



Ethos Statement

This is a Church of England Primary School. As such, its ethos derives from the Christian Gospel. In all that it does or aspires to achieve, the school is informed and strengthened by Christian belief and practice.

At the heart of the school's ethos is the conviction that God loves each person: that God desires the best for each person; that God longs for each person to develop their potential as human beings.

Mission Statement

In accordance with the Ethos Statement, our school will aim to provide high quality education to the children of the local community within a safe, happy and stimulating environment

Love, Learn, Live!

Malden Parochial Calculation Policy

This calculation policy has been created to meet the expectations of the new national curriculum, there are examples of the calculation methods for each group and the progression between each method.

Age expectations

The policy has been organised by year group, considering the national curriculum 2014 expectations. The new curriculum focuses on skills and mastery and is not about moving children on to the next method as soon as they can do the one before. Working on more complex and richer problems rather than new methods will support this 'mastering' of maths. However, some children will be working at levels well above their age and will require the introduction of new methods.



ADDITION – Year 1

Focus: adding with numbers up to 20

Children should use number lines (with the numbers on) to add by counting in ones. Starting with the greatest number and counting on the smaller number.

As well as using number lines children in year 1 need to:

Use a variety of equipment to solve addition problems, including counting equipment, everyday objects, number tracks etc.



Read and write the addition (+) and equals (=) sign and use them in number sequences

Solve addition number sentences and missing number problems: 7 + 4 = ?, 1 + 2 + 1 = ?, ? + ? = 9 etc.

Use bead strings or bead bars to visualise bridging through 10s e.g. 8 + 5 = can be solved by counting on 2 and then counting on 3.



Key Vocabulary:

add, more, plus, and, make, altogether, total, equal to, equals the same as, double, most, count on, number line

- Reading and writing numbers to 100 in numerals
- Writing number to twenty in words including spelling
- Counting to and across 100 in ones
- Counting in multiples of 2, 5 and 10
- Solving simple one step addition problems: using objects, number lines and images in support

Focus: adding with 2digit numbers

Children should explore and understand how to use blank number lines to add using their knowledge of place value and how to partition numbers in different ways. Once confident they should move onto written partitioning methods.



Key Vocabulary:

add, more, plus, and, make altogether, total, equal to, equals, the same as, double most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary

- Add a 2-digit number and units and a 2-digit number and 10s
- Add pairs of 2-digit numbers
- Add 3 single digit numbers
- Know and show that adding can be done in any order
- Recall bonds to 20 and multiple of 10 bonds to 100
- Count in steps of 2,3 and 5 and count in 10s from any number
- Understand the place value of 2 digit numbers (tens and ones)
- Compare and order numbers to 100 using $\leq \geq$ and = signs
- Read and write numbers to at least 100 in numerals and words
- Solve contextual addition problems

Focus: adding with numbers up to 3 digits

In year 3 we move to the traditional column method and to support this, children will first apply their portioning skills to the portioning column method.



Key Vocabulary:

add, more, plus, and make altogether, total equal to, equals, the same as, double, most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, carry, expanded, compact

- Read and write numbers to 1000 in numerals and words
- Add 2 digit numbers mentally including those that bridge 100
- Add a 3-digit number and ones, a 3-digit number and tens and a 3-digit number and 100s mentally
- Estimate answers to calculations, using the inverse operation to check
- Solve problems, including missing number problems using number facts and place value
- Recognise the place value of each digit in a 3-digit number (hundreds, tens and ones)
- Continue to practice many different mental addition strategies including adding to the nearest multiple of 10, 100 and 1000 and adjusting, using number bonds, using near doubles, portioning and recombining etc.

Focus: adding with numbers up to 4 digits

In year 4, children will consolidate their use of the traditional column method and will be able to use it confidently to add numbers up to 4 digits. This could include carrying ones, tens and hundreds.



