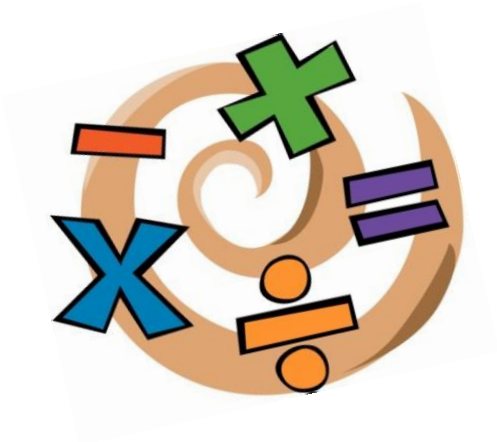

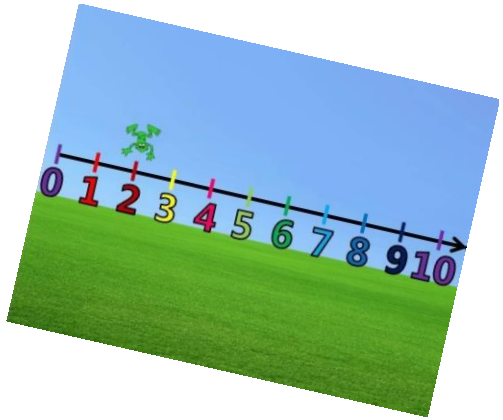

Mathematics

St. Bede's Catholic Infant School

Subject Intent for Mathematics 2023-24

Subject Leader: Miss Boardman

The curriculum statement gives an overview of the overall aims for the maths curriculum, the essential principles that determine the framework and the broad content. These are implemented through subject schemes of work, which are obviously far more detailed. At the heart of the subject scheme of work is the National Curriculum Programme of Study, which is the statutory entitlement for all pupils in local authority-maintained schools. Our aim in teaching maths is to give every child the National Curriculum +.

Purpose of study

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

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Subject implementation

Time allocation:

Maths is allocated 18% of curriculum time over Key Stage 1. This may be through discrete subject teaching or as part of other subjects for example Computing.

Subject content : Key stage 1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Key Stage 1 Maths Curriculum

Number: Number and Place Value

Year 1	Year 2
Counting	
count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	
count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
given a number, identify one more and one less	
Comparing Numbers	
use the language of: equal to, more than, less than (fewer), most, least	compare and order numbers from 0 up to 100; use <, > and = signs
Identifying, Representing and Estimating Numbers	
identify and represent numbers using objects and pictorial representations including the number line	identify, represent and estimate numbers using different representations, including the number line
Reading and Writing Numbers	
read and write numbers from 1 to 20 in numerals and words.	read and write numbers to at least 100 in numerals and in words
Understanding Place Value	
	recognise the place value of each digit in a two-digit number (tens, ones)
Problem Solving	
	use place value and number facts to solve problems

Number: Addition and Subtraction

Year 1	Year 2
Number Bonds	
represent and use number bonds and related subtraction facts within 20	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
Mental Calculation	
add and subtract one-digit and two-digit numbers to 20, including zero	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers
read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Written Methods)	show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
Written Methods	
read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs (appears also in Mental Calculation)	add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
Reverse Operations, Estimating and Checking Answers	
	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
Problem Solving	
solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \Delta - 9$	solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods
	solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Number: Multiplication and Division

Year 1	Year 2
Multiplication and Division Facts	
count in multiples of twos, fives and tens	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
Mental Calculation	
	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (appears also in Written Methods)
show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	
Written Calculation	
	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
Problem Solving	
solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Number: Fractions

Year 1	Year 2
Counting in Fractional Steps	
	Pupils should count in fractions up to 10, starting from any number and using the $^1/_2$ and $^2/_4$ equivalence on the number line (Non Statutory Guidance)
Recognising Fractions	
recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions $^1/_3$, $^1/_4$, $^2/_4$ and $^3/_4$ of a length, shape, set of objects or quantity
recognise, find and name a quarter as one of four equal parts of an object, shape or quantity	
Comparing Fractions	
	compare and order unit fractions, and fractions with the same denominators
Equivalence (including Fractions)	
	write simple fractions e.g. $^1/_2$ of 6 = 3 and recognise the equivalence of $^2/_4$ and $^1/_2$.

