FEDERATION OF
St Peter's and St Gildas'
INFANT AND JUNIOR SCHOOLS

MENTAL CALCULATIONS POLICY

Reviewed March 2024

Introduction

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

This policy has been created to highlight the progression in mental calculation strategies for each of the four operations. It sets out:

- Essential understanding of the principles underpinning each operation;
- Example models and images to support children's understanding of the operation and the related mental strategies;
- Core mental skills and strategies that all children should learn, including examples and the requisite prior knowledge in order to learn the new strategies;
- Enhanced mental skills and strategies that should be reserved for teaching to specific groups of children who understand the special cases that lend themselves to these strategies

Mental methods of calculation

Oral and mental work in mathematics is essential, particularly so in calculation. Early practical, oral and mental work must lay the foundations by providing children with a good understanding of how the four operations build on efficient counting strategies and a secure knowledge of place value and number facts. Later work must ensure that children recognise how the operations relate to one another and how the rules and laws of arithmetic are to be used and applied.

The ability to calculate mentally forms the basis of all methods of calculation and has to be maintained and refined. A good knowledge of numbers or a 'feel' for numbers is the product of structured practice and repetition. It requires an understanding of number patterns and relationships developed through directed enquiry, use of models and images and the application of acquired number knowledge and skills. Secure mental calculation requires the ability to:

- recall key number facts instantly;
- use taught strategies to work out the calculation;
- understand how the rules and laws of arithmetic are used and applied

Core understanding for each operation

For ***addition***, children understand that:

Addition is the combining of two or more quantities resulting in a larger total.
Addition is the inverse of subtraction.
Addition is commutative i.e. that 3 + 5 = 8 and 5 + 3 = 8.

For ***subtraction***, children understand that:

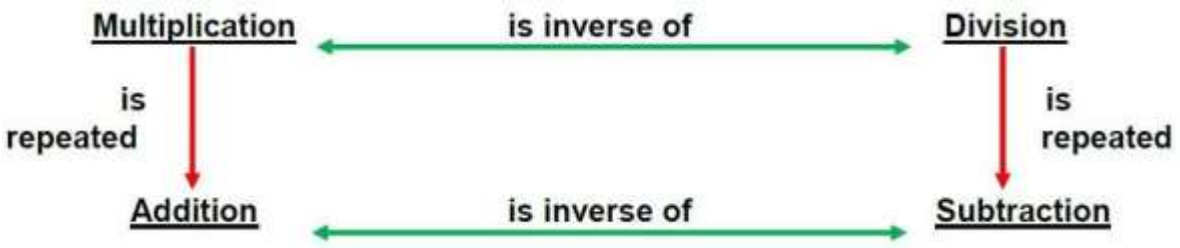
Subtraction is the removing or taking away a quantity from another.
Subtraction is the inverse of addition.
Subtraction is **not** commutative i.e. 3 + 5 = 5 + 3 but 5 – 3 ≠ 3 – 5.

For ***multiplication***, children understand that:

Multiplication is repeated addition.
Multiplication is the inverse of division.
Multiplication is commutative i.e. that 3 x 5 = 15 and 5 x 3 = 15.

For ***division***, children understand that:

Division is sharing or grouping (repeated subtraction).
Division is the inverse of multiplication.
Division is **not** commutative i.e. 3 x 5 = 5 x 3 but 15 ÷ 3 ≠ 3 ÷ 15.



Age stage expectations

The calculation policy is organised according to age stage expectations as set out in the National Curriculum. **However, it is vital that pupils are taught according to the stage that they are currently working at,** being moved onto the next level as soon as they are ready, or working at a lower stage until they are secure enough to move on.

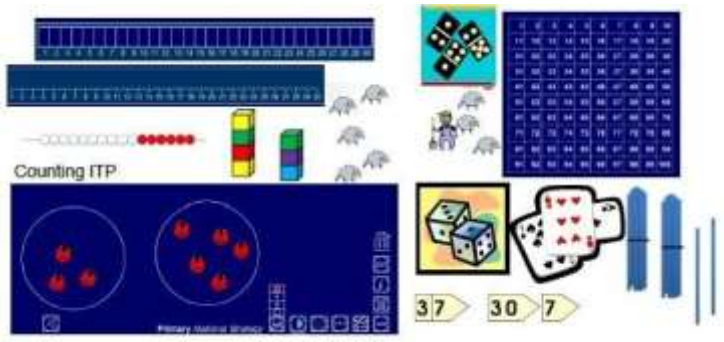
Providing a context for calculation

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

Addition

Year 1

Practical equipment, models and images to support children with mental addition:





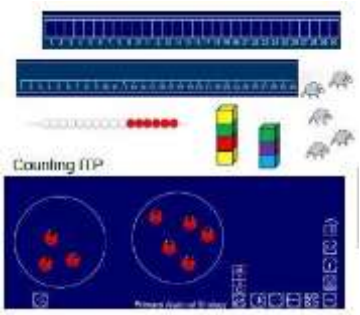


Mental calculation skills	Examples	Requisite prior knowledge
Add a pair of single digit numbers	3 + 5 Represent this calculation using cubes, cars, small world people, a number track / line. If 3 + 5 = 8, what else do you know?	Know the number names up to 20 in order, in symbols (using numerals) and words (spoken). Know number bonds to 20. Understand the amounts the symbols and words represent. Count on from any given single digit number. Know that the last number said is the total (cardinality). Place value - identify the largest number in order to count on from this. Reorder the numbers to start from the largest number making the count more efficient. Subitise small amounts to make the count more efficient.
Add a single digit number to a teens number	13 + 5 Represent this calculation using cubes, cars, small world people, a number track / line. If 13 + 5 = 18, what else do you know?	As above plus: Count on from any given teens number. Know and use related addition facts e.g. 3 + 5 = 8 so 13 + 5 = 18. Place value - understand what each digit represents in a teens number.
Add a single digit number to 10 or a multiple of 10	10 + 7 7 + 30 7 + ? = 73 Represent these calculations using cubes, base 10 equipment, bundles of straws, a number track/line, a 100 square.	As above plus: Know the decade number names up to 100 in order, in symbols (using numerals) and words (spoken). Understand the amounts the symbols and words represent. Place value – understand what each digit represents in a two-digit number. Use knowledge of place value to recognise that combining 60 and 5 equals 65.
Add near doubles	6 + 7	Place value - recognise when numbers are close to each other. Double any single digit number. Add or subtract 1 to or from any number.

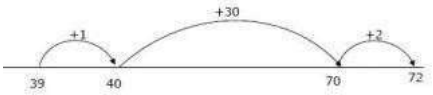
Addition

Year 2

Practical equipment, models and images to support children with mental addition:



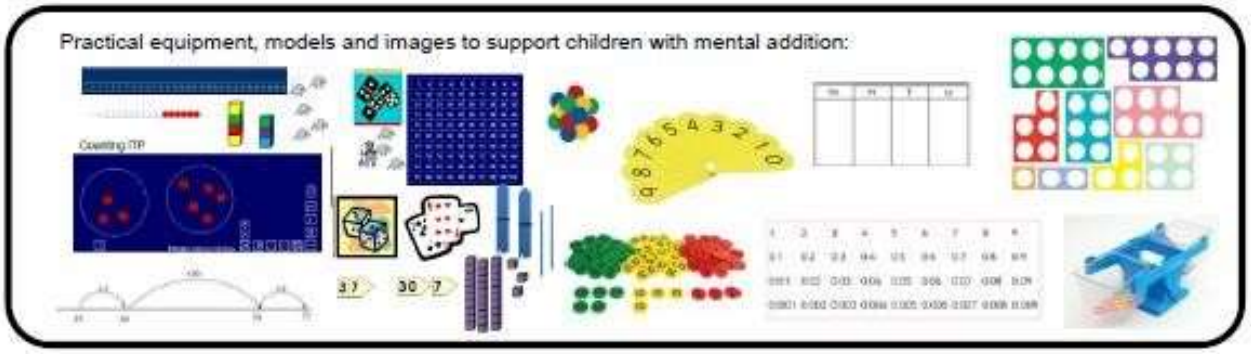




Mental calculation skills	Examples	Requisite prior knowledge
Add two or three single-digit numbers, including crossing 10	5 + 8 2 + 4 + 3 Represent this calculation using cubes, cars, small world people, a number track/line, straws, multi-link, bead bars.	Know the number names up to 10 in order, in symbols (using numerals) and words (spoken). Understand the amounts the symbols and words represent. Count on from any given single digit number. Place value – identify the largest number in order to count on from this. Reorder the numbers to start from the largest number making the count more efficient. Place value –value of tens/units. Addition can be done in any order. Know and use number bonds to 10. Subitise small amounts to make the count more efficient.
Add a single-digit number to a two-digit number, including crossing a tens boundary	23 + 5 28 + 5	Count on from any two-digit number in 1s. Use number bonds to efficiently add numbers to bridge 10.
Add a multiple of 10 to any single or two-digit number	27 + 60 Show how to work this out on a 100 square /number line/base 10/a bead string. If there is 36p in the piggy bank and I drop in four 10p coins, how much does the piggy bank have in it now?	Know what is 10 more than any given two-digit number Count on in 10s from any two-digit number
Add 9, 19, 29,... or 11, 21, 31,...	23 + 9 34 + 11 Show what these calculations would look like on a number line.	Add 10 to any number. Add a multiple of 10 to any number. Be able to round to the nearest 10.
Add near doubles	13 + 14	Double any two-digit number.