Key Vocabulary:

add, more, plus, and, make, altogether, total, equal to, equals, the same as, double, most, count on, number line, sums, tens, ones, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, carry, expanded, compact, thousands, hundreds, digits, inverse

- Select the most appropriate method: mental, jottings or written and explain why
- Recognise the place value of each digit in a 4-digit number
- Round any number to the nearest 10, 100 or 1000
- Estimate and use inverse operations to check answers
- Solve 2-step problems in different contexts, picking the correct operation to use
- Find 100 more or less than a number
- Continue to use a wide range of mental addition methods
- Add numbers with up to 4 digits using column method

Focus: adding with more than 4 digits.

In year 5 the children will now use the column method to add decimal numbers in the context of money and measures. It is important that children have place value skills beyond 4 digits here and fully understand what a decimal number represents.



Key Vocabulary:

add, more, plus, and, make, altogether, total, equal to, equals, the same as, double, most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, carry, expanded, compact, thousands, hundreds, digits, inverse, decimal place, decimal point, tenths, hundredths, thousandths

- Add increasing large numbers mentally using an expanded range of strategies
- Use rounding to check answers and make estimates
- Understand the place value of tenths and hundredths
- Solve multistep problems in different contexts, deciding what operation and method to use and explaining why
- Read, write, order and compare to 1 million
- Round any number to 1 million to the nearest 10, 100, 1,000, 10,000 or 100,000
- Add numbers with more than 4 digits using column addition

Focus: adding several numbers with an increasing level of complexity

In year 6 children need to use all the previous adding skills developed to add several numbers with a variety of different decimal places. Many of these problems will be in the context of money or measures.



Key Vocabulary:

add, more, plus, and, make, altogether, total, equal to, equals, the same as, double, most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, carry, expanded, compact, thousands, hundreds, digits, inverse, decimal place, decimal point, tenths, hundredths, thousandths, integer

- Solve problems mentally, including those with mixed operations and large numbers, using all the mental strategies learnt in previous years
- Solve multistep problems in context, deciding what operation and method to use
- Use estimation to check answers to a calculation
- Read, write order and compare numbers to 10 million and understand the value of each digit
- Round decimal numbers to the nearest whole number

Focus: subtracting from numbers up to 20

In year 1, children will use number lines, objects and visual models to understand subtraction as taking away but also as the difference between or distance between two numbers.



Key Vocabulary:

equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is _?

- Give a number, say one more or one less
- Count to and over 100 forward and back from any number in 1s
- Represent and use subtraction facts to 20 and within 20
- Subtract with one digit and 2 digit numbers to 20, including zero
- Solve one step problems that involve subtracting using objects, pictures and numbered lines
- Read and write numbers to 100 in numerals
- Write number in words to 20 including spelling

Focus - subtracting with 2 digit numbers

In year 2, children will start to use blank number lines to subtract by counting back which will greatly support the development of mental subtraction skills. Base 10 is also a super subtraction tool and should be used alongside blank number line methods.



Key Vocabulary:

equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is_? count on, strategy, partition, tens, ones

- Recognise the place value of each digit in a 2-digit number
- Recall and use subtraction facts to 20 fluently, use to derive related facts to 100
- Subtract using objects, images, 100 squares and mentally including a two-digit number and ones, a two-digit number and tens and two 2 digit numbers
- Understand and show that subtraction calculations cannot be done in any order
- Use the inverse relationship between + and to check calculations and solve missing number problems
- Solve simple subtraction problems in context using written and mental methods
- Read and write numbers to at least 100 in numerals and words

Focus: Subtracting with 2 and 3 digit numbers

Children will consolidate their knowledge of counting back and counting on using a blank number line to subtract. They will use these methods both written and mentally. Once children become fully confident they will be ready to move on to the partitioning column method of subtraction.



Key Vocabulary:

equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is_? count on, strategy, partition, tens, ones, exchange, decrease, hundreds, value, digit.

- Subtract mentally: a 3-digit number and 1s, a 3-digit number and 10s and a 3-digit number and 100s
- Estimate answers and use the inverse to check
- Solve problems in different contexts, including missing number problems
- Fins 10 or 100 more or less than a given number
- Recognise the place value in a 3-digit number, 100s, 10s and 1s
- Solving finding the difference problems using counting on
- Reading and writing numbers to 1000 in numerals and words
- Practise and develop mental strategies including subtracting near multiples of 10 and adjusting, counting on etc.

