Binbrook C of E Primary School

Mathematics Calculation Policy

November 2025

At Binbrook Primary School, we believe that children should be introduced to the process of calculation through a wide variety of practical, pictorial, oral and mental activities. As children begin to understand the underlying ideas, they will develop ways of recording to support their thinking and calculation methods.

Choosing the appropriate strategy and recoding in mathematics is an important tool both for furthering the understanding of ideas and for communicating those ideas to others. A useful written method is one that helps children carry out a calculation and can be understood by others.

Written methods are complementary to mental methods and should not be seen as separate from them. The aim is that children use mental methods when appropriate, but for calculations they cannot do in their heads, they use an efficient written method which they know they can rely on when mental methods are not appropriate.

By the end of Year 6, children should be able to choose an efficient method: mental, written or calculator, which is appropriate to a given task. This policy contains the key pencil and paper procedures that will be taught within our school alongside practical and pictorial resources. It has been written to ensure consistency and progression throughout the school and reflects a whole school agreement.

As a whole school, we are using the White Rose Mastery documents to support our lesson planning where we focus on developing fluency, reasoning and problem solving in mathematics. We teach a whole unit at a time to develop deep understanding, giving opportunities for all pupils to master each area of the mathematics curriculum, appropriate for their age. We give pupils the opportunity to use and apply their mathematics in a variety of contexts and across the curriculum.

When is New Vocabulary Introduced?

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	Counting, add, and, make, total, altogether, double, one more, two more, ten more…, how many more to make… ?, how many more is… than…?	Add sign, number bonds, number line more, plus, sum of, near double equals, is the same as (including equals sign)	Tens and ones, inverse, column addition	Hundreds, tenths,	Thousands, hundredths	Ten thousand, one hundred thousand, one million, Thousandths, efficient written method	10 million, order of operations
Subtraction	Take (away), leave, how many are left/left over?, how many have gone?, one less, two less… ten less…,how many fewer is… than…?, difference between, is the same as.	Difference between, Subtract, take away, minus How many fewer is…than...?, how much less is...?		Column subtraction			
Multiplication	Group, lots of, double, Count in 2's	Odd, even count in threes, (forwards from/backwards from) How many times? Lots of, groups of. Count in 5's, count in 10's, Once, twice, three times, five times multiple of, times, multiply, multiply by repeated addition array, row, column		Column multiplication, product multiples of four, eight, fifty and one hundred, scale up		Factor pairs, Composite numbers, prime number, prime factors, square number, cubed numbers	Common factors, common multiples
Division	Half, halve Share, share equally group in pairs, threes, etc.	Equal groups of divide, divided by, left, left over	Repeated subtraction	Remainder, short division			

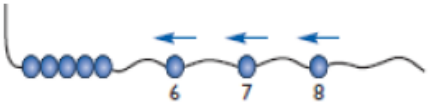
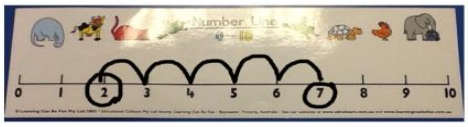
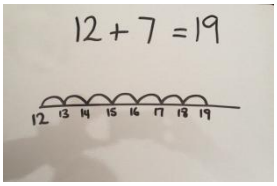
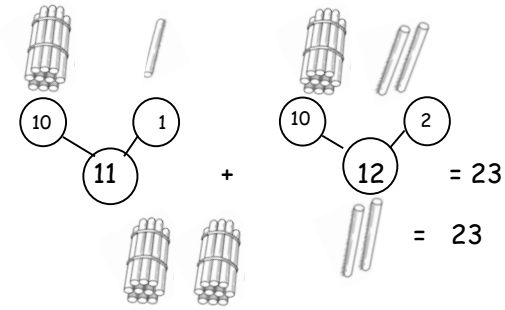
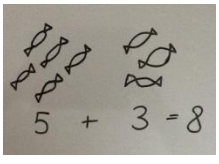
EYFS - Addition

Method	Example/representation
Using a range of practical resources and real life contexts, pupils develop their understanding of the concept of addition through counting activities	How many dinosaurs are there?  What about if I give you two more? How many are there now? 
Children are introduced to the addition symbol (+) and use pictures/diagrams to represent the calculation	There are 2 birds. Another bird flies in. How many are there altogether? 
Store the larger number mentally and use fingers to count on	Count on from the larger number. A child will choose the larger number, even when it is not the first and count on from there; (5 in your head) 'six, seven, eight' using their fingers: 3 + 5 = 8 
Children represent an addition number sentence in picture form and are able to solve simple addition number sentences using objects or fingers. Children will begin to explain their reasoning	  5 + 2 = 7
Children will be introduced to number tracks. This will help children develop their understanding of addition	

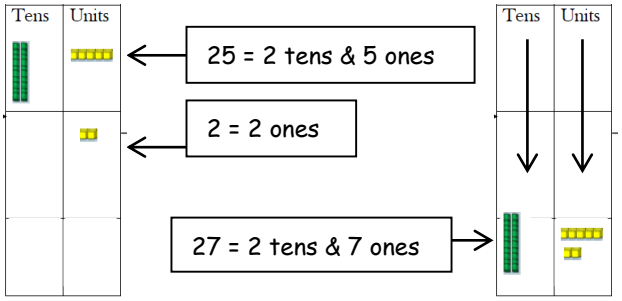
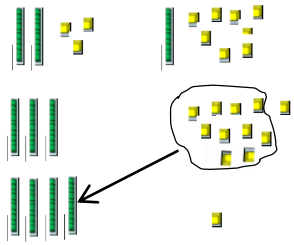
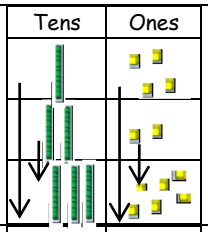
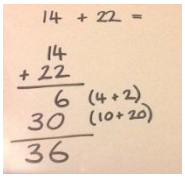
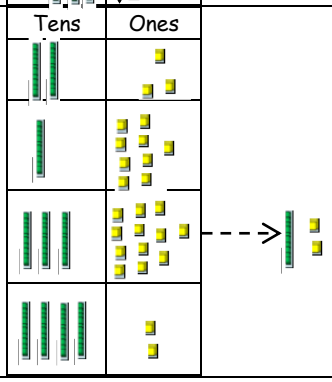
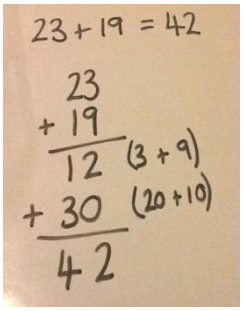
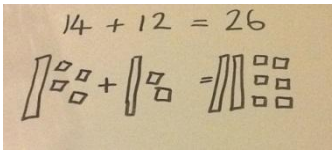
MENTAL STRATEGIES:

- Develop a mental image of the number system.
- Understand the value of a number
- Counting forwards and backwards
- Recall of number bonds to 10

Year 1 - Addition

Method	Example/representation
Children will be taught to use a number track to support addition	4 + 2 = 6 
Bead strings and counting sticks will be used to support addition	5 + 3 = 8 
Children will use a prepared number line to solve simple addition stories and number sentences	2 + 5 = 7 
Children will be taught how to solve simple addition stories with the support of a 100 number square.	11 + 7 = 18 
Children are taught how to use a blank number line for addition and then encouraged to draw their own number line to help solve problems	12 + 7 = 19 
Children will partition numbers into tens and ones when adding two 2-digit numbers that lie within the tens boundary	
Children will solve one-step addition problems using concrete objects and/or pictorial representations	I have 5 sweets and I am given 3 more. How many do I have altogether? 
MENTAL STRATEGIES: – Know addition can be carried out in any order (commutative) – Add 1 and 2 digit numbers to 20 including 0 – Number bonds to 20 – Doubles of numbers up to and including double 10 – Adding 10 to a single digit number – Identify 1 more than a given number	

