Mathematics

St. Bede's Catholic Infant School

Subject Intent for Mathematics 2022-2023

Subject Leader: Miss Boardman

The curriculum statement gives an overview of the overall aims for the mathematics 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 mathematics is for every child reach their potential within the objectives set in 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 by 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:

Mathematics 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.

Implementation

White Rose Maths

In St Bede's Infants we use the White Rose Maths schemes of learning supported by Primary Stars Resources, which are aligned to the White Rose Maths schemes of learning content.

White Rose Maths schemes of learning are designed to support a mastery approach to teaching and learning and are consistent with the aims and objectives of the National Curriculum. A significant amount of time is spent reinforcing number in order to build competency and ensure children can confidently access the rest of the curriculum. The schemes of learning support teachers to stay within the required key stage so that children acquire depth of knowledge in each topic. Opportunities to revisit previously learned skills are built into later blocks. Working together, children can progress through the schemes as a whole

group, encouraging students of all abilities to support each other in their learning. Every block in the schemes of learning is broken down into small steps. These small steps help children to make connections and build deep conceptual knowledge. The schemes develop all three key areas of the National Curriculum, giving children the knowledge and skills they need to become confident mathematicians.

The schemes use a Concrete-Pictorial-Abstract (CPA) approach. This is to allows children, when introduced to a new concept, to have the opportunity to build their competency by following a CPA approach;

Concrete

Children have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build understanding of what they are doing.

Pictorial

Alongside concrete resources, children work with pictorial representations, making links to the concrete. Visualising a problem in this way can help children to reason and to solve problems.

Abstract

With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods.

In lessons the children are encouraged to share and discuss their methods for solving problems. They use a wide range of high quality resources to support their learning and allow them to develop confidence and competence. On-going assessment takes place daily with verbal feedback used to allow children to further give explanation for their methods and understanding. Topics are revisited in distance learning tasks.

NCETM Mastering Number

This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention is given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.

This programme focuses on the key knowledge and understanding needed in Reception classes, and progression through KS1. School received training last year and implemented the programme in all year groups. All resources were supplied including planning, whiteboard presentations and pupil resources.

The programme is taught 4 times per week for all children. Each daily teaching session lasts for all children of 10 to 15 minutes, in addition to the normal maths lesson.

The aims of the project are:

- Children will be able to clearly communicate their mathematical ideas
- Teachers will develop a secure understanding of how to build firm mathematical foundations
- Teachers will work to develop intentional teaching strategies focused on developing fluency in calculation and number sense for all children
- Teachers will develop understanding and use of appropriate manipulatives to support the teaching of mathematical structures

The programme was implemented in the Year 2021-22 and will be further embedded this year. The impact of the programme on children's confidence development of number sense has been evident and we look forward to seeing its further impact over the coming years.

NumBots

This is an award winning maths website and app and is specifically for 5-7 year olds. It helps improve children's confidence with counting, addition and subtraction. The children are set challenges which they move through at their own pace. Children are encouraged to play for at least 3 minutes a day, 4 or 5 times a week. As Numbots can be used via the website or mobile app it can used at home or on-the-go. Children build their own robot and by processing through levels can win parts to customise their robot, providing fun and challenge.

NumBots builds on children's growing skills of counting by helping them to subitise (recognise without counting) small amounts, using multiple representations and following a 'depth before breadth' approach. Levels are locked until children show understanding of a concept before moving on. The platform perfectly complements White Rose Maths and Mastering Number.

Children will receive an individual log on for NumBots in their Home/School Diary. For further information please click the link https://numbots.com/families/

EYFS Framework 2021

The EYFS Frame work is made up of 17 areas.

Three areas are particularly important for building a foundation for igniting children's curiosity and enthusiasm for learning, forming relationships and thriving. These are the prime areas:

• *communication and language*

• *physical development*

• *personal, social and emotional development*

Providers must also support children in four specific areas, through which the three prime areas are strengthened and applied.

The specific areas are:

• *literacy*

• *mathematics*

• *understanding the world*

• *expressive arts and design*

Mathematics is a *'specific'* area in the EYFS framework.

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

EYFS Mathematics

ELG: Number

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;

- Subitise (recognise quantities without counting) up to 5;

- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

ELG: Numerical Patterns

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;

- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;

- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

EYFS and Key Stage 1 Maths Curriculum Progression (including Year 3)

Number: Number and Place Value

EYFS - ELG	Year 1	Year 2	Year 3
Counting			
Verbally count beyond 20, recognising the pattern of the counting system;	count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number		
Verbally count beyond 20, recognising the pattern of the counting system;	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	count from 0 in multiples of 4, 8, 50 and 100
Have a deep understanding of number to 10, including the composition of each number	given a number, identify one more and one less		find 10 or 100 more or less than a given number
Comparing Numbers			
Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity	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	compare and order numbers up to 1000
Identifying, Representing and Estimating Numbers			
Have a deep understanding of number to 10, including the composition of each number	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	identify, represent and estimate numbers using different representations

Reading and Writing Numbers			
Verbally count beyond 20, recognising the pattern of the counting system;	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	read and write numbers up to 1000 in numerals and in words
			tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
Understanding Place Value			
		recognise the place value of each digit in a two-digit number (tens, ones)	recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
Problem Solving			
		use place value and number facts to solve problems	solve number problems and practical problems involving these ideas.

