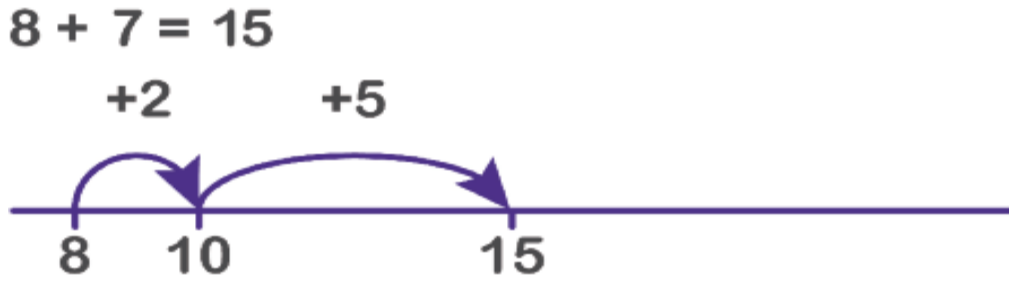
7 + 5 = 12



12 + 5 = 17

The steps often bridge through a multiple of 10 and, this is more efficient if children know how to partition 1-digit numbers.

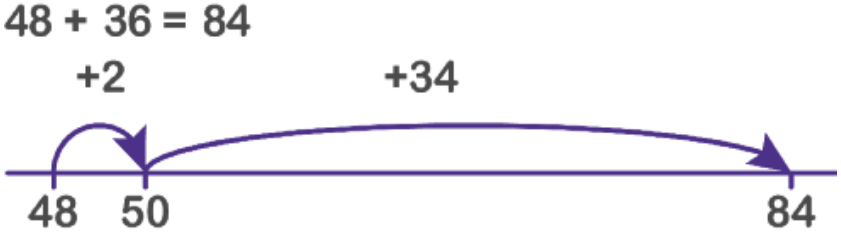
In this example, 7 has been partitioned into 2 and 5 which makes bridging through 10 more efficient.



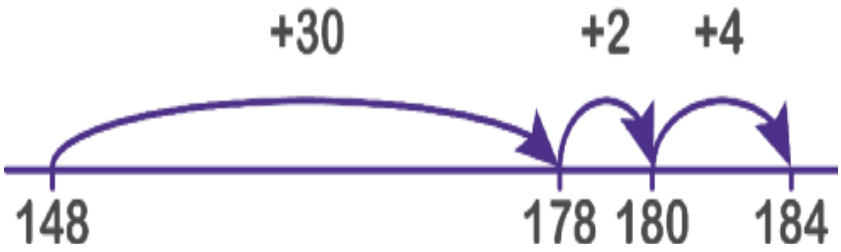
Stage 3 :Partitioning

Use partitioning to add at least two 2-digit numbers using concrete resources and/or a numbered number line and then progressing to an empty number line.

In these examples, the 6 in 36 has been partitioned into 2 and 4 which makes bridging through 10 more efficient



or



With practice, children will need to record fewer jumps.

Stage 4 : Expanded columnar method

Partition both numbers into tens and ones or hundreds, tens and ones (using a place value grid makes this easier). Use manipulatives alongside the calculation.
This builds on children's mental maths skills of partitioning and recombining.

8 + 6 = 14
40 + 30 = 70
48 + 36 = 84

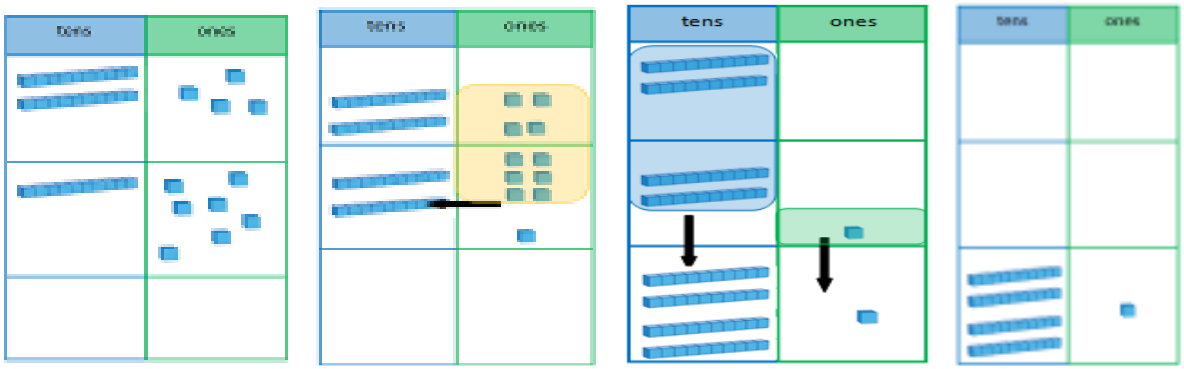
48 + 36 = 84

	40	8	
+	30	6	
	70	$^{1}4$	84

148 + 36 = 184

	100	40	8	
+		30	6	
	100	70	$^{1}4$	184

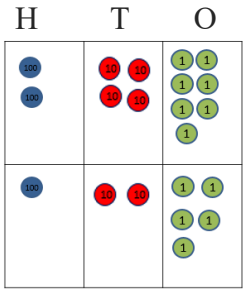
Leading to regrouping.



$$24 + 17 =$$

$$20 + 4$$
$$\underline{10 + 7}$$
$$30 + 11 = 41$$

Using more abstract manipulatives as concrete understanding develops.



200 + 40 + 7

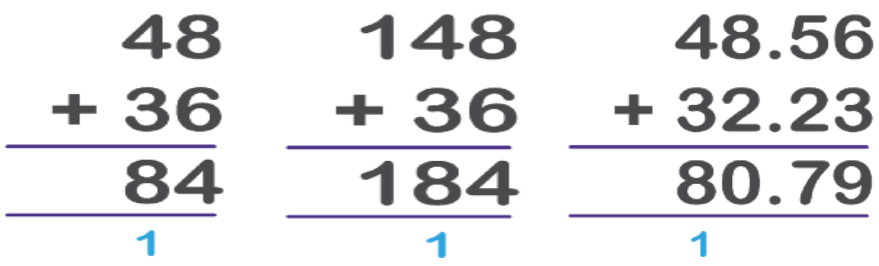
100 + 20 + 5

300 + 60 + 12 = 372

Leading to regrouping.