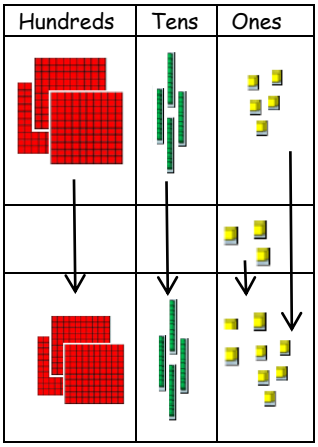
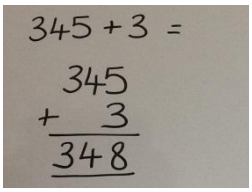
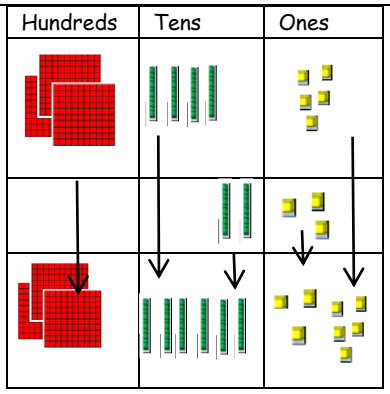
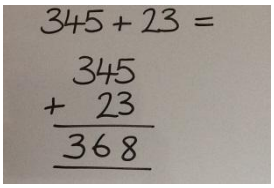
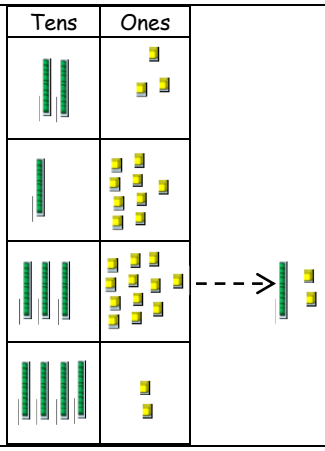
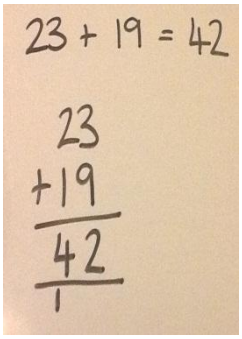
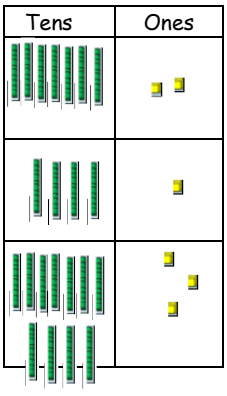
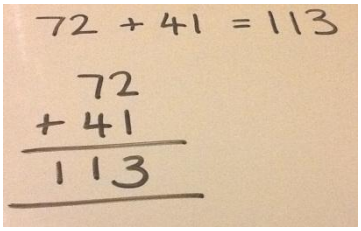
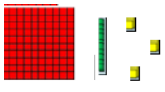
Year 2 - Addition

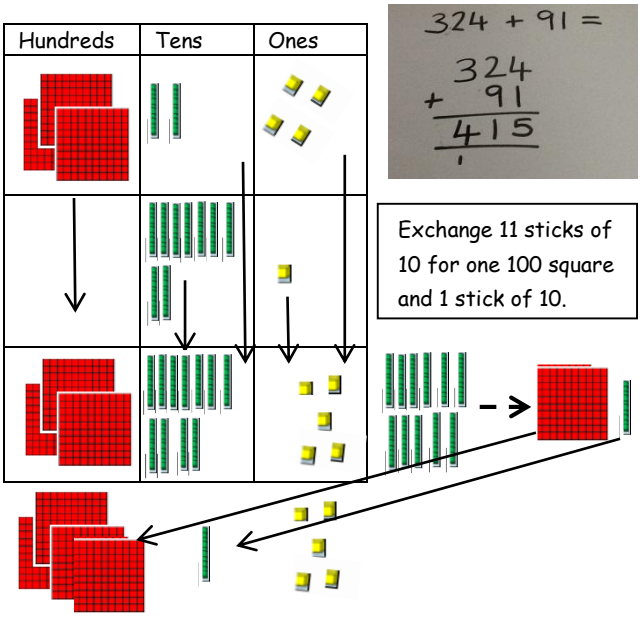
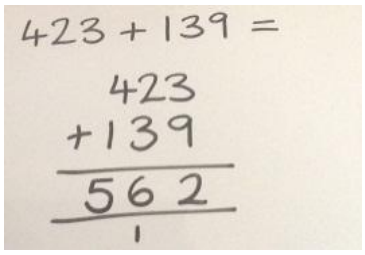
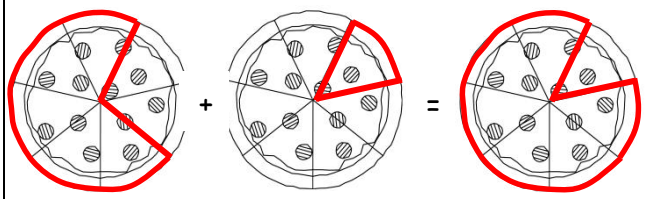
Method	Example/Representation
Children will use concrete objects and pictorial representations to add: a 2-digit number and ones, three 1-digit numbers and a 2-digit number and multiples of 10	25 + 2 
Children will partition numbers into tens and ones when adding two 2-digit numbers that cross the tens boundary	23 + 18 = 41 
Children begin to set out TU + TU (that lie within the tens boundary) in columns and record as expanded column addition	 
Children begin to set out TU + TU (that cross the tens boundary) in columns and record as expanded column addition	 
Children will solve simple addition problems using concrete objects and pictorial representations, including those involving number, quantities and measures	George has 14 strawberries and Jess has 12 strawberries. How many strawberries are there altogether? 

MENTAL STRATEGIES:

- Know that addition is the inverse of subtraction
- Add numbers mentally, including; a 2-digit number and ones, a multiple of 10 to a 2-digit number, two 2-digit numbers and three 1-digit numbers
- Use knowledge of inverse to check calculations and solve missing number problems
- Use knowledge of number bonds to 10 to calculate numbers bonds to 100
- Count on in tens from any given number
- To develop mental understanding and visualisation of place value, use number lines with Dienes apparatus.

Year 3 - Addition

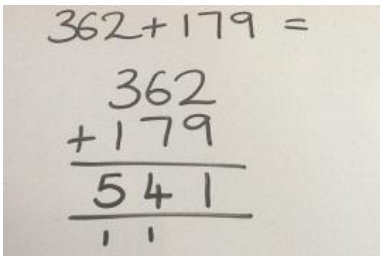
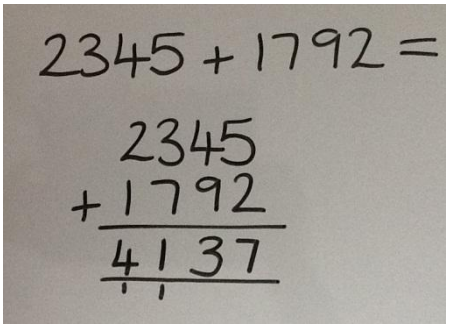
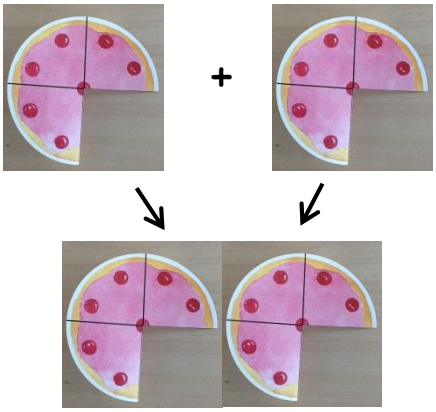
Children set out HTU + U (that lie within the tens boundary) in columns and record as column addition	 
Children set out HTU + TU (that lie within the tens boundary) in columns and record as column addition	 
Children begin to set out TU + TU (that cross the tens boundary) in columns and record as column addition	 
Children begin to set out TU + TU (that cross the hundreds boundary) in columns and record as column addition	  

Children set out HTU + TU (that cross the hundreds boundary) in columns and record as column addition	
Children set out HTU + HTU (that cross the tens boundary) in columns and record as column addition	
Children will solve one and two-step addition problems (including missing number problems) using concrete objects and pictorial representations	
Pupils practise adding fractions with the same denominator through a variety of increasingly complex problems to improve fluency	$^{5}/_{7} + {}^{1}/_{7} = {}^{6}/_{7}$ 

MENTAL STRATEGIES:

- Add numbers mentally, including; a three-digit number and a single digit number, a 3-digit number and multiples of 10, a 3-digit number and multiples of 100
- Estimate the answer to a calculation by rounding and use inverse operations to check answers
- Know number pairs that total 1000 (multiples of 100)
- Calculate 10 or 100 more than any given number

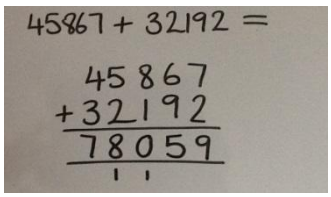
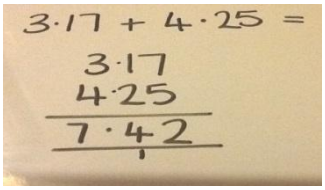
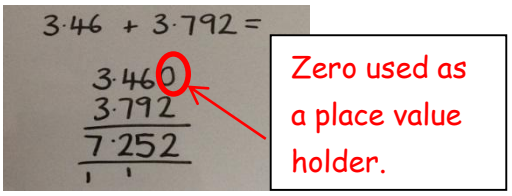
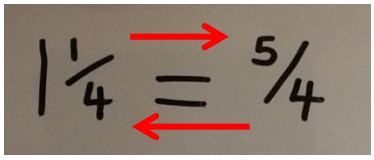
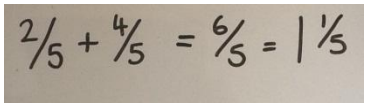
Year 4 - Addition

Method	Example/representation
Children set out HTU + HTU (that cross the tens and hundreds boundaries) in columns and record as column addition	
Children will add numbers with up to 4-digits using the formal written method of column addition	
Solve two-step problems using formal jottings and explaining reasoning behind their calculations (Singapore Bar method)	Seb has 77 cubes. He builds two towers. One tower uses 18 cubes and one tower uses 35 cubes - How many cubes does he have left over?
Pupils continue practising adding fractions with the same denominator to become fluent through a variety of increasingly complex problems beyond one whole	$^{3}/_{4} + {}^{3}/_{4} = {}^{6}/_{4}$ 

MENTAL STRATEGIES:

- Add numbers mentally, including; a four digit number and multiples of one thousand
- Use knowledge of doubles to derive related facts (e.g. 15 + 16 = 31 because 15 + 15 = 30 and 30 + 1 = 31)
- Know number pairs that total 1000 (multiples of 100)
- Estimate the answer to a calculation by rounding and use the inverse operations to check answers

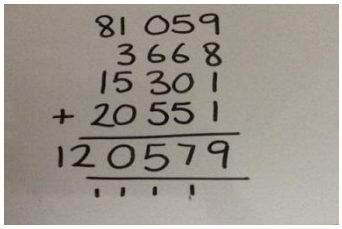
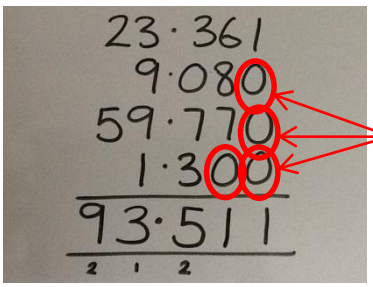
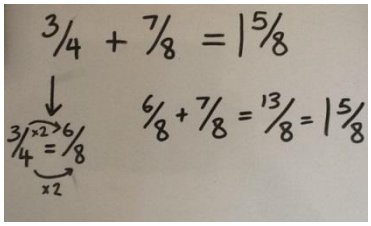
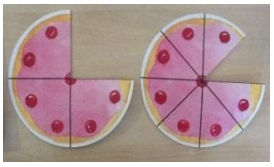
Year 5 - Addition

Method	Example/representation
Children will add numbers with more than 4-digits using the formal written method of column addition	
Children will add decimal numbers with the same number of decimal places using the formal written method column addition	
Children will add decimal numbers with a different number of decimal places using the formal written method column addition using 0 as a place value holder	
Solve multi-step problems (that may include subtraction) using formal jottings and explaining reasoning behind their choice of operation and calculation	
Recognise mixed numbers and improper fractions and convert from one to the other	
Practise adding fractions where calculations exceed one as a mixed number	 
Add fractions with denominators which are multiples of the same number	¼ + 3/8 = 2/8 + 3/8 = 5/8

Mental strategies:

- Add numbers mentally with increasingly large numbers (e.g. 10,162 + 2,300 = 12,462)
- Mentally add tenths (e.g. 0.2 + 0.6 = 0.8) and 1-digit whole numbers and tenths (8 + 0.3 = 8.3)
- Use number bonds to 100 knowledge to calculate complements to one using hundredths (e.g. 0.83 + 0.17 = 1)
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

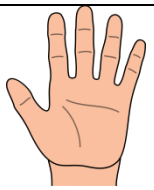
Year 6 – Addition

Method	Example/representation
Children will add several numbers of increasing complexity	81,059 + 3,668 + 15,301 + 20,551 = 120,579 
Children will add several decimals numbers with a different number of decimal places	23.361 + 9.08 + 59.77 + 1.3 = 93.511  Zero used as a place value holder.
Solve multi-step problems (that may include subtraction) using formal jottings and explaining reasoning behind their calculations	
Add fractions and mixed numbers with different denominators using the concept of equivalent fractions	 

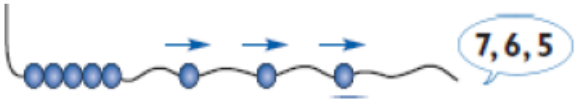
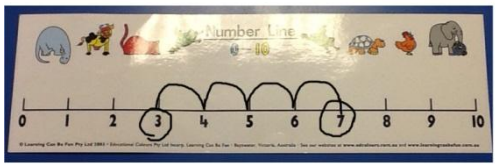
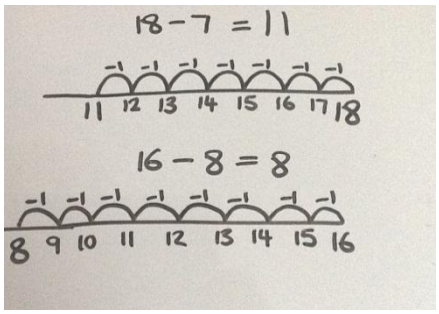
Mental strategies:

- Add numbers mentally with increasingly large numbers (e.g. 10,162 + 2,300 = 12,462)
- Add decimal numbers mentally (up to 2 decimal places)
- Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy

EYFS – Subtraction

Method	Example/representation
Using a range of practical resources, counting objects and toys, pupils develop their understanding of the concept of subtraction as taking away	I had 8 sweets and I ate 2. How many have I got left? 
Children will listen to a subtraction story and draw a set of objects (jottings) on whiteboards and cross some off (drawing a picture helps children to visualise the subtraction)	
Children will use their fingers to help with subtraction. E.g. 5 – 2 = 3. A child will start with the biggest number in their head '5' and hold 5 fingers up. They will count back saying '5' (touching their head) '4, 3' (curling one finger down at a time), then count how many fingers are left	
Children will use a number track. This will help them to understand subtraction	
Mental Strategies: – Children count backwards using familiar number rhymes (e.g. '10 Green Bottles', '5 Fat Sausages') – Count backwards from different starting points	

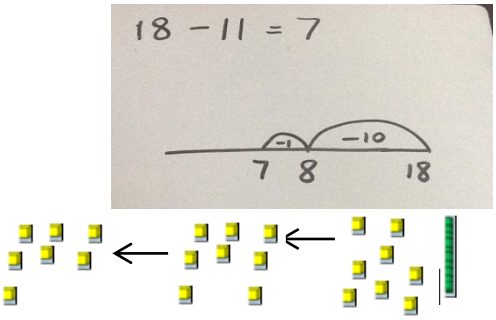
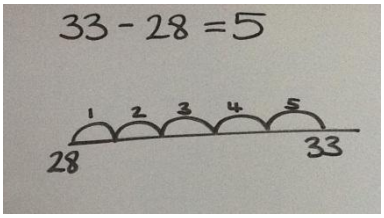
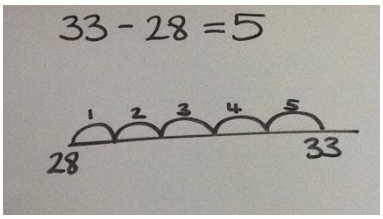
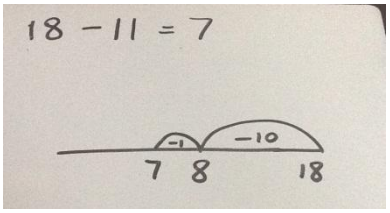
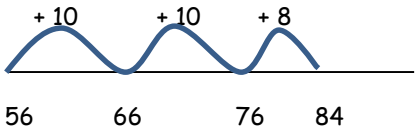
Year 1 – Subtraction