Focus: subtracting with numbers up to 4 digits

Children will consolidate their knowledge of the portioning column method for subtraction with 4 digit numbers including those where exchange is required. Once they are secure with this they will move on to the compact (traditional) method of column subtraction.



Key Vocabulary:

equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is_? count on, strategy, partition, tens, ones, exchange, decrease, hundreds, value, digit, inverse

- Subtract by counting on where number are close together or they are near to multiples of 10, 100 etc.
- Children select a mental, written or jotting method depending on what the problem requires
- Children estimate and use the inverse operation to check a problem
- Children solve 2 step problems involving + and -, picking the correct operation and method
- Children solve simple money and measure problems with fractions and decimals.
- Find 1000 more or 1000 less than a given number
- Count backwards through zero including negative numbers
- Recognise the place value of each digit in a 4-digit number
- Round any number to the nearest 10, 100 or 1000
- Solve number and practical problems that involve increasingly large positive integers

Focus: subtracting with numbers beyond 4 digits including decimals

Children in year 5 will continue to use the compact column method of subtraction to solve problems including those where exchanging is required. They will subtract larger integers and begin to subtract decimal amounts.



Key Vocabulary:

equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is_? count on, strategy, partition, tens, ones, exchange, decrease, hundreds, value, digit, inverse, tenths, hundredths, decimal place, decimal

- Subtract mentally with increasing large numbers
- Use rounding and estimation to check answers to calculations
- Solve addition and subtraction multi step problems, deciding which operations to use and why
- Read, write, order and compare numbers to at least 1 million and understand the value of each digit
- Count forwards or backwards in steps of powers of 10 to 1 million
- Understand negative numbers in context and count forward and backwards through zero
- Round any number up to 1 million to the nearest 10, 100, 1000, 10,000, 100,000

Focus: subtracting with increasing complex numbers, including decimals

In year 6, children need to use mental methods and the compact column method subtraction to solve an increasingly complex range of calculations including those with integers, those with decimals and those with mixed numbers.



Key Vocabulary:

equal to, take, take away, less, minus, subtract, leaves, distance between, difference between, how many more, how many fewer/less than, most, least, count back, how many left, how much less is_? count on, strategy, partition, tens, ones, exchange, decrease, hundreds, value, digit, inverse, tenths, hundredths, decimal place, decimal

- Solve addition and subtraction multi step problems in context, deciding which operation to use and why
- Read, write, order and compare numbers to at least 10 million and understand the value of each digit
- Round any whole number up to 10 million to the nearest 10,100, 1000, 10,000, 100,000, or 1 million
- Use negative numbers in context and calculate intervals across zero
- Look at calculations and decide whether to use a mental method, a jotting or a written method to solve

Focus: repeated addition with objects, arrays and pictorial representations

In year one, children will be exposed to many different multiplications based activities in a variety of contexts. Much of this will be repeated addition activities or be linked to counting in 2s, 5s or 10s.



Key Vocabulary: groups of, lots of, array, altogether, multiply, count

- Count in multiples of 2, 5 and 10
- Solve 1 step problems involving multiplication using objects, arrays or pictures with support
- Make connections between arrays and counting in 2s, 5s and 10s
- Begin to understand doubling using objects and pictorial representations
- Solve practical problem solving activities counting equal sets or groups
- Have lots of practise counting and grouping objects in to 2s, 5s and 10s

Focus: multiplying using arrays and repeated addition – 2,3,4,5,10x table facts

In year 2, children will be aware of simple arrays and pictorial representations and understand what they mean. They will develop the knowledge of how to make their own arrays to solve a problem and also how repeated addition on a number line can get them to a solution.



Key Vocabulary:

groups of, lots of, times, array, altogether, multiply, count, multiply by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times

- Count in steps of 2,3 and 5 from zero and in 10s from any number
- Recall and use multiplication facts for the 2,5 and 10 times tables
- Recognise odd and even numbers
- Write and calculate number statements using the x and = signs
- Show that multiplication can be done in any order (the commutative law)
- Solve a range of multiplication problems using objects, arrays, repeated addition, mental methods and multiplication facts
- Use and become familiar with all of the above multiplication language

Focus: multiplying 2 digit numbers by 1 digit numbers

In year 3, children will move on from arrays and start using the grid method of multiplication. It is essential that before children move on to the grid method they are completely confident with all previous methods and have a solid grounding with mental methods and partitioning.