Number: Addition and Subtraction

EYFS - ELG	Year 1	Year 2	Year 3
Number Bonds			
Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	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	add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds
	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 number with up to three digits, using formal written methods of columnar addition and subtraction
Inverse Operations, Estimating and Checking Answers			
		recognise and use the inverse	estimate the answer to a

		relationship between addition and subtraction and use this to check calculations and solve missing number problems.	calculation and use inverse operations to check answers
Problem Solving			
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \triangle - 9$	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 problems, including missing number problems, using number facts, place value, and more complex addition and subtraction
		solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	

Number: Multiplication and Division

EYFS - ELG	Year 1	Year 2	Year 3
Multiplication and Division Facts			
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.	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	count from 0 in multiples of 4, 8, 50 and 100
		recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
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)	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 Mental 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	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 Mental Methods)
		Inverse Operations, Estimation and Checking Answers	
			estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction)
		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	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects

Number: Fractions

EYFS - ELG	Year 1	Year 2	Year 3
Counting in Fractional Steps			
		Pupils should count in fractions up to 10, starting from any number and using the $\frac{1}{2}$ and $\frac{2}{4}$ equivalence on the number line (Non-Statutory Guidance)	count up and down in tenths
Recognising Fractions			
Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;	recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
			recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10.
	recognise, find and name a quarter as one of four equal parts of an object, shape or quantity		recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
Comparing Fractions			
			compare and order unit fractions, and fractions with the same denominators
Equivalence (including Fractions)			
		write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	recognise and show, using diagrams, equivalent fractions with small denominators

Addition and Subtraction of Fractions			
			add and subtract fractions with the same denominator within one whole (e.g. 5 / 7 + 1 / 7 = 6 / 7)
Problem Solving			
			solve problems that involve all of the above

Measurement

EYFS - ELG	Year 1	Year 2	Year 3
	Comparing and Estimating		
There are no early learning goals that directly relate to shape, space and measure objectives. However, children will have experienced rich opportunities to develop their spatial reasoning skills in shape, space and measure	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	compare durations of events, for example to calculate the time taken by particular events or tasks
			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)	choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels	measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
				measure the perimeter of simple 2-D shapes
		recognise and know the value of different denominations of coins and notes	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	add and subtract amounts of money to give change, using both £ and p in practical contexts

Measurement

EYFS - ELG	Year 1	Year 2	Year 3
Telling the Time			
There are no early learning goals that directly relate to shape, space and measure objectives. However, children will have experienced rich opportunities to develop their spatial reasoning skills in shape, space and measure	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.	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
	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)	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 Comparing and Estimating)
Converting			
		know the number of minutes in an hour and the number of hours in a day. (appears also in Telling the Time)	Know the number of seconds in a minute and the number of days in each month, year and leap year

Geometry: Properties of Shape

EYFS - ELG	Year 1	Year 2	Year 3
Identifying Shapes and their Properties			
There are no early learning goals that directly relate to shape, space and measure objectives. However, children will have experienced rich opportunities to develop their spatial reasoning skills in shape, space and measure.	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	
Drawing and Constructing			
			Draw 2-D shapes and make 3-D shapes using modelling materials; recognising 3-D shapes in different orientations and describe them
		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	
Angles			
			Recognise angles as a property of shape or a description of a turn
			identify right angles, recognise that two right angles make a half turn, three make three quarters of a turn

| | | | and four a complete turn; identify whether angles are greater than or less than a right angle |
| | | | identify horizontal and vertical lines and pairs of perpendicular and parallel lines |

Geometry: Position and Direction

EYFS - ELG	Year 1	Year 2	Year 3
Position, Direction and Movement			
There are no early learning goals that directly relate to shape, space and measure objectives. However, children will have experienced rich opportunities to develop their spatial reasoning skills in shape, space and measure.	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

EYFS - ELG	Year 1	Year 2	Year 3
Interpreting, Constructing and Representing Data			
There are no early learning goals that directly relate to statistic objectives. However, children will have experienced rich opportunities to develop their reasoning skills in interpreting, constructing and representing simple data.		interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and 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	
Solving Problems			
		solve one-step and two-step questions (e.g. 'How many more?' and 'How many fewer?') using information presented in scaled bar charts and pictograms and tables.	