Stage 5 : Efficient (column method)

Children move on to the formal column algorithm, initially introduced alongside the expanded method. The formal method should be seen as a more streamlined version of the expanded method, not a new method. Children should be encouraged to estimate their answers first



Column addition remains efficient when used with larger whole numbers or decimals, and when adding more than two numbers. Once learned, the method is quick and reliable.

Subtraction

This policy shows the stages of each written method for subtraction, each stage building towards a more refined method.

There are some key basic skills that children need to help with subtraction, which include:

• counting
• estimating
• recalling all addition **pairs** to 10, 20 and 100 along with their inverses (7 + 3 = 10, 10 – 3 = 7, 17 + 3 = 20, 20 – 3 = 17, 70 + 30 = 100, 100 – 30 = 70)
• knowing number **facts** to 10 and their inverses (6 + 2 = 8, 8 - 2 = 6)
• subtracting multiples of 10 (160 - 70) using the related subtraction fact, 16 - 7, and their knowledge of place value
• partitioning two-digit and three-digit numbers into multiples of 100, 10 and 1 in different ways (432 into 400 + 30 + 2 and also into 300 + 120 + 12)
• understanding and using subtraction and addition as inverse operations

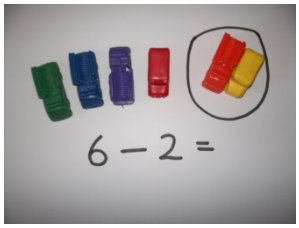
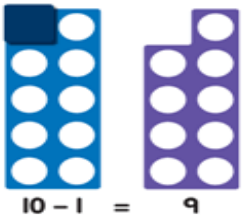
Using and applying is a key theme and one of the aims of National Curriculum and before children move onto the next stage in written calculation it is important that their skills are broadened through their use and application in a range of contexts, these include:

• using inverse
• missing box questions
• using units of measure including money and time
• word problems

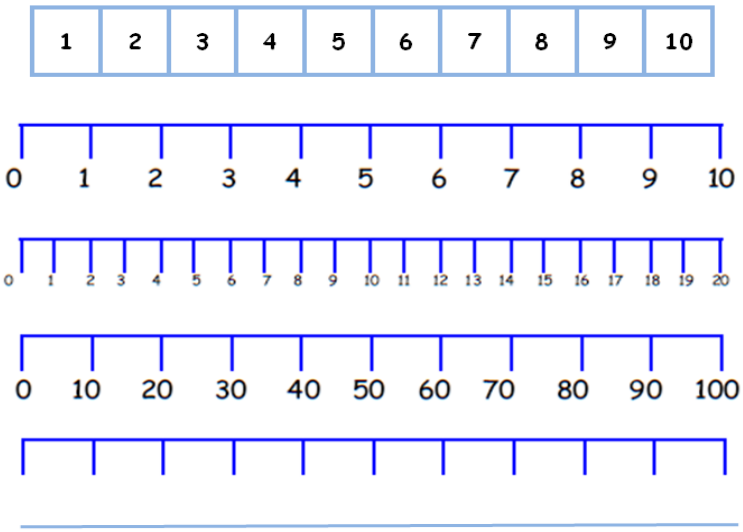
• open ended investigations

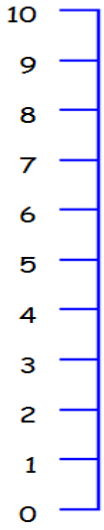
Stage 1 : Practical (taking away)

Prior to recording subtraction steps on a number line, children will work practically with equipment where they are 'taking away' a small group from a larger set of objects. As they become more confident, this practical subtraction will be mirrored on a number line so that the two are being done together. This will prepare them for the abstract concept of subtracting numbers rather than objects.

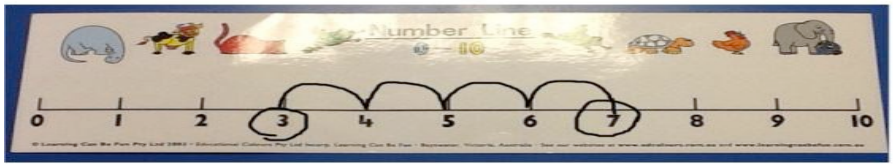
	 2 0 – 4 = 16		 16 – 2 = 14

Stage 2 :Number Tracks and Number Lines (Partitioning)



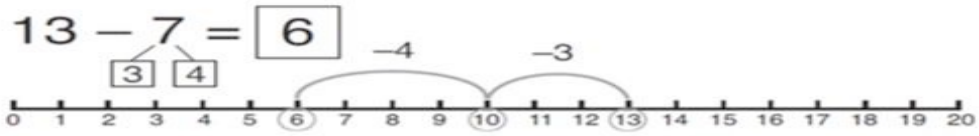


Counting back

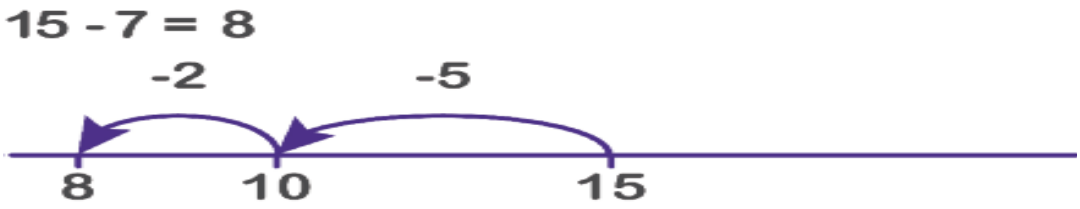


7 - 4 = 3

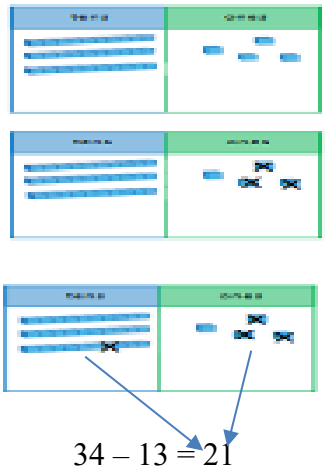
Steps in subtraction can be recorded from right to left on a number line. The steps often bridge through a multiple of 10 and, this is more efficient if children know how to partition 1-digit numbers.