Key Vocabulary:

groups of, lots of, times, array, altogether, multiply, count, multiply by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value

- Recall and use multiplication facts for the 2,3,4,5,6 and 10 times tables and multiply multiples of 10
- Write and calculate number sentences using known times tables
- Answer 2-digit x 1 digit problems using mental and written methods
- Solve multiplication problems in context including missing number problems
- Develop mental strategies using commutativity (e.g. 4x12x5=4x5x12=20x12=240) and for missing number problems

Focus: multiplying 2 and 3 digit numbers by 1 digit numbers

In year 4, children need to use the grid method confidently to solve problems where a 2 or 3-digit number is multiplied by a 1-digit number. They need to move on to the use of short multiplication to solve 3 digit numbers multiplied by 1 digit problems.



Key Vocabulary:

groups of, lots of, times, array, altogether, multiply, count, multiply by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value, inverse

- Count in multiples of 6,7,8,9,25 and 1000
- Recall multiplication facts for all multiplication tables up to 12x12
- Recognise place value of digits in numbers up to 4 digits
- Multiply large numbers and multiply values mentally using place value, known facts and derived facts
- Use commutativity mentally to solve problems
- Solve problems in a range of contexts that are increasingly complex

Focus: multiplying up to 4 digits by 1 or 2 digits

In year 5, children will continue to use short multiplication to solve increasingly richer problems that involve multiplying by 1 digit. They will then move on to long multiplication for problems that involve multiplying by 2 digits. Approximation will play an important part – with children making approximations before using long multiplication to help check their answer is correct.



Key Vocabulary:

groups of, lots of, times, array, altogether, multiply, count, multiply by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value, inverse, square, factor, integer, decimal, short/long multiplication, carry

- Identify multiples and factors, using secure times table facts to 12x12
- Solve problems where larger numbers are decomposed into their factors
- Multiply and divide integers and decimals by 10, 100 and 1000
- Recognise and use square and cube numbers and their notation
- Solve problems that have different combinations of operations, picking the most useful method

Focus: consolidating short and long multiplication, multiplying decimals by 1 digit

In year 6, children will consolidate all they know about short and long multiplication before they go to secondary school. They will also learn the new skill of using short multiplication to multiply decimal numbers to 2 decimal places.

	3	•	1	9	
x	8				When multiplying decimals it is important to remember that the digit you are multiplying by needs to be lined up with the ones digits. As with all decimal work, the decimal points must be lined up and the children need to have a clear
2	5	•	5	2	understanding why that is.
			7		

Key Vocabulary:

groups of, lots of, times, array, altogether, multiply, count, multiply by, repeated addition, column, row, commutative, sets of, equal groups, times as big as, once, twice, three times, partition, grid method, multiple, product, tens, ones, value, inverse, square, factor, integer, decimal, short/long multiplication, carry, tenths, hundredths, decimals

- Multiply up to 4 digits by 2 digits using long multiplication
- Solve mixed operation and large number problems using mental methods
- Solve multi step problems involving a range of operations
- Estimate and approximate answers of problems to improve accuracy
- Round any integer to the determined level of accuracy

Focus: grouping and sharing small quantities without remainders

As an introduction to division, children in year 1 will solve problems in familiar and relevant contexts where they have to group and share. They will use objects and pictorial representations to solve problems and they will begin counting in 2s, 5s and 10s to support their problem solving.



Key Vocabulary:

share, share equally, one each, two each..., group, groups of, lots of, array

- Solve one step problems involving multiplication and division using concrete objects with support from adults
- Children use grouping and sharing to understanding division and to begin to understand finding simple fractions
- Children make connections between arrays and counting in 2s, 5s and 10s
- Children use halving and understand that this is the same as sharing in 2 equal groups

Focus: grouping and sharing larger quantities using written methods and symbols

Children will continue to use the methods of sharing and grouping in division with objects to support their understanding of arrays for sharing and grouping and the division number line for grouping.