Method	Example/representation
Children will be taught to use a number track to support subtraction by counting backwards.	6 – 2 = 4 
Bead strings and counting sticks will be used to support subtraction by counting backwards.	 8 – 3 = 5
Children will use a prepared number line to solve simple subtraction stories and number sentences by counting backwards.	 7 – 4 = 3
Children will be taught how to solve simple subtraction stories with the support of a 100 number square.	 20 – 4 = 16
Children are taught how to use a blank number line for subtraction (counting backwards) and then encouraged to draw their own number line to help solve problems. Children will begin with TU – U that lie within the tens boundary then move onto TU – U that cross the tens boundary,	
Children will solve one-step subtraction problems (including missing number problems) using concrete objects and pictorial representations.	

Mental Strategies:

- Subtract 1 and 2 digit numbers to 20 including 0
- To know that subtraction is not commutative and that the larger number must always come first
- Use knowledge of number bonds to 10 and 20 to reason (9 + 1 = 10 so 10 – 9 = 1 and 10 – 1 = 9)

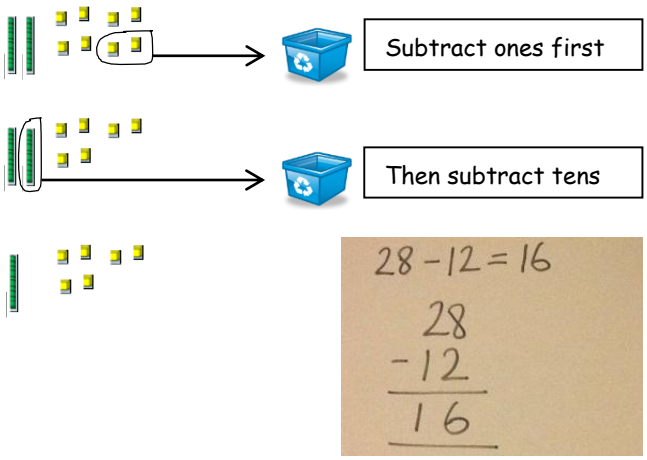
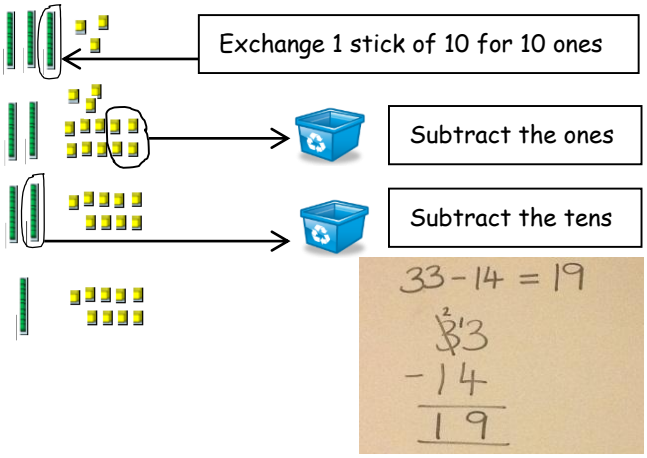
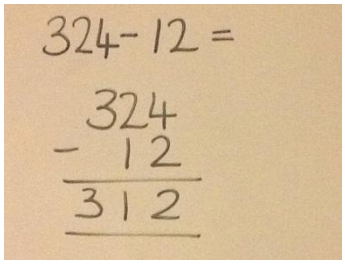
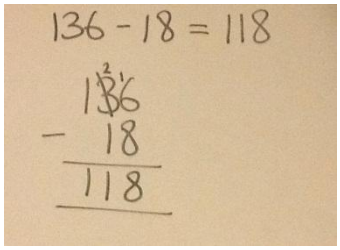
Year 2 - Subtraction

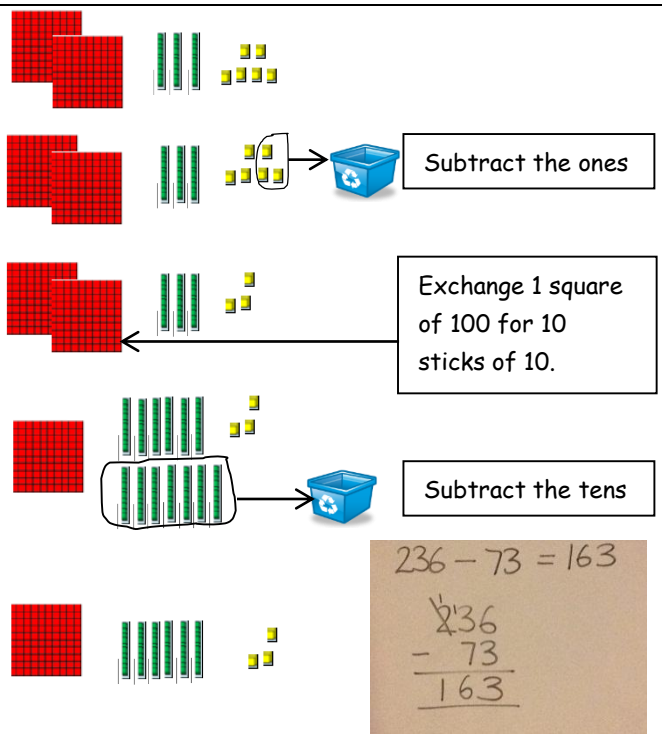
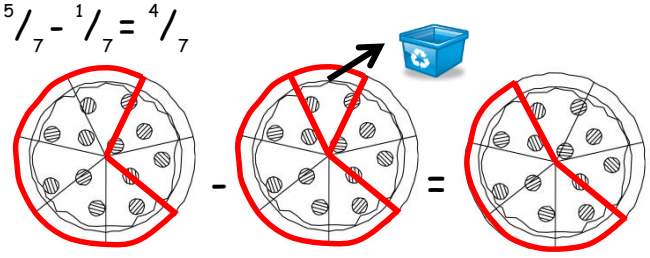
Method	Examples/representations
Children are encouraged to use a blank number line to solve TU – TU and count back in tens and then ones by: • Positioning the first number in the number sentence at the end of the number line. • Partitioning the second number into tens and ones • Counting back in tens (or multiples of 10) • Counting back in ones	
Children will use their knowledge of difference to use a blank number line to count on from the smallest number to the largest number (in tens and ones) to solve subtraction number sentences (TU – TU).	
Children will be encouraged to draw their own number line and begin to decide on the most efficient strategy: whether to start with the smaller number and count on or start with the larger number and count back.	 
Recognise and use inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	56 + ☐ = 84 
Children will solve one and two-step subtraction problems using concrete objects and pictorial representations including those involving number, quantities and measures.	