Addition

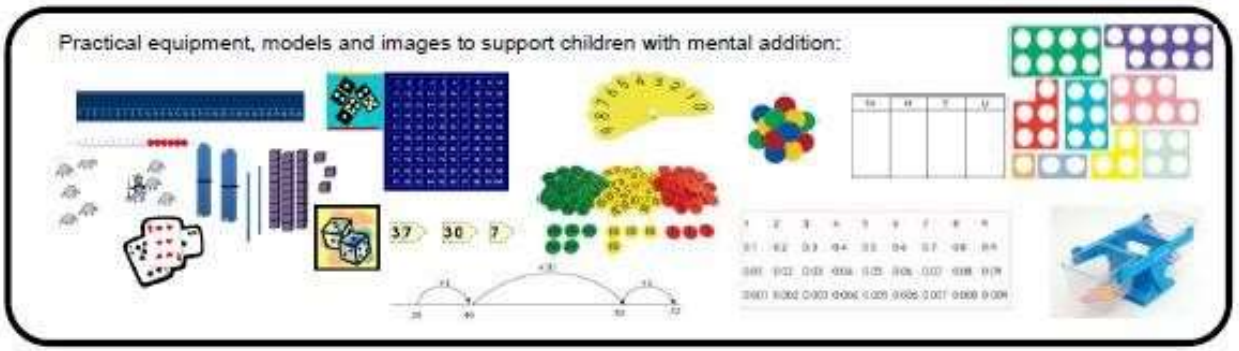
Year 3



Mental calculation skills	Examples	Requisite prior knowledge
Add groups of small numbers	15 + 13 + 2 16 + 1 + 4	Count on from any given number. Know number bonds to 10 and 20. Add number bonds first.
Add a two- or three-digit number to a multiple of 10 or 100	50 + 38 132 + 60 325 + 200 Show how to work this out on a 100 square/ number line/ base 10/ bead string/bundles of straws.	Partition the non-multiple of 10 e.g. 381 into 300 + 80 +1. Count on in 10s from a multiple of 10. Use knowledge of place value to relate 5+3 = 8 to 50+30 = 80.
Add any pair of two-digit numbers, including crossing tens and 100 boundary	47 + 58 Prove that 67 + 55 = 122 using practical equipment or jottings.	Partition two-digit numbers into tens and units. Understand place value in three-digit numbers.
Add near doubles	25 + 26	Double any two-digit number.

Addition

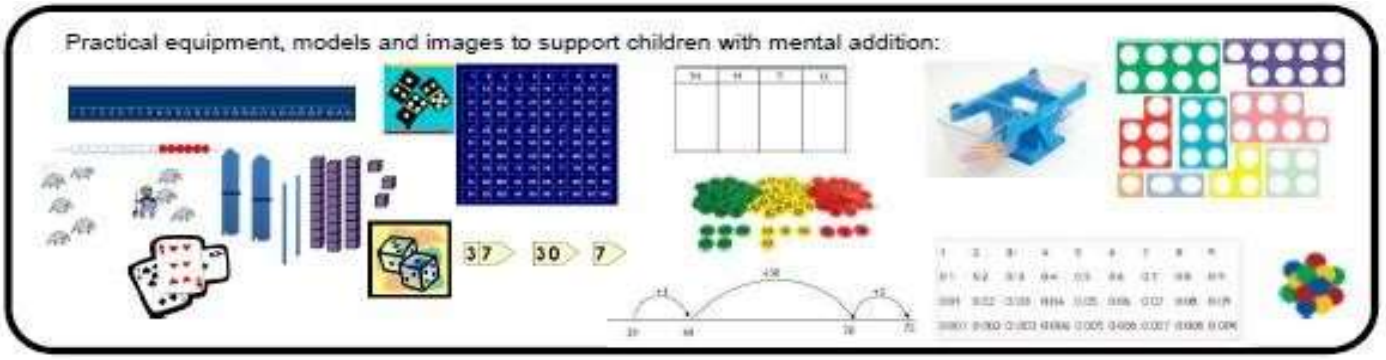
Year 4



Mental calculation skills	Examples	Requisite prior knowledge
Add two-digit or three-digit multiples of 10	140 + 150 140 + 70	Use knowledge of place value to relate e.g. 14 +15 = 29 so 140 +150 = 290. Count on in 10s from any multiple of 10. Use knowledge of number bonds to efficiently add numbers to bridge 100.
Add a near multiple of 10, 100 or 1000 and adjust	56 + 29 42 + 199 Show what this would look like on a number line or 100 square.	Add 10/100/1000 to any number. Add a multiple of 10 to any number. Round to the nearest 10/100/1000.
Add near doubles of two-digit numbers	38 + 37	Double any two-digit number.
Add two 2-digit numbers by partitioning and counting on	29 + 43 = 43 + 20 + 9	Understand that addition can be done in any order. Use knowledge of place value to partition 2-digit numbers. Count on in 10s from any number. Use knowledge of number bonds to efficiently add numbers to bridge 10 or 100.
Add a decimal number to a single-digit number	7 + 3.2 9 +? = 10.7	Count on in tenths. Use knowledge of place value to partition decimal numbers. Use knowledge of number bonds to efficiently add numbers to bridge 1.