Key Vocabulary:

share, share equally, one each, two each..., group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over

- Count in steps of 2,3 and 5 form zero
- Recall and use x and \div facts for the 2, 5 and 10 times tables
- Solve division problems and write division number sentences for problems
- Understand that division is not commutative unlike multiplication
- Solve increasingly challenging division problems using concrete objects, arrays, and simple written methods such as grouping on a number line

Focus: dividing 2 digit numbers by 1 digit numbers moving from number line method to short division

Children in year 3 will continue to use a number line to solve division problems and will begin to jump more than one step at a time in the style of 'chunking'. Once confident they will move on to short division without any remainders.



Key Vocabulary:

share, share equally, one each, two each..., group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, carry, remainder, multiple

- Recall and use x and ÷ facts for the 2,3,4,5,6,8 and 10 x tables (using doubling to connect 2,4 and 8 x tables)
- Solving division problems where a 2-digit number is divided by a 1-digit number using mental and written methods
- Solve problems in a variety of contexts including missing number problems
- Pupils begin to derive related facts e.g. $9 \div 3 = 3$ means $90 \div 3 = 30$ or $90 \div 30 = 3$
- Pupils develop confidence in written methods moving from number lines to short division

Focus: consolidating and extending use of short method

Children in year 4 will continue to use short division to solve division problems. They will begin to work on remainders, including problems where there are in the first numbers but not in the answer.



Key Vocabulary:

share, share equally, one each, two each..., group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, carry, remainder, multiple, divisible by, factor

- Recall multiplication and division facts for all numbers to 12 x 12
- Use place value and known facts to derive facts mentally including multiplying and dividing by 100, 10 and 1
- Practise mental methods and extend this to three digit numbers using derived factse.g. 100 ÷ 5 = 20 so 20 x 5 = 100
- Solve two step problems with increasingly harder numbers in a range of contexts, using language to identify the correct operation
- Correspondence problems should be introduced such as 3 cakes are shared equally between 10 children, 1 man has 6 cats so how many cats do 3 men have etc.

Focus: extending use of short division to 4 digits and remainders

Children in year 5 will use short division to solve problems up to 4 digits long. For the first time they will use short division to solve problems that have a remainder in the final answer.



Key Vocabulary:

share, share equally, one each, two each..., group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, carry, remainder, multiple, divisible by, factor, quotient, prime number, prime factors, composite number (non-prime)

- Multiply and divide number mentally using known facts
- Identify multiples and factors, including all factor pairs of a number and common factors between 2 numbers
- Solve x and ÷ problems where larger numbers are decomposed into their factors
- Multiply and divide whole numbers and decimals by 10, 100 and 1000
- Use vocabulary of prime numbers, prime factors and composite numbers
- Work out whether a number up to 100 is prime and know all prime numbers sup to 30
- Use and understand multiplication and division as inverses
- Present division with remainders answers differently, showing the remainder as a fraction, decimal or whole number by rounding
- Solve problems with a combination of all four operations including fraction scaling problems and problems involving simple rates

Focus: using short division to divide 4 digit numbers and express remainders as decimals and long division for dividing 2 digit numbers

In year 6, children will use short division to divide decimal numbers by single digit numbers. The final step of division will be long division which will be used to divide numbers by 2 digits.



Key Vocabulary:

share, share equally, one each, two each..., group, groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, carry, remainder, multiple, divisible by, factor, quotient, prime number, prime factors, composite number (non-prime), common factor

- Use multiplication and division facts up to 12 x 12 to solve more complex problems
- Decide when to use short or long division and interpret remainders in a way that is appropriate to the problem
- Perform mental calculations for problems involving large numbers and mixed calculations
- Identify common factors, common multiples and prime numbers
- Use estimation to check answers to calculations and determine accuracy
- Use written methods of division to solve decimal problems up to 2 decimal places
- Solve problems which require rounding to 10, 100, 1000 and beyond