Mental Strategies:

- To know that subtraction is the inverse of addition
- Use knowledge of inverse to check calculations and solve missing number problems
- Subtract numbers mentally, including; subtracting ones from a 2-digit number, subtracting a multiple of 10 from a 2-digit number and subtracting a 2-digit number from another 2-digit number.
- Recall and use subtraction facts to 20 fluently
- Use knowledge of number bonds to 100 (multiples of 10) to reason (40 + 60 = 100 so 100 – 60 = 40 and 100 – 40 = 60)

Year 3 - Subtraction

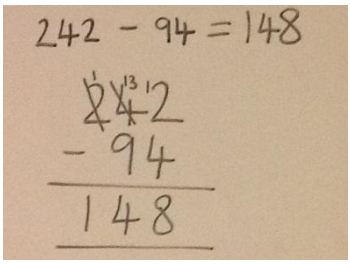
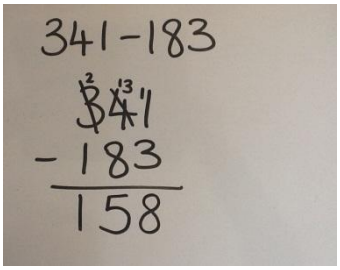
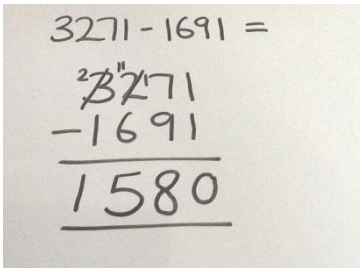
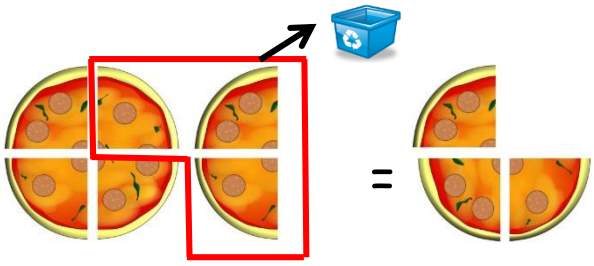
Method	Example/representation
Children begin to set out TU - TU (that lie within the tens boundary) in columns and record as column subtraction.	
Children begin to set out TU - TU (that cross the tens boundary) in columns and record as column subtraction with decomposition.	
Children begin to set out HTU - TU (that lie within the tens boundary) in columns and record as column subtraction.	
Children begin to set out HTU - TU (that cross the tens boundary) in columns and record as column subtraction with decomposition.	

Children begin to set out HTU - TU (that cross the hundreds boundary) in columns and record as column subtraction with decomposition.	
Children will solve one and two-step subtraction problems (including missing number problems).	
Children practise subtracting fractions with the same denominator through a variety of increasingly complex problems to improve fluency.	

Mental Strategies:

- Subtract numbers mentally, including; subtracting a single digit number from a 3-digit number, subtracting a multiple of 10 from a 3-digit number and subtracting a multiple of 10 from a 3-digit number
- Estimate the answer to a calculation and use inverse operations to check answer

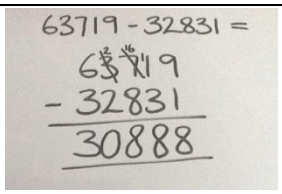
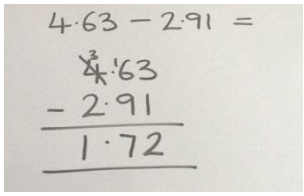
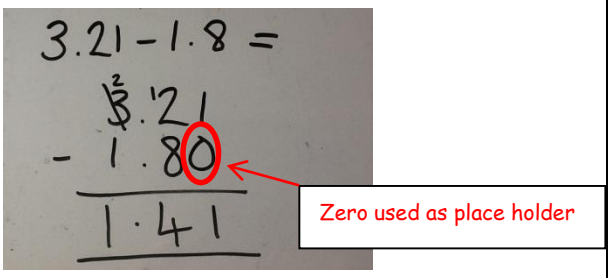
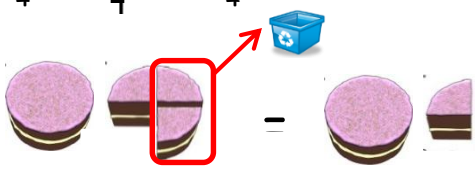
Year 4 – Subtraction

Method	Example/representation
Children begin to set out HTU - TU (that cross the hundreds and tens boundary) in columns and record as column subtraction with decomposition.	
Children begin to set out HTU - HTU (that cross the hundreds and tens boundary) in columns and record as column subtraction with decomposition.	
Children will subtraction numbers with up to 4-digits using the formal written method of column subtraction with decomposition.	
Solve two-step problems using formal jottings and explaining reasoning behind their choice of operation and calculations	
Pupils continue practising subtracting fractions with the same denominator to become fluent through a variety of increasingly complex problems beyond one whole.	$^{6}/_{4} - {}^{3}/_{4} = {}^{3}/_{4}$ 

Mental calculations:

- Subtract numbers mentally, including; subtracting multiples of one thousand from a 4-digit number
- Use number pairs that total 1000 (multiples of 100) to calculate subtraction (e.g 1000 – 300 = 700)
- Estimate the answer to a calculation by rounding and use inverse operations to check answers

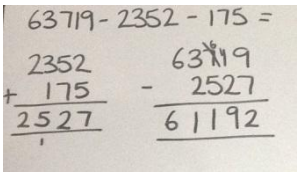
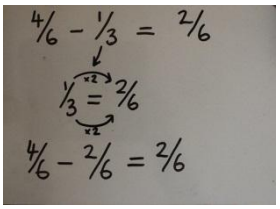
Year 5 – Subtraction

Method	Example/representation
Children will subtract numbers with more than 4-digits using the formal written method of column subtraction with decomposition.	
Children will subtract decimal numbers with the same number of decimal places with decomposition.	
Children will subtract decimal numbers with a different number of decimal places with decomposition.	
Solve multi-step problems using formal jottings and explaining reasoning behind their calculations	
Practise subtracting fractions where calculations exceed one as a mixed number.	$1\frac{3}{4} - \frac{2}{4} = 1\frac{1}{4}$ 
Subtract fractions with denominators which are multiples of the same number.	$\frac{3}{8} - \frac{1}{4} = \frac{3}{8} - \frac{2}{8} = \frac{1}{8}$

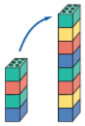
Mental strategies:

- Subtract increasingly large numbers mentally (e.g. 12, 654 – 1,341 = 11, 213)
- Mentally subtract tenths (e.g. 0.7 - 0.5 = 0.2) and 1-digit whole numbers and tenths (8 - 0.3 = 7.7)
- Use estimation/rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy

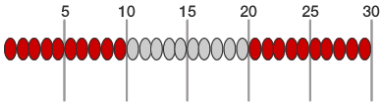
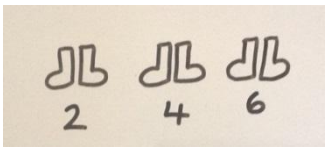
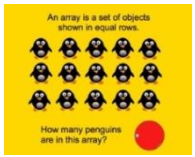
Year 6 – Subtraction

Method	Example/representation
Children will subtract several numbers of increasing complexity	
Children will subtract several decimals numbers with a different number of decimal places, using zero as a place holder	7.35 – 2.1 – 1.675 = 6 12 14 7. 3 5 10 1. 6 7 5 - 2. 1 0 0 3. 5 7 5
Continue to solve multi-step problems using formal jottings and explaining reasoning behind their calculations	
Subtract fractions and mixed numbers with different denominators using the concept of equivalent fractions	
Mental Strategies: – Subtract increasingly large numbers mentally (e.g. 12, 654 – 1,341 = 11, 213) – Subtract decimal numbers mentally (up to 2 decimal places) – Use estimation/rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	

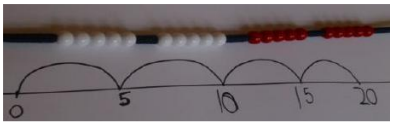
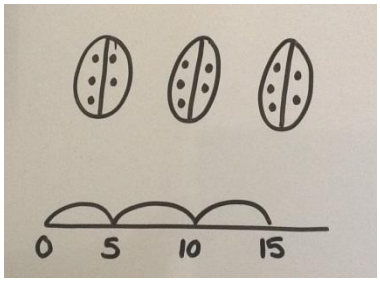
EYFS – Multiplication

Method	Example/representation
Children will count groups of 2 and add them together. The children learn about grouping in practical contexts and through pictorial representations	Count groups of 2 and then count all objects to add them together. 
Children will solve simple problems involving doubling	 Double 4 is 8
Mental strategies: – Counting in 2s	