Addition

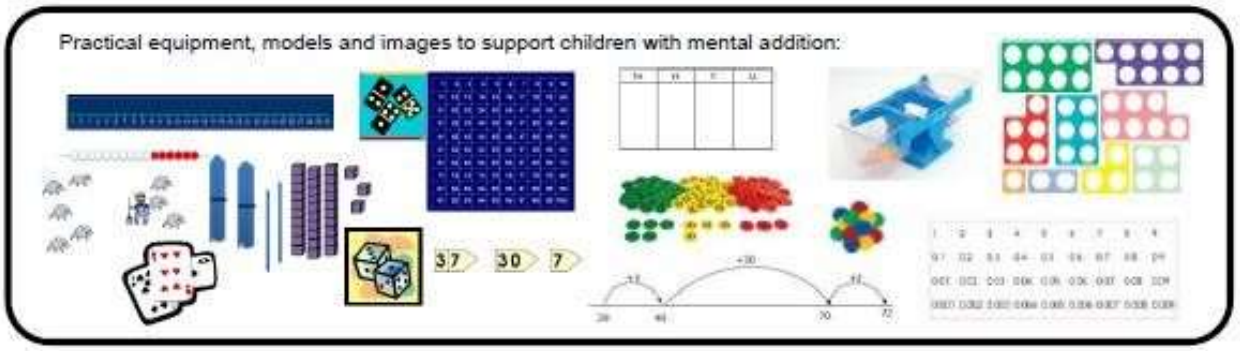
Year 5



Mental calculation skills	Examples	Requisite prior knowledge
Add a pair of three-digit numbers or four-digit multiples of 10	38 + 86 350 +360	Partition two-digit numbers into tens and units. Understand place value in three-digit numbers. Use knowledge of place value to relate e.g. 35 +36 = 71 to 350 +360 = 710.
Add a near multiple of 10 or 100 to any two-digit or three-digit number	235 + 198	Add 100 to any number. Add a multiple of 100 to any number. Round to the nearest 100.
Add any pair of decimal fractions each with units and tenths	5.7 + 2.5	Partition units and tenths. Count on in tenths, including bridging through 1. Use knowledge of place value to relate e.g. 57 + 25 = 82 to 5.7 + 2.5 = 8.2.
Add simple fractions with the same denominator	1/5 + 3/5	Understand what fractions represent. Know that a number is whole if the numerator and denominator are the same.
Find doubles of decimals each with units and tenths	1.6 + 1.6	Double any two-digit number. Understand place value.

Addition

Year 6



Mental calculation skills	Examples	Requisite prior knowledge
Add pairs of decimals with units, tenths or hundredths	0.7 + 3.38 4.52 + 2.78	Partition units, tenths and hundredths. Understand place value of tenths and hundredths. Recombine units, tenths and hundredths.
Add a decimal with units and tenths, that is nearly a whole number	4.3 + 2.9	Round a decimal to the nearest whole number. Add a whole number to any decimal number.
Add near doubles of decimals	2.5 + 2.6	Double any two-digit number. Use knowledge of place value and related facts.
Add fractions with denominators that are multiples of the same number	3/5 + 4/10	Understand what fractions represent. Know that a number is whole if the numerator and denominator are the same. Recognise equivalent fractions. Simplify fractions by cancelling.

Subtraction

Year 1

Mental calculation skills	Examples	Requisite prior knowledge
Subtract a pair of single-digit numbers	8 - 3 Model this calculation using cubes, small world people, a number line/track. If 8 – 3 = 5, what else do you know?	Know number names up to 10 in order in symbols and words and understand the amounts they represent. Understand the amounts the symbols and words represent. Count back from any given single digit number. Know that the last number said is the amount left. Place value – identify the largest number in order to count back from this.
Subtract a single-digit number from a teens number	15 - 3 Model this calculation using cubes, small world people, a number line/track. If 15 – 3 =12, what else do you know?	As above plus: Know number names up to 20 in order in symbols (using numerals) and words (spoken). Count back from any given teens number. Count back in ones. Know and use related subtraction facts e.g. 5 – 3 = 2 so 15 – 3 = 12. Place value- understand what each digit represents in a teens number.
Subtract a single-digit number from 10	10 - 7 10 -? = 6 10 -? = ?	As above plus: Count back in ones. Know number bonds to 10. Understand and use subtraction as the inverse of addition.

Subtraction

Year 2

Mental calculation skills	Examples	Requisite prior knowledge
Subtract a pair of single-digit numbers and a single-digit number from a teens number, including crossing 10	12 – 7 Model this calculation using cubes, small world people, a number line/track. If 12 – 7 = 5, what else do you know?	Know the number names up to 20 in order, in symbols (using numerals) and words (spoken). Understand the amounts the symbols and words represent. Use and apply number bonds to 10. Count back in ones from any teens number or single digit number. Place value – identify the largest number in order to count back from this. Place value – understand the value of each digit in a teens number. Know number bonds of all numbers up to 10
Subtract any single-digit from a multiple of 10	20 – 3 40 -? = 32 30 -? = 2?	As above plus: Know the decade number names up to 100 in order, in symbols (using numerals) and words (spoken). Understand the amounts the symbols and words represent. Place value – understand what each digit represents in a two-digit number.
Subtract a single-digit number from any two-digit number including crossing the tens boundary	32 – 6 44 -? = 37 52 -? = 4?	As above plus: Understand subtraction as finding the difference. Count back from any two-digit number in ones. Count on from any two-digit number in ones. Use number bonds to efficiently bridge through a multiple of 10.
Subtract a multiple of 10 from any two-digit number	63 – 40 47 -? = 7 73 -? = 33 56 -? = ?6	As above plus: Know what is 10 less than any given two-digit number. Count back in tens from any given number.
Subtract a two-digit number from any multiple of 10	90 - 27	Partition the non-multiples of 10 e.g. 27 into 20 + 7. Count on and back in tens and ones. Use knowledge of place value to relate 9 – 2 =7 to 90 – 70 = 20
Subtract pairs of two-digit numbers without crossing the tens boundary	86 – 23 39 – 17 52 – 49	Partition two-digit numbers into tens and units. Recombine tens and units. Count on and back in tens and ones. Know and use knowledge of number bonds to 10. Know that they can count on if the numbers are close together.
Subtract near multiples of ten and adjust	27 – 11 32 – 9	Know what is 10 less than any given two-digit number. Understand whether to add on or take away in order to adjust.