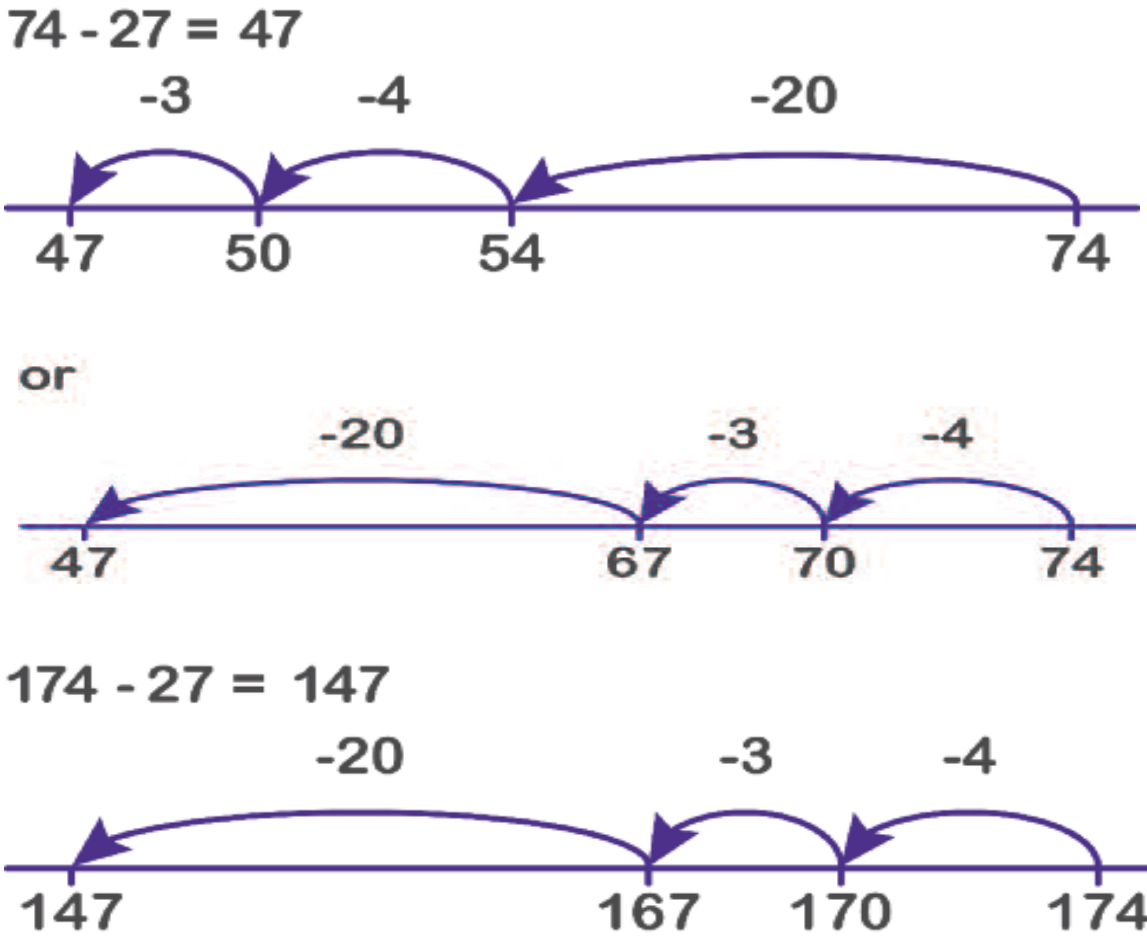
In this example on a blank number line, 7 has been partitioned into 2 and 5 which makes bridging through 10 more efficient



Use partitioning to subtract two 2-digit numbers using concrete resources and/or a numbered number line and then progressing to an empty number line.



In these examples, 27 has been partitioned into tens and ones then the 7 in 27 has been partitioned into 3 and 4 which makes bridging through 10 more efficient.

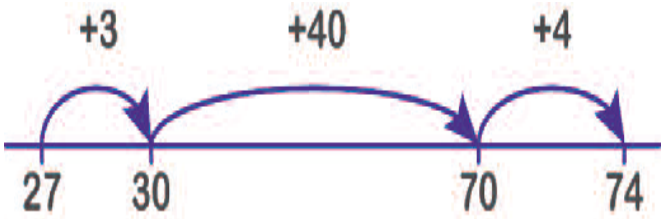


With practice, children will need to record fewer jumps.

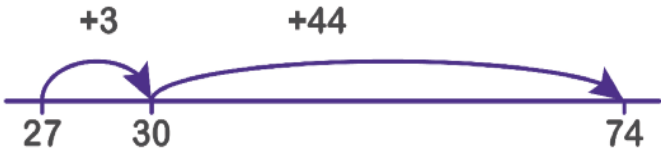
Find the difference (introduced after 'counting back'

This strategy should be used when the language used is 'find the difference', 'difference between' and 'distance between'.
Steps in subtraction can be recorded from left to right on a number line. The steps often bridge through a multiple of 10. When carrying out money calculations that involve finding change or when calculating time duration, children should use this method.

7 4 – 2 7 = 4 7



or

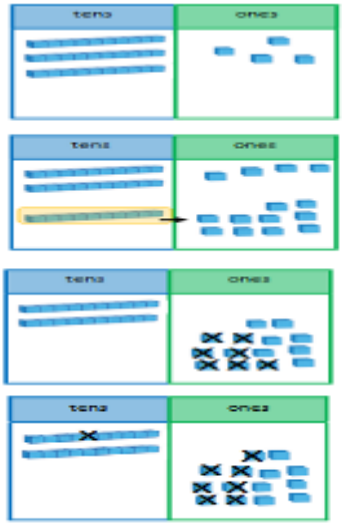


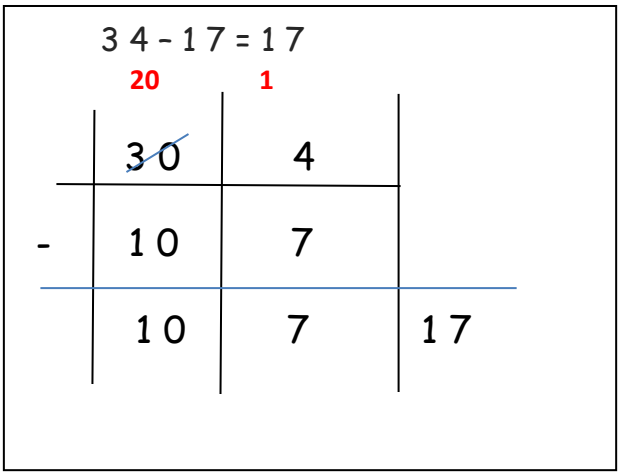
With practice, children will need to record fewer jumps.
They will decide whether to count back or forwards, seeing both as 'finding the difference'. It is useful to ask children whether counting up or back is the more efficient for calculations such as 57 – 12 or 86 – 77.