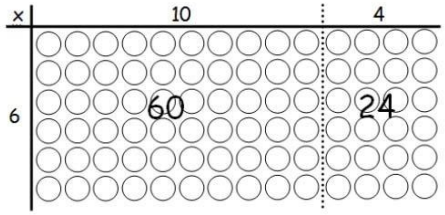
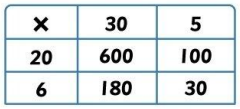
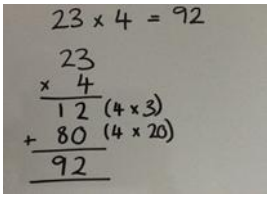
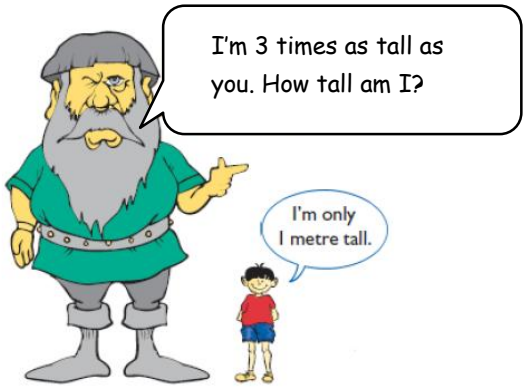
Year 1 – Multiplication

Method	Example/representation
Children will count groups of the same number of objects and add them together. The children learn about grouping in practical contexts, through pictorial representation. Bead strings and counting sticks will be used to support counting in sequences of 2s, 5s and 10s	I have 5 pairs of socks in the bag. How many socks are there? 
Children will recognise and complete patterns and sequences involving multiples of 2, 5 and 10	
Children will be given one-step word problems to solve, involving counting in multiples of 2, 5 and 10 and doubles. Children will use concrete objects and pictorial representations to support their ideas	Alfie, Joseph and Ben all have a pair of socks. How many socks are there altogether? 
Children will be introduced to an array to support multiplication	 5 + 5 + 5 = 15
Mental strategies: – Count forwards and backwards in multiples of 2s, 5s and 10s. – Recall doubles of numbers up to and including 10.	

Year 2 – Multiplication

Method	Example/representation
Children will be able to recognise and write the multiplication symbol (x) in mathematical statements	2 x 5 = 10
Children will understand the operation of multiplication as repeated addition. They will be able to represent this in a number sentence, on a blank number line and they will use practical resources to support understanding	4 x 5 = 20 5 + 5 + 5 + 5 = 20 
Children will be able to represent a multiplication calculation using an array and write the multiplication symbol within a number sentence. Children will also understand that multiplication can be carried out in any order (commutative)	 3 x 5 = 15 5 x 3 = 15
Children will solve one-step multiplication problems (including missing number problems) using concrete objects and pictorial representations	I have 3 ladybirds with 5 spots each. How many spots do they have altogether? 
Mental strategies: – Count forwards and backwards in multiples of 3. – Know the 2, 5 and 10 times tables (in and out of order) – Recognise odd and even numbers	

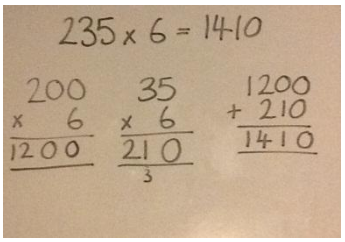
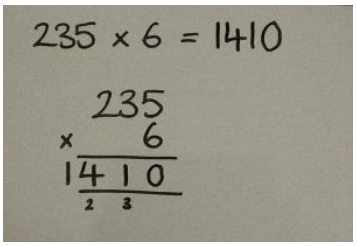
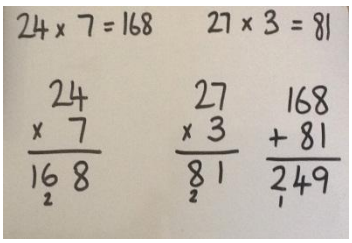
Year 3 – Multiplication

Method	Example/representation
Array will be presented within a grid with a view to working towards the grid method	
The grid method will be taught in a purely numerical format	 600 + 100 = 700 180 + 30 = 210 700 + 210 = 910
Children will transfer their knowledge of the grid method into the expansion method	
Children will solve problems involving multiplication, including scaling	

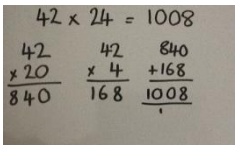
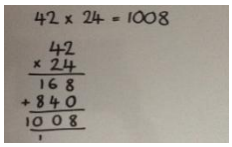
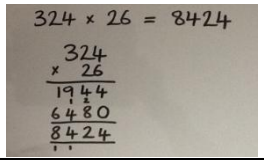
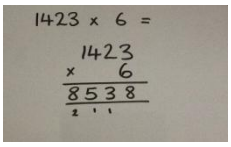
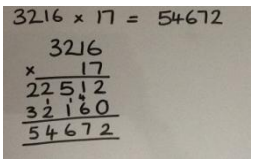
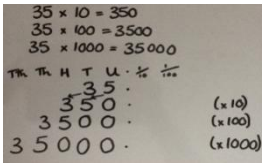
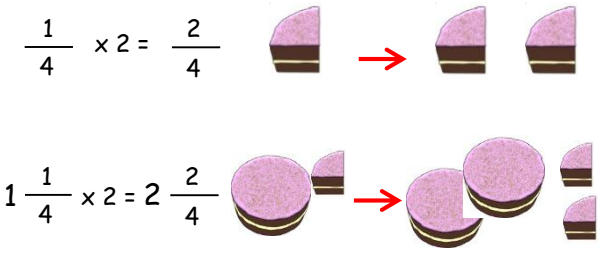
Mental strategies:

- Count forwards and backwards in multiples of 4, 8, 50 & 100
- Know the 3, 4 and 8 times tables (in and out of order)
- Connect the 2, 4 and 8 times tables through doubling
- Use knowledge of place value to calculate multiplication (e.g. 2 x 2 = 4, 2 x 20 = 40, 2 x 200 = 400)

Year 4 – Multiplication

Method	Example/representation
Children will be taught to multiply numbers (HTU & U) by partitioning the 3-digit number and using two short multiplications along with addition to solve the problem	
Children will be taught to multiply numbers (HTU x U) using the formal written method of short multiplication and will link with the Distributive Law method	
Solve problems involving multiplying and adding to multiply two or three-digit numbers by one digit	Harriet has 7 friends who each have 24 apples. Joseph has 3 friends who each have 27 apples. How many apples do Harriet and Joseph's friends have altogether? 
Mental Strategies: – Know all times tables up to and including 12 x 12 – Recognise and use factor pairs (e.g factor pairs for numbers up to and including 10) – Know that TU x 5 is TU x 10 then divide by 2 (e.g 18 x 5 = (18 x 10) ÷ 2 = 90) – Know that TU x 9 is TU x 10 then subtract TU (e.g 18 x 9 = (18 x 10) – 18 = 162)	

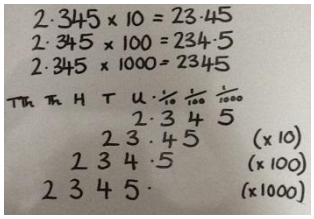
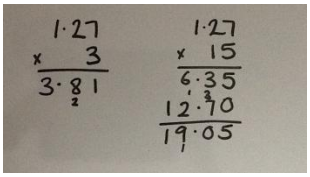
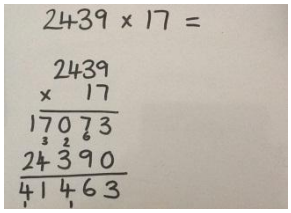
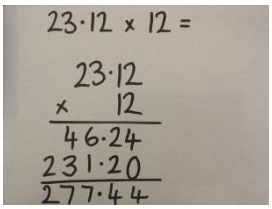
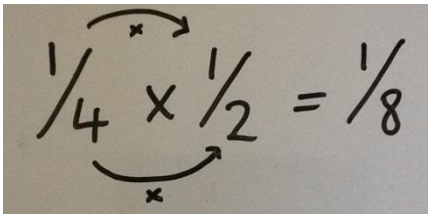
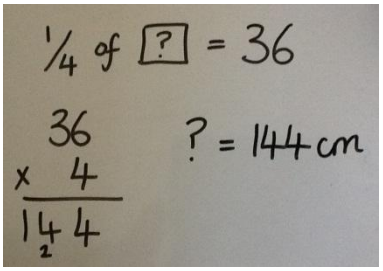
Year 5 - Multiplication