Subtraction

Year 3

Mental calculation skills	Examples	Requisite prior knowledge
Subtract groups of small numbers	7 - 3 - 2 in context e.g. There were 7 children on the bus, 3 got off in Preston, 2 got off in Chipping. How many were left on the bus?	Count on and back in ones from any given number. Know number bonds to 10.
Subtract pairs of two-digit numbers including crossing the tens boundary	65 – 38 91 – 35	Count on and back in ones from any two-digit number. Count on and back in tens from any two-digit number. Partition two-digit numbers to tens and units. Recombine tens and units. Understand place value in two-digit numbers.
Subtract single-digit numbers and multiples of 10 or 100 from three-digit numbers	348 – 7 283 – 20 364 – 100	Count on and back in ones from any three-digit number. Count on and back in tens from any three-digit number. Count on and back in hundreds from any three-digit number.
Reorder and recombine numbers to enable more efficient calculations	7 – 3 – 2 = 7 - (3+2) 14 – 5 – 4 = 14 – 4 – 5	Understand that subtraction is not commutative. Know and use knowledge of number bonds to 10. Count on and back in tens and ones.

Subtraction

Year 4

Mental calculation skills	Examples	Requisite prior knowledge
Subtract two-digit or three-digit multiples of 10	120 – 40 370 – 180	Use knowledge of place value to relate12 - 4 to 120 - 40 Count on and back in tens. Use knowledge of number bonds to efficiently subtract numbers.
Subtract a near multiple of 10	63 – 19 Model using practical equipment.	Round to the nearest 10. Add a multiple of 10 to any number. Count on and back in tens and ones.
Subtract single-digit numbers and multiples of 10, 100 or 1000 from four-digit numbers	2739 – 7 1876 – 50 2718 – 300 3827 – 1000	Count on and back in ones from any four-digit number. Count on and back in tens from any four-digit number. Count on and back in hundreds from any four-digit number. Count on and back in thousands from any four-digit number.
Use known facts and knowledge of place value to work out new facts	32 – 6 = 26 3200 – 600 = 2600	Count on and back in ones from any two-digit number. Count on and back in tens from any two-digit number. Partition two-digit numbers to tens and units. Recombine tens and units. Understand place value in two-digit numbers. Understand the effect of multiplying by 10/100/1000.

Subtraction

Year 5

Mental calculation skills	Examples	Requisite prior knowledge
Subtract a pair of two-digit numbers or three-digit multiples of 10	620 - 380	Partition three-digit numbers into hundreds and tens. Understand place value in two- and three-digit numbers. Use knowledge of place value to relate 62 - 38 to 620 – 380.
Subtract a near multiple of 10 or 100 from any two- digit or three- digit number	326 – 99 £5.00 - £1.99	Subtract a multiple of 10 from any number. Subtract a multiple of 100 from any number. Round numbers to the nearest 10 and 100.
Subtract any pair of decimal fractions each with units and tenths	6.3 - 4.8	Partition units and tenths. Count on and back in tenths including bridging through 1. Understand and use the link between decimals and whole numbers e.g. multiply by 10 to give whole numbers then divide the answer by 10.
Find the difference between near multiples of 100 or of 1000	607 – 588 6070 - 3992	Know number bonds to 100 and related facts (to 1000). Count on and back in hundreds, tens and thousands.

Subtraction

Year 6

Mental calculation skills	Examples	Requisite prior knowledge
Subtract pairs of decimals with units, tenths or hundredths	5.6 - 3.38	Partition units, tenths and hundredths. Understand place value of tenths and hundredths. Recombine units, tenths and hundredths.
Subtract a decimal with units and tenths, that is nearly a whole number	6.5 - 3.8	Understand place value of tenths and hundredths. Be able to round to the nearest whole number. Subtract a whole number from any decimal number.

Multiplication

Year 1

Mental calculation skills	Examples	Requisite prior knowledge
Count on from zero in ones, twos, fives or tens	Count on in ones from any number to 100. If you count in twos from 0, what will be the first six numbers? I'm putting 10p coins into this piggy bank. Count in tens to check how much money is going in. Count the number of eyes in this class.	Begin to understand the link between multiplication and repeated addition. Know the number names up to 100 in order, in symbols (using numerals) and words (spoken). Recognise number patterns, in numeric symbols and spoken words. Cross tens boundaries when counting in ones and twos by understanding the base 10 number system. Learn and apply 2x table and 10x table. Understand and use commutativity (multiplication can be done in any order).

Multiplication

Year 2

Mental calculation skills	Examples	Requisite prior knowledge
Double any multiple of 10 up to 100	Double 15 30 + 30 = Explain how you could work out double 45. Twice 25 is... 40 multiplied by 2 equals...	Double single digit numbers. Double multiples of 10. Partition two-digit numbers into T and U and recombine T and U (by adding components). Understand that doubling is adding the same number to itself. Understand that doubling is multiplying by 2.
Find the total number of objects when they are organised in groups of 2, 5 or 10	What is the total of six groups of 5? How many fingers do these 4 children have? How did you work it out? What is the total of this tally? IIII IIII ~~IIII~~ IIII How else could you write 10 + 10 + 10 + 10?	Count on from zero in twos, fives and tens. Relate 'groups of' to repeated addition. Understand that the last number said in the count is the total of the group. Learn and apply 2x table, 10x table and 5x table. Understand and use commutativity (multiplication can be done in any order). Use estimation to predict and check answers.