Stage 3 : Expanded columnar method

Partition both numbers into tens and ones or hundreds, tens and ones (using a place value grid makes this easier). Use manipulatives alongside the calculation.

3 4 – 1 7 = 1 7



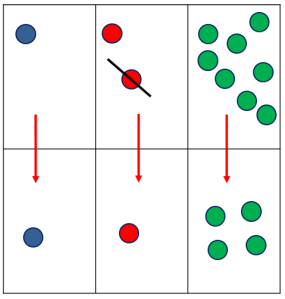


In this example, to subtract 7 ones from 4 ones, we need to regroup 10 ones for a ten. We now can subtract 7 ones from 14 ones.

	60	1	
	70	4	
-	20	7	
	40	7	47

	100	60	1	
		70	4	
		20	7	
	100	40	7	147

Using more abstract manipulatives as concrete understanding develops.



$$\begin{array}{rrrr} & {\scriptstyle 20} & & {\scriptstyle 1} \\ 200 & \cancel{30} & & 2 \\ -\,100 & 10 & & 4 \\ \hline 100 & 10 & & 8 \end{array}$$

Stage 4 Efficient (column method)

Children move on to the formal column algorithm, initially introduced alongside the expanded method. The formal method should be seen as a more streamlined version of the expanded method, not a new method. Children should be encouraged to estimate their answers first.

$\begin{array}{r} {\scriptstyle 6}\,{\scriptstyle 1} \\ \cancel{7}4 \\ -\,27 \\ \hline 47 \end{array}$	$\begin{array}{r} {\scriptstyle 6}\,{\scriptstyle 1} \\ 1\cancel{7}4 \\ -\,27 \\ \hline 147 \end{array}$	$\begin{array}{r} 48.56 \\ -\,32.23 \\ \hline 16.33 \end{array}$

Column subtraction remains efficient when used with larger whole numbers or decimals, once learned, the method is quick and reliable.

Multiplication

This policy shows the stages of each written method for multiplication, each stage building towards a more refined method.

There are some key basic skills that children need to help with multiplication, which include:

• counting
• estimating
• understanding multiplication as repeated addition
• recalling all multiplication facts to 12 × 12
• partitioning numbers into multiples of one hundred, ten and one
• working out products (70 × 5, 70 × 50, 700 × 5, 700 × 50, 0.5 x 7, 0.05 x 7) using the related fact 7 × 5 and their knowledge of place value
• adding two or more single-digit numbers mentally
• adding multiples of 10 (60 + 70) or of 100 (600 + 700) using the related addition fact, 6 + 7, and their knowledge of place value
• adding combinations of whole numbers
• understanding and using division and multiplication as inverse operations

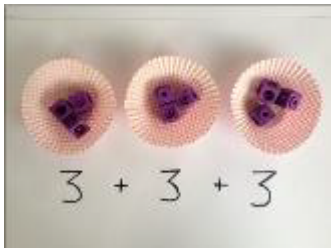
Using and applying is a key theme and one of the aims of National Curriculum and before children move onto the next stage in written calculation it is important that their skills are broadened through their use and application in a range of contexts, these include:

• using inverse
• missing box questions
• using units of measure including money and time
• word problems
• open ended investigations

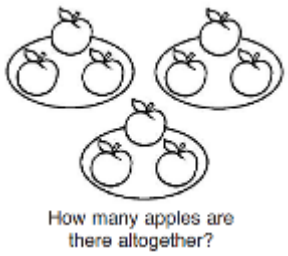
Stage 1 : Practical (repeated addition)

Children will work practically with equipment grouping objects to see multiplication as repeated addition.

As they become more confident, this practical grouping of objects will be mirrored on a number line using the vocabulary ‘lots of’, ‘groups of’, ‘how many lots’, ‘how many times’ so that the two are being done together. This will prepare them for the abstract concept of multiplying numbers rather than objects.

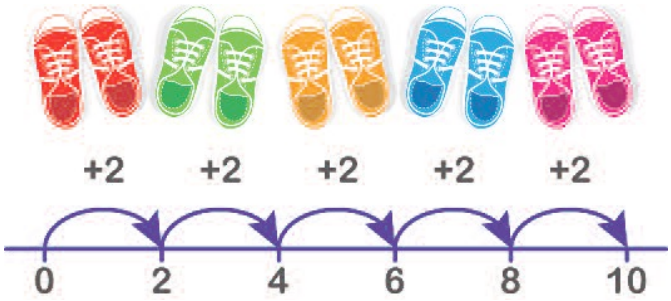


3 + 3 + 3 = 9

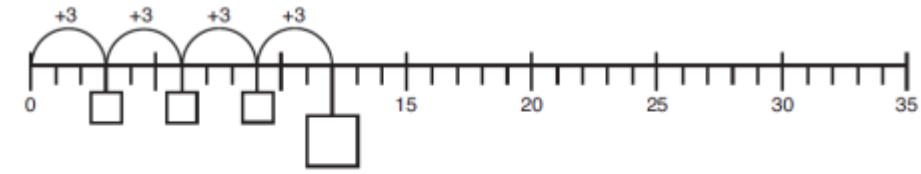


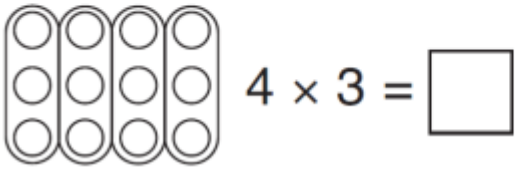
3 + 3 + 3 = 9

5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40



This image can be expressed as:
- 2 multiplied by 5
- two, five times
- 5 groups of 2
- 5 lots of 2
- 5 jumps of 2 on a number line

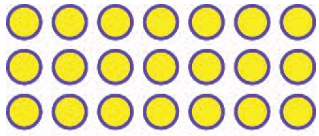




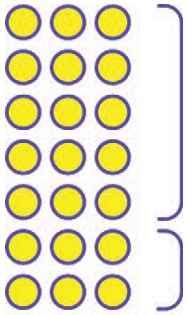
$4 \times 3 = \square$

Stage 2 : Practical and pictorial arrays(towards grid method)

Children use arrays to demonstrate their understanding of commutativity for multiplication facts. Children can use counters, cubes, pictures to show the arrays.