Method	Example/representation
Children will be taught to multiply numbers (TU x TU) by partitioning the second 2-digit number and using two short multiplications along with addition to solve the problem	
Children will be taught to multiply numbers (TU x TU) using the formal written method of long multiplication	
Children will be taught to multiply numbers (HTU x TU) using the formal written method of long multiplication	
Children will be taught to multiply numbers (ThHTU x U) using the formal written method of short multiplication	
Children will be taught to multiply numbers (ThHTU x TU) using the formal written method of long multiplication	
Children will solve problems involving multiplication, including scaling	Alfie runs 3400m on Sports Day. His friend, Harry, runs three times as far. How far does Harry run?
Children will learn to multiply whole numbers and those involving decimals by 10, 100 and 1000 by moving the digits around the fixed decimal on a place value grid	
With the use of materials and diagrams, pupils will multiply proper fractions and mixed numbers by whole numbers	

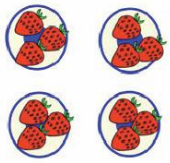
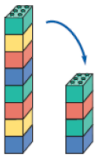
Mental strategies:

- Recognise and calculate factor pairs for any number
- Use times table knowledge to derive multiples of any number
- Establish whether a number is a prime number (up to 100) or a composite number (not prime) and recall prime numbers up to 19
- To know what a square number is and recall all square numbers (up to and including 144)
- To know what a cube number is and recall the first 5 cube numbers

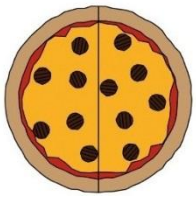
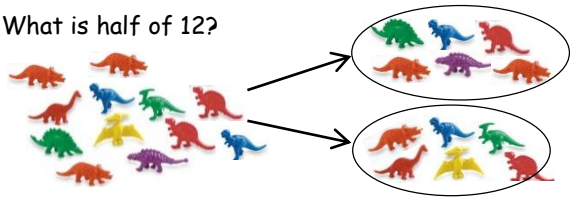
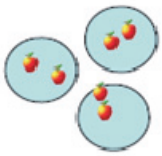
Year 6 Multiplication

Method	Example/representation
Multiply numbers by 10, 100 and 1000 where the answers are up to three decimal places.	
Multiply one-digit numbers with up to two decimal places by whole numbers using: – Short multiplication when multiplying by a single digit – Long multiplication when multiplying by a 2-digit number	
Multiply multi-digit numbers up to 4 digits by a 2-digit whole number using the formal written method of long multiplication	 
Multiply simple pairs of fractions, writing the answer in its simplest form	
Pupils use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction	
Mental strategies: – Identify common factors, common multiples and prime numbers – Use common factors to simplify fractions mentally – Use estimation/rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	

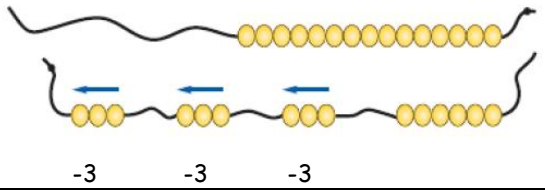
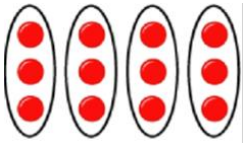
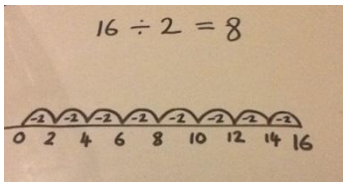
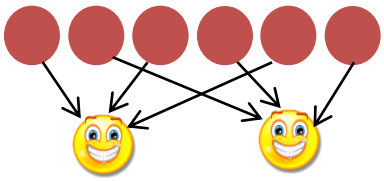
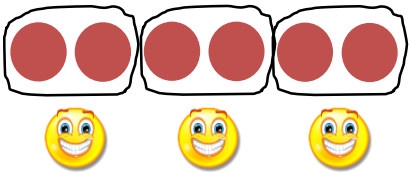
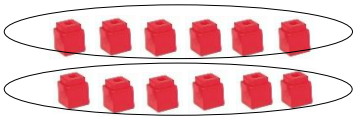
EYFS – Division

Method	Example/representation
Children experience early division by sharing objects practically and counting how many in each group	
Children will be introduced to halving using practical resources	 What is half of 8? Half of 8 is 4

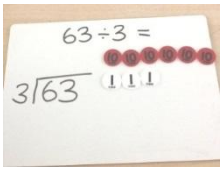
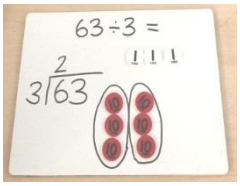
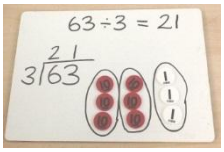
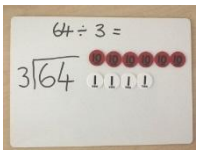
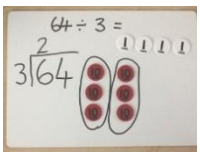
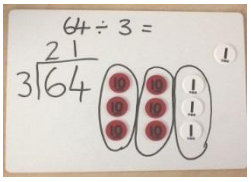
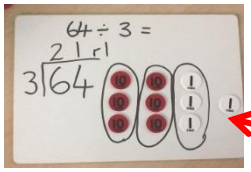
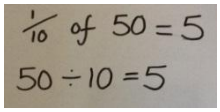
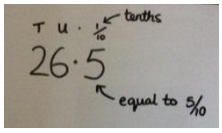
Year 1 – Division

Method	Example/representation
Children will understand equal groups and share items out in play scenarios	Share 12 cakes between 3 people equally: 
Children will be taught to associate 'half' with dividing by two and recognise, find and name a half as one of two equal parts	Can you cut the pizza in half?  What is half of 12? 
Children will be given a word problem to complete either practically or using pictorial representations	Can you share 6 apples between 3 plates? 
Children will be able to draw pictorial representations of 'sharing', 'grouping' and 'halving'	Share 6 apples between 3 plates 
Mental strategies: – Count forwards and backwards in multiples of 2s, 5s and 10s	

Year 2 - Division

Method	Example/representation
Children will understand the operation of division as grouping using repeated subtraction They will be able to represent this on a prepared number line, as number sentences and with practical resources	15 ÷ 3 = 5 15 – 3 -3 -3 -3 – 3 = 0  -3 -3 -3
Children will be able to represent a division calculation using an array and write the division within a number sentence	How many groups of 3 are in 12? 12 ÷ 3 = 4 
Children will use a blank number line to carry out repeated subtraction to solve a division number sentence	
Children will be taught to understand the difference between sharing and grouping. Children will also connect unit fractions to equal sharing and grouping	If 6 sweets are shared between 2 people, how many do they get each?  Sharing If there are 6 sweets, how many people can have 2 sweets each?  Grouping
Children will solve one-step division problems (including missing number problems) using concrete objects and pictorial representations	12 ÷ ☐ = 6 
Mental strategies – To know that division is the inverse of multiplication – Recall division facts for the 2, 5 and 10 times tables – Recall halves for even numbers up to and including 20	

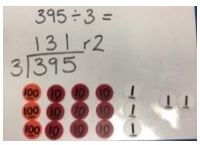
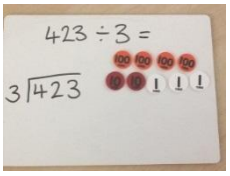
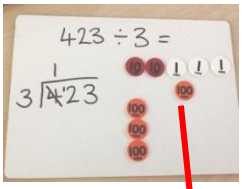
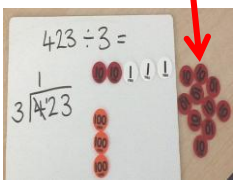
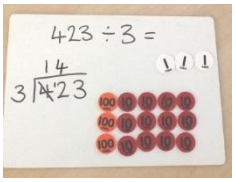
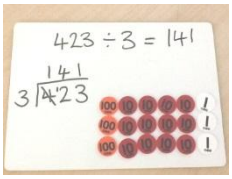
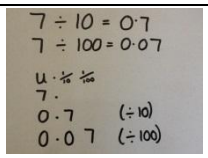
Year 3 – Division