Multiplication

Year 3

Mental calculation skills	Examples	Requisite prior knowledge
Double any multiple of 5 up to 100	Double 55 30 + 30 = Explain how you could work out double 65. Twice 70 is... 40 multiplied by 2 equals...	Double single digit numbers. Double multiples of 10. Partition two-digit numbers into T and U and recombine T and U (by adding components). Understand that doubling is adding the same number to itself. Understand that doubling is multiplying by 2.
Multiply one-digit and two-digit numbers by 10 or 100	13 x10 = 7 x 100 = Balloons are sold in packs of 10. How many balloons are in 24 packs?	Understand base 10 number system i.e. 10 ones / units = 1 ten and vice versa and 10 tens = 1 hundred and vice versa. Understand that zero can be used as a place holder. Learn and apply 2x table, 10x table, 5x table, 3x table, 4x table and 8x table. Use estimation to predict and check answers.

Multiplication

Year 4

Mental calculation skills	Examples	Requisite prior knowledge
Double any multiple of 10 or 100	Double 80	Double single digit numbers. Understand and use knowledge of base 10 number system to relate 4 x 2 to 40 x 2.
Double any two-digit number	Double 78 Double ?? and double ? is the same as doubling 36	As above plus: Partition two-digit numbers into T and U and recombine (by adding components).
Multiply numbers to 1000 by 10 and then 100	268 x 10 407 x 100	Understand base 10 number system i.e. 10 ones / units = 1 ten and vice versa and 10 tens = 1 hundred and vice versa. Understand that zero can be used as a place holder.
Multiply a multiple of 10 up to 100 by a single-digit number	30 x 6 How would you work out 60 x 8?	Know multiplication facts to 10 x 10. Understand and use knowledge of base 10 number system to relate 3 x 4 to 3 x 40.
Multiply numbers to 20 by a single- digit	14 x 8 16 x 3 = (10 x 3) + (? x 3)	Know multiplication facts to 10 x 10. Partition two-digit numbers into T and U and recombine (by adding components).
Give the factor pair associated with a multiplication fact	The factor pairs of 24 are 24 and 1, 12 and 2, ? and 3, and? If 14 x 3 = 42, give a factor pair for 42.	Understand that some numbers can be represented as an array. Know multiplication facts to 10 x 10. Know that prime numbers only have two factors.

Multiplication

Year 5

Mental calculation skills	Examples	Requisite prior knowledge
Double three-digit multiples of 10 to 500	Double 460	Double single digit numbers. Understand and use knowledge of base 10 number system to relate 4 x 2 to 40 x 2 to 400 x 2. Partition three-digit numbers into H, T and U and recombine (by adding components).
Multiply whole numbers and decimals by 10, 100 or 1000	1.7 x 100	Understand base 10 number system i.e. 10 ones / units = 1 ten and vice versa and 10 tens = 1 hundred and vice versa and 10 tenths = 1 unit / one and vice versa. Understand that zero can be used as a place holder
Multiply pairs of multiples of 10	20 x 30	Know multiplication facts to 10 x 10. Understand and use knowledge of base 10 number system to relate 3 x 4 = 12 to 3 x 40 = 120 to 30 x 40 = 1200.
Multiply two-digit numbers by 5 or 20	17 x 5 38 x 5 74 x 20	Multiply two-digit numbers by 10. Double two-digit and three-digit numbers. Halve two-digit and three-digit numbers. Understand that (x 10 x 2) is the same as x 20 and that (x 10 ÷ 2) is the same as x 5.
Multiply numbers by 4 or 8	16 x 4	Double two-digit and three-digit numbers. Understand the relationship between x 2, x 4 and x 8.
Multiply by 25 or 50	14 x 25	Multiply two-digit and three-digit numbers by 100. Halve numbers. Understand why halving and halving again is the same as finding a quarter.
Find factor pairs for numbers to 100	Factors of 42	Understand that some numbers can be represented as an array Know multiplication facts to 10 x 10. Recall prime numbers to 100. Know that square numbers have an odd number of factors.

Multiplication

Year 6

Mental calculation skills	Examples	Requisite prior knowledge
Multiply pairs of two-digit and single- digit numbers	28 x 3	Know multiplication facts to 10 x 10. Partition two-digit numbers into T and U and recombine (by adding components). Understand and use knowledge of base 10 number system to relate 3 x 4 = 12 to 3 x 40 = 120.
Double decimals with units and tenths	Double 7.6	Double single digit numbers. Partition decimal numbers into U and tenths and recombine (by adding components). Understand and use knowledge of base 10 number system to relate double 4 to double 0.4.
Multiply pairs of multiples of 10 and 100	50 x 30 600 x 20	Know multiplication facts to 10 x 10. Understand and use knowledge of base 10 number system to relate 3 x 4 = 12 to 3 x 40 = 120 to 30 x 40 = 1200.
Multiply two-digit decimals	0.8 x 7 5.6 x 9	Know multiplication facts to 10 x10. Understand and use knowledge of base 10 number system to relate 8 x 7 = 56 to 0.8 x 7 = 5.6.
Scale up or down using known facts	Given that three oranges cost 24p, find the cost of four oranges.	Know multiplication facts to 10 x 10, including related division facts.
Identify numbers with an odd number of factors and no factor pairs other than one and themselves	What are the factors of 25? Is it always true, sometimes true or never true that square numbers have an odd number of factors? How many different sized rectangular arrays can you make using 12 counters? 17 counters? 13 counters? 16 counters?	Understand that some numbers can be represented as an array. Understand that some numbers can be represented as a square array which is why they are called square numbers. Understand that some numbers have only two factors, one and themselves, and that they are called prime numbers. Understand that every number greater than one is either a prime number or a composite number. Know multiplication facts to 10 x 10.