7 x 3 = 21

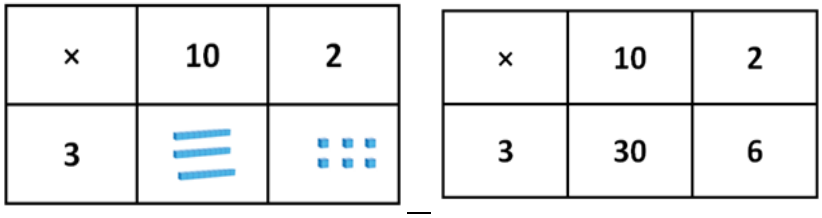


3 x 7 = 21

Children use their knowledge of known multiplication tables
This 3 x 7 array can also be seen as
3 x 5 add 3 x 2

Stage 3 : Partitioning (grid method)

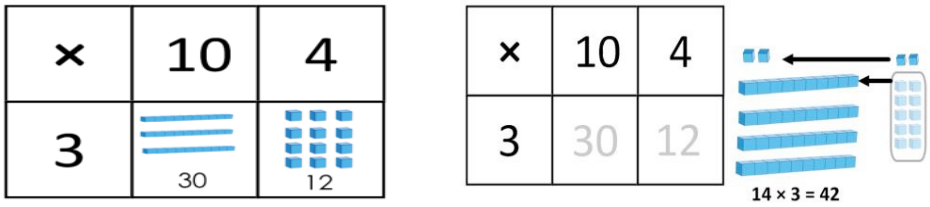
Children will use concrete resources to develop conceptual understanding of the compact method introduced in Year 4. These should be used alongside the grid method.



×	10	2
3		

×	10	2
3	30	6

3 x 12 = 36



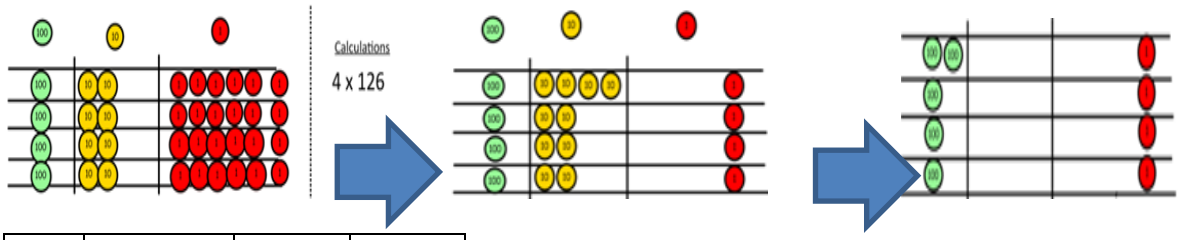
×	10	4
3	30	12

×	10	4
3	30	12

14 × 3 = 42

3 x 1 4 = 4 2

Using more abstract manipulatives as concrete understanding develops. Demonstrate the regrouping with the manipulatives. Use the grid method alongside.



x	100	20	6
4	400	80	24

126 X 4 = 5 0 4

Moving on to abstract.

24 x 3 = 72

x	20	4	
3	60	12	72

24 x 32 = 768

x	20	4	
30	600	120	720
2	40	8	48
			768

Stage 4 : Short (column method)

Use concrete resources if needed to demonstrate multiplying numbers by one digit using the compact short multiplication method.

24 x 3 = 72

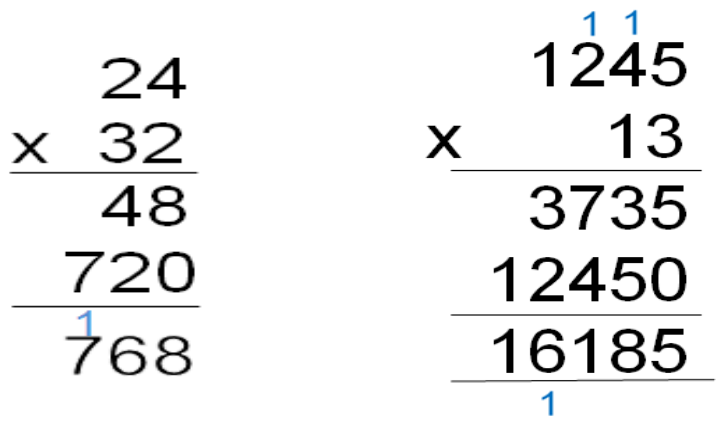
$$\begin{array}{r} 24 \\ \times\ 3 \\ \hline 72 \\ \hline {\scriptstyle 1} \end{array}$$

1241 x 3 = 3723

$$\begin{array}{r} 1241 \\ \times\ 3 \\ \hline 3723 \\ \hline {\scriptstyle 1} \end{array}$$

Stage 5 : Long (column method)

Reinforce the connection between the grid method to multiply numbers up to 4 digits by **two digit** using long multiplication.



In the examples given, it is also correct to multiply starting with the tens digit (ie multiplying by the most significant digit first), however as school policy, we will teach starting from the ones digit.

Division

This policy shows the stages of each written method for division, each stage building towards a more refined method.