Method	Example/representation
Children will use practical resources to support the short division method and will be encouraged to use multiples of the divisor to assist (TU ÷ U) Extend to HTU ÷ U	 Create the dividend using Place Value counters  Group the tens counters according to the divisor and write the number of groups above the line in the tens column  Group the tens counters according to the divisor and write the number of groups above the line in the tens column
Children will use practical resources to support solving division number sentences with remainders (TU ÷ U)	 Create the dividend using Place Value counters  Starting with tens counters, group them according to the divisor. Write the number of groups in the tens column above the line  Next, group the ones according to the divisor and arrange next to the groups of ten. Write the number of groups above the line in the ones column  Any counters that cannot be grouped are the remainder. Write this at the end as 'r1'
Children will solve simple one-step word problems, using pictures to support understanding	
Pupils connect tenths to place value, decimal measures and that tenths, is to divide by 10	 $\frac{1}{10}$  

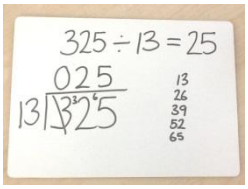
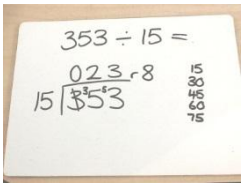
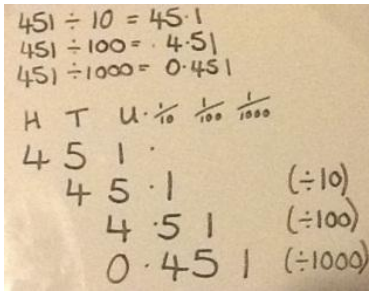
Mental strategies:

- Know the division facts from the 3, 4 and 8 times tables
- Use knowledge of place value to calculate division (e.g. 14 ÷ 2 = 7, 140 ÷ 2 = 70, 1400 ÷ 2 = 700)
- Link fraction of quantities to division

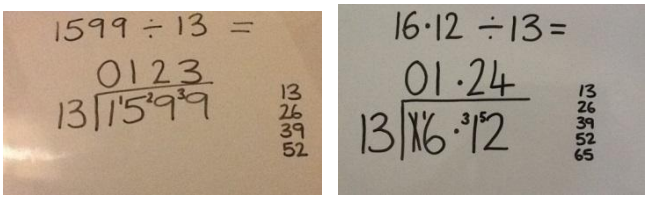
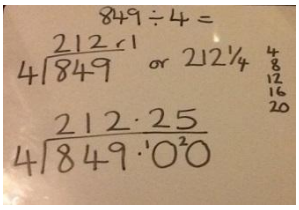
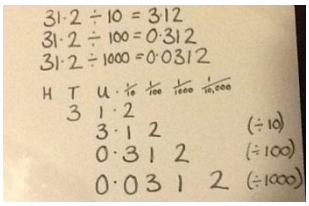
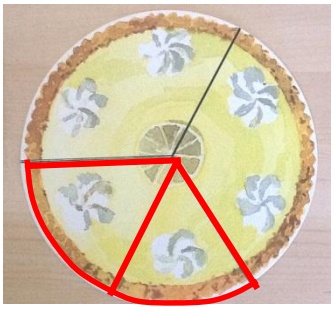
Year 4 – Division

Method	Example/representation
Children will use practical resources to support solving division number sentences with remainders (HTU ÷ U)	
Children will use practical resources to support the short division method where exchange across place value columns occurs. (HTU ÷ U)	 Create the dividend using Place Value counters  Group the hundreds counters according to the divisor. Write the number of groups above the line in the hundreds column  Exchange the left over 100s counter for ten 10s counters and represent this beneath the line in the tens column  Next, group the 10s counters according to the divisor and write the number of groups above the line in the tens column  Group the ones counters according to the divisor and write the number of groups above the line in the ones column
Continue to solve one and two step problems	
Find the effect of dividing a 1 or 2-digit number by 10 and 100; identifying the value of the digits in the answer as ones, tenths and hundredths	
Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten	What should I cut my pizza into if I want to serve 100 people? 
Mental Strategies: – Know all related division facts for all times tables up to 12 times table (by the end of Year 4)	

Year 5 – Division

Method	Example/representation
Children will use short division to support solving division number sentences with remainders (ThHTU ÷ U)	3695 ÷ 3 = 1 2 3 1 r 2 3 ⟌ 3 6 9 5 Or: 3581 ÷ 3 = 1 1 9 3 r 2 3 ⟌ 3 5 ^{2}8 ^{1}1
Children will use the short division method where exchange across the place value columns occurs. Pupils will be encouraged to use multiples of the divisor to assist (HTU ÷ TU) Extending to calculations with remainders:	 
Children will learn to divide whole numbers and those involving decimals by 10, 100 and 1000 by moving the digits around the fixed decimal	
Children will solve problems involving division, including scaling	
Mental strategies: – Multiply and divide numbers mentally with increasing speed and accuracy, drawing upon known facts	

Year 6 – Division

Method	Example/representation
Divide numbers up to 4 digits by a two-digit whole number using the formal written method of division	
Interpret remainders as whole number remainders, fractions or decimals	
Continue to solve problems involving division, including scaling	
Divide numbers decimal numbers with up to 3 decimal places by 10, 100 and 1000 by moving the digits around a fixed decimal	
Divide proper fractions by whole numbers	$^1/_3 \div 2 = {}^1/_6$ 
Mental strategies: – Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy – Continue to improve speed of recall and accuracy	

Y6 - Long Division: (Chunking Method)

The expanded (chunking) method of long division involves subtracting groups (or chunks) of the divisor (the number that goes outside the bus-stop). It can help you to understand the relationship between multiplication and division. For example, look at the following calculation:

264 ÷ 12 =

Lay out the calculation using the bus stop method:

1	2	2	6	4

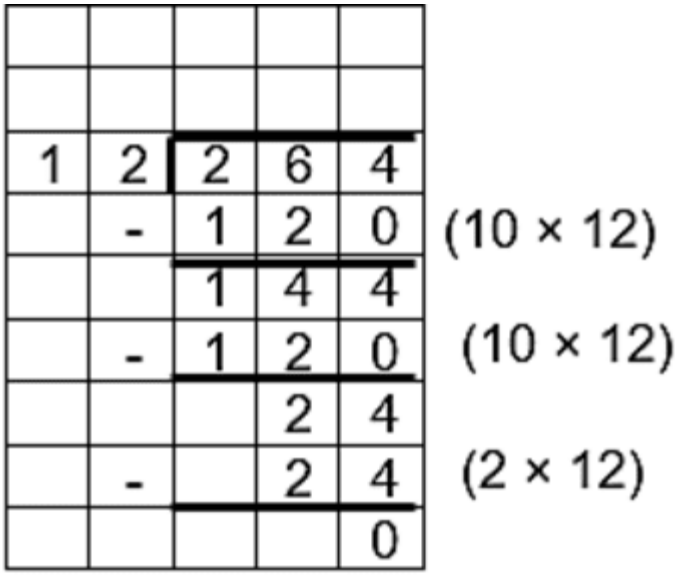
First, think about ‘useful facts’ (multiples of the divisor smaller than the dividend) that can be recorded to the right of the calculation. Then, subtract a multiple of the divisor. In this example, we have subtracted 120 (which is 10 × 12) from 264. We write 120 below 264 and complete the subtraction leaving an answer of 144. At the side of the calculation, we write the number of divisors we have subtracted (in this case 10 lots of 12 or 10 × 12).

1	2	2	6	4	
	-	1	2	0	(10 × 12)
		1	4	4	

We are still left with 144 so we can subtract another ‘chunk’ – or group – of 12. Let’s subtract 120 again and write the multiplication by the side.

1	2	2	6	4	
	-	1	2	0	(10 × 12)
		1	4	4	
	-	1	2	0	(10 × 12)
			2	4	

We are now left with 24. Let's think of another group ('chunk') of 12s that we can subtract. We can now subtract 24 (which is 2 × 12).



We cannot subtract any more 12s as the answer is 0. We now need to calculate the total amount of 12s we subtracted from 264. We used one group of 10 twelves, another group of 10 and a group of 2 twelves (10 + 10 + 2). Altogether, we subtracted 22 twelves from 264. Therefore, 264 ÷ 12 = 22. We can also say the inverse which is 22 × 12 = 264.