Division

Year 1

Mental calculation skills	Examples	Requisite prior knowledge
Count back to zero in ones, twos, fives or tens	Count back in ones from 14 to 0. Now try counting back in twos from 14 to 0. How many numbers did you say? Count back in tens from 90 to 0.	Begin to understand the link between division and repeated subtraction Count on from 0 in ones, twos, fives and tens. Cross tens boundaries when counting in ones and twos by understanding the base 10 number system. Know the number names up to 100 in order, in symbols (using numerals) and words (spoken). Understand the amounts the symbols and words represent. Place value – understand what each digit represents in a two-digit number. Recognise number patterns, in numeric symbols and spoken words.

Division

Year 2

Mental calculation skills	Examples	Requisite prior knowledge
Halve any multiple of 10 up to 100 where the answer is even	40 ÷ 2 Use these bundles of straws to help you halve 90.	Know multiples of 10. Halve even numbers to 20. Understand that halving is dividing by 2 and half as one of two equal parts. Understand and use knowledge of base 10 number system to relate 8 ÷ 2 to 80 ÷ 2.
Find half of even numbers to 40	Halve 24 32 ÷ 2 ?? x 2 = 20 28 = ?? x 2	As above plus: Know even numbers. Partition numbers in different ways e.g. when finding half of 36 partitioning 36 into 20 + 16.
Use times tables facts to divide two- digit numbers by 2, 5 or 10	18 ÷ 2 45 ÷ 5 60 ÷ 10	Know and use division facts related to the 2x table, 5x table and 10x table.

Division

Year 3

Mental calculation skills	Examples	Requisite prior knowledge
Halve any multiple of 10 up to 100 where the answer is even	40 ÷ 2 Use these bundles of straws to help you halve 90.	Know multiples of 10. Partition multiples of 10 into pairs of multiples of 10 e.g. 90 = 80 + 10. Halve even numbers to 20. Understand that halving is dividing by 2 and half as one of two equal parts. Understand and use knowledge of base 10 number system to relate 8 ÷ 2 to 80 ÷ 2.
Halve any multiple of 10 up to 200	Halve 170 150 ÷ 2 ?? x 2 = 140 130 = 2 x?? ½ of 110	Know multiples of 10 up to 200. Partition multiples of 10 into pairs of multiples of 10 e.g. 170 = 160 + 10. Halve even numbers to 20. Understand that halving is dividing by 2 and half as one of two equal parts. Understand and use knowledge of base 10 number system to relate 8 ÷ 2 to 80 ÷ 2.
Use times tables facts to divide two- digit numbers by 3, 4 or 8	21 ÷ 3 36 ÷ 4 48 ÷ 8	Know and use division facts related to the 3x table, 4x table and 8x table.
Use times tables facts to divide multiples of ten by 2, 3, 4, 5, 8 and 10	15 ÷ 5 = 3 150 ÷ 5 = 30 150 ÷ 50 = 3	Know and use division facts related to the 2x table,3x table, 4x table, 5x table, 8x table and 10x table. Use place value to find related facts.
Find unit fractions of numbers and quantities involving halves, thirds, quarters, fifths and tenths	Find ¼ of 24. One third of a number is 5. What is the number? What is a fifth of 20ml?	Understand fractions as equal parts of a whole. Understand what the numerator and denominator represent in a fraction. Understand that finding a fraction of an amount is related to sharing equally (division). Know multiplication facts and related division facts for 2, 3, 4, 5 and 10x tables. Count in equal steps (groups). Understand fractions of shapes.

Division

Year 4

Mental calculation skills	Examples	Requisite prior knowledge
Halve any multiple of 10 and 100	½ of 500 Halve 470 ? x 2 = 240 360 =? x 2	Know multiples of 10 up to 200. Partition multiples of 10 into pairs of multiples of 10 e.g. 170 = 160 + 10. Partition multiples of 100 into pairs of multiples of 100 e.g. 700 = 600 + 100. Halve even numbers to 20. Understand that halving is dividing by 2 and half as one of two equal parts. Understand and use knowledge of base 10 number system to relate 8 ÷ 2 to 80 ÷ 2 to 800 ÷ 2.
Halve any even number to 200	½ of 146 Halve 108	As above plus: Partition three-digit numbers into H T and U. Recognise odd and even numbers.
Use times tables facts up to 12 to find related division facts, including multiples of ten	24 ÷ 6 42 ÷ 7 54 ÷ 9 18 ÷ 6 = 3 180 ÷ 6 = 30 180 ÷ 60 = 3	Know and use division facts related to all times table sup to 12 x 12. Use place value to find related facts.
Find unit fractions and simple non- unit fractions of numbers and quantities	Find of 3/8 of 24. Find a quarter of 28 cm.	Know multiplication facts to 10 x 10 and related division facts. Understand fractions of shapes. Understand fractions as equal parts of a whole. Understand what the numerator and denominator represent in a fraction. Count in equal steps (groups). Understand that finding a fraction of an amount is related to sharing equally (division). Find simple unit fractions of numbers.
Divide numbers to 1000 by 10 and then 100 (whole number answers)	340 ÷ 10 ? x 100 = 440 How many metres are in 900 cm?	Understand base 10 number system i.e. 10 ones / units = 1 ten and vice versa and 10 tens = 1 hundred and vice versa. Understand that zero can be used as a place holder.
Identify the remainder when dividing by 2, 5 or 10	26 ÷ 5 17 ÷ 2 How many teams of 5 can be made from 28 children? How many children will be left over?	Know multiplication and related division facts for 2, 5 and 10x tables. Count in equal steps of 2, 5 and 10 from non-multiples of those tables.