There are some key basic skills that children need to help with division, which include:

• counting
• estimating
• understanding division as repeated subtraction
• partitioning two-digit and three-digit numbers into multiples of 100, 10 and 1 in different ways (432 into 400 + 30 + 2 and also into 300 + 120 + 12)
• recalling multiplication and division facts to 12 × 12
• recognising multiples of one-digit numbers and dividing multiples of 10 or 100 by a single-digit number using their knowledge of division facts and place value
• knowing how to find a remainder working mentally, for example, find the remainder when 48 is divided by 5
• understanding and using division and multiplication as inverse operations

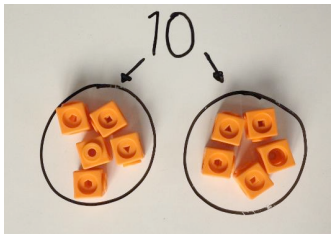
Using and applying is a key theme and one of the aims of National Curriculum and before children move onto the next stage in written calculation it is important that their skills are broadened through their use and application in a range of contexts, these include:

• using inverse
• missing box questions
• using units of measure including money and time
• word problems
• open ended investigations

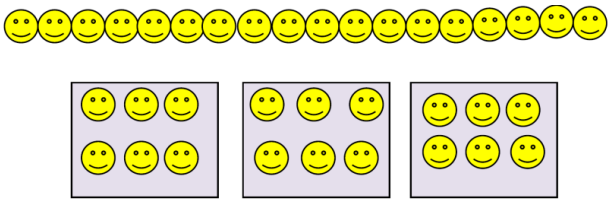
Stage 1 : Practical (sharing)

Children will work practically with equipment sharing objects one to one.

12 cakes are shared equally between 3 people.



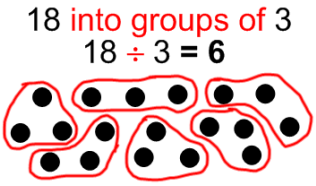
10 cubes between 2 people?

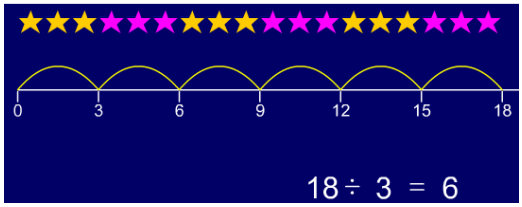


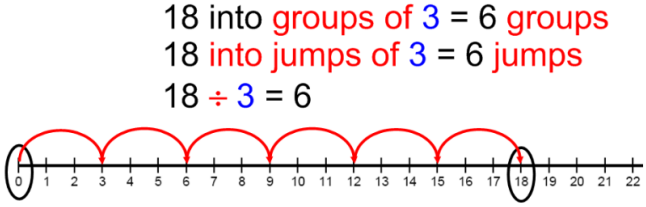
Can you share 18 smiley stickers between 3 people?

Stage 2 : Number Lines (grouping)

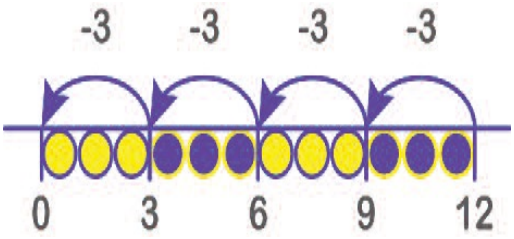
Children will move from sharing objects practically to grouping them, this will be mirrored on a number line, working from right to left so that they see division as repeated subtraction. This will prepare them for the abstract concept of dividing numbers rather than objects.





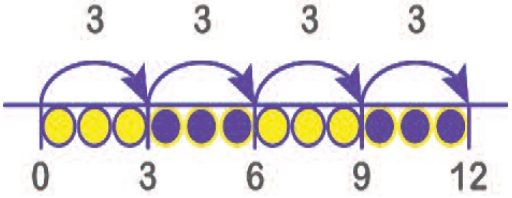


Each cake box holds 3 cakes, if I have 12 cakes, how many cake boxes will I need?



How many times can I subtract 3 from 12?

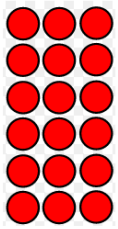
Using their knowledge of the inverse relationship between multiplication and division, children can use their multiplication tables when grouping on a number line, working from left to right.



How many groups of 3 are there in 12?

First without and then with remainders and ensuring that divisors offer an appropriate level of challenge.

Reinforce division through the use of arrays.



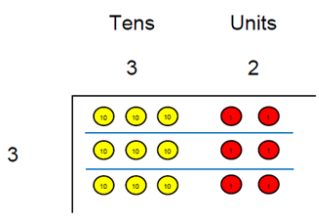
1 8 ÷ 3 = 6

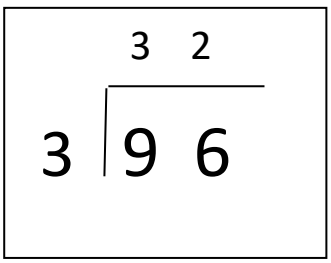
1 8 ÷ 6 = 3

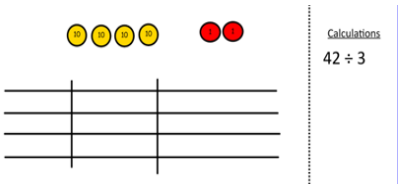
Stage 3 : Short Division

Use place value counters to divide using the bus stop method alongside.

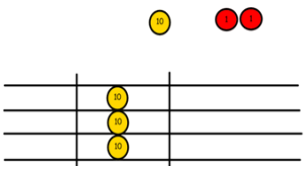
9 6 ÷ 3 = 3 2



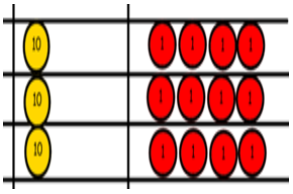




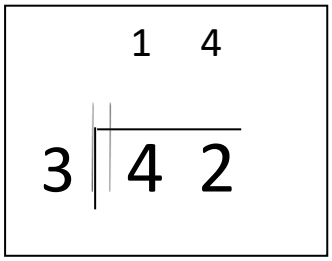
Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.