Measurement

Year 1	Year 2
Comparing and Estimating	
compare, describe and solve practical problems for: lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half) mass/weight (e.g. heavy/light, heavier than, lighter than) capacity and volume (e.g. full/empty, more than, less than, half, half full, quarter) time (e.g. quicker, slower, earlier, later)	compare and order lengths, mass, volume/capacity and record the results using >, < and =
sequence events in chronological order using language (e.g. before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening)	compare and sequence intervals of time
	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)
Measuring and Calculating	
measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds)	recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value
	find different combinations of coins that equal the same amounts of money
	solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Measurement

Year 1	Year 2
Telling the Time	
tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
recognise and use language relating to dates, including days of the week, weeks, months and years	know the number of minutes in an hour and the number of hours in a day. (appears also in Converting)
Converting	
	know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)

Geometry: Properties of Shape

Year 1	Year 2
Identifying Shapes and their Properties	
recognise and name common 2-D and 3-D shapes, including: 2-D shapes [e.g. rectangles (including squares), circles and triangles] 3-D shapes [e.g. cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line
	identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
	identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]
Comparing and Classifying	
	compare and sort common 2-D and 3-D shapes and everyday objects

Geometry: Position and Direction

Year 1	Year 2
Position, Direction and Movement	
describe position, direction and movement, including half, quarter and three-quarter turns.	use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
Pattern	
	order and arrange combinations of mathematical objects in patterns and sequences

Statistics

Year 1	Year 2
Interpreting, Constructing and Representing Data	
	interpret and construct simple pictograms, tally charts, block diagrams and simple tables
	ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
	ask and answer questions about totalling and comparing categorical data

Algebra

Year 1	Year 2
Equations	
solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ∆- 9	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and **missing number** problems
	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
represent and use number bonds and related subtraction facts within 20	
Sequences	
sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening	compare and sequence intervals of time
	order and arrange combinations of mathematical objects in patterns

Mathematics Vocabulary

Below is a list of mathematics words and phrases. This list is by no means exhaustive but contains some of the common mathematical terms that the children will be using in daily maths lessons.

How many?	More, one more, ten more etc, extended to one hundred more Less, one less, ten less etc, extended to one hundred less	Ordinal numbers; First, second, third, forth... 1st, 2nd, 3rd, 4th...	Tens, ones Digit, one digit, two digits Place value
Odd number Even number	Count on Count up to Count from Count back	Whole, whole one, equal parts, fraction, half, quarter, two quarters (equal to one half), three quarters, third	Times, times tables, multiplication table, Double, halve
Same number as Equal to As many as	More than/Greater than >>br>Less than <	Less than Smaller than Fewer than	Equals Makes Is the same as =
Add/addition + The sum of Total Altogether Plus Part/part/whole model Tens frame	Subtract/subtraction - Take away Minus Difference between	Multiply/multiplication x Sets of Lots of Groups of Double	Divide/division ÷ Share Share equally Halve
Money, coins, notes, pence, cash, card, price, cost, buy, sell, spend, pay, change, costs more/dearer, costs less/cheaper, how much?	Measure, length, ruler Long, longer, longest Tall, taller, tallest, Short, shorter, shortest Centimetre (cm) Metre (m) Kilometre (km)	Height, high, highest Low, lower, lowest Width, wide, wider, widest Narrow, narrower Depth, deep Shallow Far, near, close	Mass, weight Balance Scales Heavy, heavier, heaviest Light, lighter, lightest Gram (g) Kilogram (km)
Capacity Full, half full, quarter full, empty, half empty Holds Volume Container Millilitre (ml), Litre (l)	Today, yesterday, tomorrow Now, soon Early, earlier, earliest Late, later, latest Fast, faster, fastest	Time, clock, hands Hour, half hour Minute Second Quarter past/ quarter to	Sort, order, match, set, pictogram, chart, bar chart, graph, list, tally most often/least often Most popular/least popular