Division

Year 5

Mental calculation skills	Examples	Requisite prior knowledge
Halve three-digit multiples of 10 to 1000	760 ÷ 2 Halve 770 Find ½ of 440 ? x 2 = 290	Know multiples of 10 up to 1000. Partition multiples of 10 into pairs of multiples of 10 e.g. 170 = 160 + 10. Partition multiples of 100 into pairs of multiples of 100 e.g. 700 = 600 + 100. Halve even numbers to 100. Understand that halving is dividing by 2 and half as one of two equal parts. Understand and use knowledge of base 10 number system to relate 8 ÷ 2 to 80 ÷ 2 to 800 ÷ 2.
Find the remainder after dividing a two-digit number by a one-digit number	27 ÷ 4	Know multiplication facts to 10 x 10 and related division facts. Count in equal steps of 2, 3, 4, 5, 6, 7, 8, 9 and 10 from non-multiples of those numbers e.g. count back in sixes from 43.
Divide whole numbers by 10, 100 or 1000 (decimal answers)	25 ÷ 10 673 ÷ 100 74 ÷ 100 How many metres are there in 456cm?	Understand base 10 number system i.e. 10 ones / units = 1 ten and vice versa and 10 tens = 1 hundred and vice versa. Understand base 10 decimal number system i.e. 1 unit = 10 tenths, 1 tenth = 10 hundredths. Understand that zero can be used as a place holder.
Divide a multiple of 10 by a single- digit number (whole number answers)	80 ÷ 4 270 ÷ 3	Know multiplication facts to 10 x 10 and related division facts. Understand and use knowledge of base 10 number system to relate 8 ÷ 4 to 80 ÷ 4 to 800 ÷ 4.
Find fractions of whole numbers or quantities	2/3 of 27 4/5 of 70 kg	Know multiplication facts to 10 x 10 and related division facts. Understand fractions of shapes. Understand fractions as equal parts of a whole. Understand what the numerator and denominator represent in a fraction. Count in equal steps (groups). Understand that finding a fraction of an amount is related to sharing equally (division). Find simple unit fractions of numbers.
Find 50%, 25% or 10% of integers or quantities	25% of 20kg 10% of £80	As above plus: Know percentage equivalences for ½, ¼ and 1/10 and vice versa.
Divide two-digit numbers by 4 or 8	72 ÷ 4 96 ÷ 8	Understand the relationship between ÷ 2, ÷ 4 and ÷ 8. Halve two-digit numbers.

Division

Year 6

Mental calculation skills	Examples	Requisite prior knowledge
Divide a two-digit number by a single-digit number	88 ÷ 3 68 ÷ 4	Know multiplication facts to 10 x 10 and related division facts. Partition numbers in different ways e.g. when finding 84 ÷ 7, recognising 84 as 70 + 14.
Halve decimals with tens, units and tenths	Halve 72.7 Find ½ of 15.2. 13.1kg ÷ 2	Halve whole numbers to 100. Understand that halving is dividing by 2 and half as one of two equal parts. Understand base 10 decimal number system i.e. 1 unit = 10 tenths, 1 tenth = 10 hundredths. Understand and use knowledge of base 10 number system to relate 8 ÷ 2 to 80 ÷ 2 and 0.8 ÷ 2.
Divide multiples of 100 by a multiple of 10 or 100 (whole number answers)	400 ÷ 20 4000 ÷ 200 How many 20p coins in £20?	Know multiplication facts to 10 x 10 and related division facts. Understand base 10 number system i.e. 10 ones / units = 1 ten and vice versa and 10 tens = 1 hundred and vice versa. Understand and use knowledge of base 10 number system to relate 8 ÷ 4 to 80 ÷ 40 to 800 ÷ 40 to 800 ÷ 400.
Divide two-digit decimals	4.8 ÷ 6	Know multiplication facts to 10 x 10 and related division facts. Understand and use knowledge of base 10 number system to relate 18 ÷ 6 to 180 ÷ 6 and 1.8 ÷ 6.
Find 10% or multiples of 10% of whole numbers or quantities	Find 30% of 50ml What is 70% of 200g? How much would you pay for an item worth £30 with 40% off?	Know multiplication facts to 10 x 10 and related division facts. Know equivalence between 1/10 and 10% and related fractions e.g. 3/10 = 30%, 9/10 = 90%. Divide whole numbers or quantities by 10.
Simplify fractions by cancelling	What is 14/35 in its simplest form? Reduce 56/100 to its simplest form.	Know multiplication facts to 10 x 10 and related division facts. Identify all factors of numbers to 100.
Scale up or down using known facts	Given that 3 oranges cost 24p, find the cost of 4 oranges.	Know multiplication facts to 10 x 10, including related division facts.
Divide by 25 or 50	480 ÷ 25 3200 ÷ 50	Divide numbers by 100. Double numbers.

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