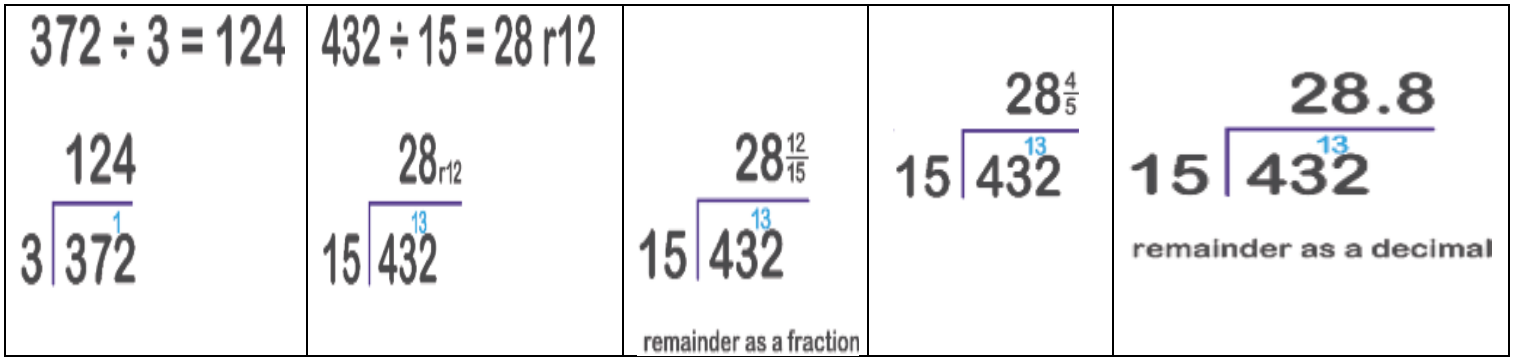
We regroup this ten for ten ones and then share the ones equally among the groups.



We look how much is in 1 group, it is 14.



Begin with divisions that divide equally with no remainder.
Move onto divisions with a remainder.
Move on to representing the remainder as a fraction, then a decimal.



Stage 4 : Long Division

$$432 \div 15 = 28\ r12$$

$$\begin{array}{r} 28_{r12} \\ 15\overline{)432} \\ 300 \quad 15\times20 \\ \hline 132 \\ 120 \quad 15\times8 \\ \hline 12 \end{array}$$

Fraction remainder – 12/15 = 4/5
Decimal remainder – 12 ÷ 15 = 0.8

$$\begin{array}{r} 28.8 \\ 15\overline{)432.0} \\ 30\downarrow \\ \hline 132 \\ 120 \\ \hline 12\,0 \\ 12\,0 \\ \hline 0 \end{array}$$

$$\begin{array}{r} 28\frac{4}{5} \\ 15\overline{)432} \\ 30\downarrow \\ \hline 132 \\ 120 \\ \hline 12 \\ 12 \end{array}$$

$(12 \div 15 = 0.8)$ $(0.8 = \frac{4}{5})$

remainder as a decimal remainder as a fraction

Children write the multiples of the divisor.		
15	75	135
30	90	
45	105	
60	120	

$$432 \div 15 =$$

$$\begin{array}{r} 28\ r\ 12 \\ 15\overline{)432} \\ 13 \end{array}$$

Fraction remainder – 12/15 = 4/5
Decimal remainder – 12 ÷ 15 = 0.8

Children write the multiples of the divisor.		
15	75	135
30	90	
45	105	
60	120	

The Calculation Sequence – Applying the Skills

The Sequence	Prompts	Planning
Provide an estimate for the calculation	Using knowledge of number and the number system, rounding and approximating, make a reasonable estimate.	
Teach the calculation skill	What is the objective you are teaching? Include example questions, increasing in complexity, for both operations.	
Ensure you have taught the inverse	Plan example questions, increasing in complexity. Ensure methods used are in line with school calculation policy. Check that children understand that inverse can also be used to check calculations	
Devise similar calculations but include units	Which units do you need to include? Check the measures applicable to your year group for length, weight, capacity, money and time.	
Complete missing box questions	Include units in these questions as above. The box may cover single digits or an entire number. Vary the position of the missing box within the calculation.	
Complete word problems, 1 and 2 step, including units	Write problems, ensuring the numbers are sized correctly in line with the objective and that units are also used.	
Provide opportunities for open ended investigations	Plan example questions and investigations. Ensure children are working with the correct operations, appropriate size of numbers and use of units for context.	

Progression across the year groups: Addition

	Typical Calculations	Suitable Methods
Reception	O + O (no bridging) (then bridging 10) TO + O	Aggregation (Counting back) Augmentation (count on) Practical Number line
Y1	O+O TO + O (to 20 including zero)	Practical Number line
Y2	TO + O TO + multiples of 10 TO + TO O + O + O	Practical Number Line Partitioning on a number line Expanded columnar
Y3	HTO + O HTO + TO HTO + HTO	Number line Expanded columnar Column
Y4	THTO + HTO THTO + THTO	Expanded columnar Column
Y5	THTO.t + THTO.t THTO.th + THTO.th Add whole numbers with more than 4 digits	Expanded columnar Column
Y6	THTO.thth + THTO.thth Add whole numbers with more than 4 digits	Column

Progression across the year groups: Subtraction

	Typical Calculations	Suitable Methods
Reception	1.O – O 2.TO - O	1.no bridging 10 2. no bridging 3. bridging 10 **Practical** (counting out, counting back from, count back to (counts the fingers) **Number line**
Y1	O-O TO - O (to 20 including zero)	Practical Number line
Y2	TO - O TO - multiples of 10 TO - TO O - O - O	Practical Number line Expanded columnar
Y3	HTO - O HTO - TO HTO - HTO	Number line Expanded columnar Column
Y4	THTO - HTO THTO - THTO	Expanded columnar Column
Y5	THTO.t - THTO.t THTO.th - THTO.th Subtract whole numbers with more than 4 digits	Expanded columnar Column
Y6	THTO.tht - THTO.tht Subtract whole numbers with more than 4 digits	Column

Progression across the year groups: Multiplication

	Typical Calculations	Suitable Methods
Reception	Doubling as repeated addition	Practical (repeated addition)
Y1	O x O	Practical (repeated addition) Grouping on a number line (arrays)
Y2	O x O	Practical (repeated addition) Practical and pictorial arrays Grouping on a number line
Y3	TO x O	Grouping on a number line progressing into Expanded (grid) and into Short
Y4	TO x O HTO x O	Expanded (grid) progressing into Short
Y5	HTO x O THTO x O TO x TO HTO X TO	Expanded (grid) progressing into Short Expanded (grid) progressing into Long
Y6	THTO x O TO x TO HTO x TO THTO x TO O.t x O O.th x O O.t x TO O.th x TO	Short Expanded (grid) progressing into Long Long Expanded (grid) progressing into Short Expanded (grid) progressing into Long

Progression across the year groups : Division

	Typical Calculations	Suitable Methods
Reception	Talk about halving Sharing into equal groups	Practical sharing into equal groups
Y1	O ÷ O TO ÷ O	Practical sharing Number line grouping
Y2	O ÷ O TO ÷ O	Practical sharing Number line grouping
Y3	TO ÷ O	Grouping on a number line progressing into Short
Y4	TO ÷ O HTO ÷ O	Grouping on a number line progressing into Short Short (remainders to be expressed as r)
Y5	HTO ÷ O THTO ÷ O	Short (remainders to be expressed as r, then as a fraction and as a decimal)
Y6	THTO ÷ O HTO ÷ TO THTO ÷ TO O.th ÷ O TO.th ÷ O HTO.th ÷ O THTO.th ÷ O	Short (remainders to be expressed as r, then as a fraction and as a decimal) Long (remainders to be expressed as r, then as a fraction and as a decimal) Short (remainders to be expressed as a decimal)

Addition

Reception	Count reliably with numbers from 1 to 20, place them in order. Say which number is one more than a given number. Using quantities and objects, they add two single-digit numbers and count on to find the answer.
Year 1	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Given a number, identify one more. Read, write and interpret mathematical statements involving addition (+), and equals (=) signs Represent and use number bonds and related subtraction facts within 20 Add one-digit and two-digit numbers to 20, including zero. Solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems.
Year 2	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts to 100. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Add numbers using concrete objects, pictorial representations, and mentally, including: •a two-digit number and ones •a two-digit number and tens •two two-digit numbers •adding three one-digit numbers. Solve problems with addition including those involving numbers, quantities and measures.
Year 3	Find 10 or 100 more than a given number. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Add nubers with up to three digits, using formal written methods of columnar addition.
Year 4	Find 1000 more than a given number. Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate. Solve addition two-step problems in contexts, deciding which operations and methods to use and why,
Year 5	Add whole numbers with more than 4 digits using formal written methods of columnar addition. Add numbers mentally, with increasingly large numbers. Solve addition multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems involving numbers up to three decimal places Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Year 6	Solve more complex addition problems Perform mental calculations, including with mixed operations and large numbers Solve addition multi step problems in contexts, deciding which operations to use and why solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

Subtraction

Reception	Say which number is one less than a given number. Using quantities and objects, they subtract two single-digit numbers and count back to find the answer.
Year 1	Say which number is one less than a given number. Represent and use number bonds and related subtraction facts within 20. Read, write and interpret mathematical statements involving subtraction (-) and equals (=) signs. Subtract one-digit and two-digit numbers to 20, including zero. Solve one-step problems that involve subtraction using concrete objects and pictorial representations, and missing number problems.
Year 2	Recall and use subtraction facts to 20 fluently, and derive and use related facts to 100. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. Subtract numbers using concrete objects, pictorial representations, and mentally, including: •a two-digit number and ones •a two-digit number and tens •two two-digit numbers •adding three one-digit numbers.
Year 3	Find 10 or 100 less than a given number. Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). Subtract numbers with up to three digits, using formal written methods of column subtraction. Subtract numbers mentally, including: •A three-digit number and ones •A three-digit number and tens •A three-digit number and hundreds.
Year 4	Find 1000 less than a given number. Subtract numbers with up to four digits, using formal written methods of columnar subtraction where appropriate. Solve subtraction two-step problems in contexts, deciding which operations and methods to use and why.
Year 5	Subtract whole numbers with more than 4 digits using formal written methods of columnar subtraction. Subtract numbers mentally, with increasingly large numbers. Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems involving numbers up to three decimal places. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Year 6	Solve more complex subtraction problems Perform mental calculations, including with mixed operations and large numbers

	Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate

Multiplication

Reception	They solve problems, including doubling, halving and sharing.
Year 1	Count in multiples of twos, fives and tens Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. Solve problems, including missing number problems, involving multiplication including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
Year 4	Recall multiplication and division facts for multiplication tables up to 12 ×12 multiplying by 0 and 1; multiplying together three numbers Use place value, known and derived facts to multiply and divide mentally, including: multiply two-digit and three-digit numbers by a one-digit number using formal written layout. Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.
Year 5	Multiply numbers up to 4 digits by a one-or two-digit number using a formal written method, including long multiplication for two-digit numbers. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Multiply numbers mentally drawing upon known facts Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Solve problems Involving multiplication and division, including scaling by simple fractions and problems involving simple ratio

	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Year 6	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. Multiply one-digit numbers with up to two decimal places by whole numbers. Perform mental calculations, including with mixed operations and large numbers Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

Division

Reception	Solve problems, including halving and sharing.
Year 1	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.
Year 2	Recall and use division facts for 2, 5 and 10 multiplication tables. Calculate mathematical statements for multiplication and division within the multiplication tables and write then using the multiplication (x), division ( ) and equals (=) signs. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. Find 1/3; 1/4; 2/4; ¾ of a length, shape, set of objects or quantity
Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Write and calculate mathematical statements for division using the multiplication tables that they know, using mental and progressing to formal written methods Solve problems, including missing number problems, involving division including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
Year 4	Recall multiplication and division facts for multiplication tables up to 12 ×12 Use place value, known and derived facts to multiply and divide mentally, including: Dividing by 1 Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths Divide two-digit and three-digit numbers by a one-digit number using formal written layout Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
Year 5	Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context. Divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes Solve problems involving addition, subtraction, multiplication and division and a

	combination of these, including understanding the meaning of the equals sign Solve problems Involving multiplication and division, including scaling by simple fractions and problems involving simple ratio
Year 6	Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Perform mental calculations, including with mixed operations and large numbers Use written division methods in cases where the answer has up to two decimal places Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

Role of the Subject leader

The role of the maths subject leader is to:

•Take the lead in policy development and the production of schemes of work designed to ensure progression and continuity in calculation throughout the school.

•Support colleagues in the development of planning and assessment.

•Monitor progress in maths and advise the head teacher on action needed.

•Conduct work sampling, pupil voice, teacher feedback forms and moderation, regularly focusing on the different aspects of teaching and learning.

•Take responsibility for the purchase and organisation of central resources for calculation.

•Keep up to date with developments in maths education through attending courses and reviewing relevant information/ data and disseminating information to colleagues as appropriate.

Review

This policy will be reviewed and updated biannually. Last Review Sept 2024