Algebra

EYFS - ELG	Year 1	Year 2	Year 3
Equations			
.	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = Δ- 9	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and **missing number** problems	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction (copied from Addition and Subtraction) Solve problems, including missing number problems, involving multiplication and division, including integer scaling (copied from Multiplication and Division)
		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	

Mathematical 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 >
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

NCETM Mastering Number: Overview of Content – Reception

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison
1 **Children will:**	• perceptually subitise within 3 • identify sub-groups in larger arrangements • create their own patterns for numbers within 4 • practise using their fingers to represent quantities which they can subitise • experience subitising in a range of contexts, including temporal patterns made by sounds.	• relate the counting sequence to cardinality, seeing that the last number spoken gives the number in the entire set • have a wide range of opportunities to develop their knowledge of the counting sequence, including through rhyme and song • have a wide range of opportunities to develop 1:1 correspondence, including by coordinating movement and counting • have opportunities to develop an understanding that anything can be counted, including actions and sounds • explore a range of strategies which support accurate counting.	• see that all numbers can be made of 1s • compose their own collections within 4.	• understand that sets can be compared according to a range of attributes, including by their numerosity • use the language of comparison, including 'more than' and 'fewer than' • compare sets 'just by looking'.
2 **Children will:**	• continue from first half-term • subitise within 5, perceptually and conceptually, depending on the arrangements.	• continue to develop their counting skills • explore the cardinality of 5, linking this to dice patterns and 5 fingers on 1 hand • begin to count beyond 5 • begin to recognise numerals, relating these to quantities they can subitise and count.	• explore the concept of 'wholes' and 'parts' by looking at a range of objects that are composed of parts, some of which can be taken apart and some of which cannot • explore the composition of numbers within 5.	• compare sets using a variety of strategies, including 'just by looking', by subitising and by matching • compare sets by matching, seeing that when every object in a set can be matched to one in the other set, they contain the same number and are equal amounts.

3 **Children will:**	• increase confidence in subitising by continuing to explore patterns within 5, including structured and random arrangements • explore a range of patterns made by some numbers greater than 5, including structured patterns in which 5 is a clear part • experience patterns which show a small group and '1 more' • continue to match arrangements to finger patterns.	• continue to develop verbal counting to 20 and beyond • continue to develop object counting skills, using a range of strategies to develop accuracy • continue to link counting to cardinality, including using their fingers to represent quantities between 5 and 10 • order numbers, linking cardinal and ordinal representations of number.	• continue to explore the composition of 5 and practise recalling 'missing' or 'hidden' parts for 5 • explore the composition of 6, linking this to familiar patterns, including symmetrical patterns • begin to see that numbers within 10 can be composed of '5 and a bit'.	• continue to compare sets using the language of comparison, and play games which involve comparing sets • continue to compare sets by matching, identifying when sets are equal • explore ways of making unequal sets equal.
4 **Children will:**	• explore symmetrical patterns, in which each side is a familiar pattern, linking this to 'doubles'.	• continue to consolidate their understanding of cardinality, working with larger numbers within 10 • become more familiar with the counting pattern beyond 20.	• explore the composition of odd and even numbers, looking at the 'shape' of these numbers • begin to link even numbers to doubles • begin to explore the composition of numbers within 10.	• compare numbers, reasoning about which is more, using both an understanding of the 'howmanyness' of a number, and its position in the number system.
5 **Children will:**	• continue to practise increasingly familiar subitising arrangements, including those which expose '1 more' or 'doubles' patterns • use subitising skills to enable them to identify when patterns show the same number but in a different arrangement, or when patterns are similar but have a different number • subitise structured and unstructured patterns, including those which show numbers within	• continue to develop verbal counting to 20 and beyond, including counting from different starting numbers • continue to develop confidence and accuracy in both verbal and object counting.	• explore the composition of 10.	• order sets of objects, linking this to their understanding of the ordinal number system.

	10, in relation to 5 and 10 • be encouraged to identify when it is appropriate to count and when groups can be subitised.			
6	In this half-term, the children will consolidate their understanding of concepts previously taught through working in a variety of contexts and with different numbers.			

NCETM Mastering Number: Overview of Content – Year 1

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Addition and subtraction/ Number facts
1 **Children will:**	• revisit subitising within 5 using perceptual subitising • practise conceptual subitising of bigger numbers as they become more familiar with patterns made by the numbers 5–10.	• explore the linear number system within 10, looking at a range of ordinal representations • explore the link between the 'staircase' pattern and a number track.	• focus on the composition of numbers within 10, with a particular emphasis on the composition of numbers 6, 7, 8 and 9 as '5 and a bit', as well as exploring the composition of numbers 5 and 6 in-depth • explore the composition of odd and even numbers, identifying that even numbers are made of 2s and odd numbers have 'an extra 1' – they will link this to the 'shape' of these numbers.		Although children will not be looking at number bonds expressed as equations, their work on the composition of numbers within 10 will be developing their knowledge of number bonds.
2 **Children will:**	• continue to practise conceptually subitising numbers they have already explored the composition of.	• review the linear number system to 10 as they compare numbers.	• continue to explore the composition of the numbers 7–9 in-depth, linking this to their understanding of odd and even numbers • explore the composition of 10, developing a systematic approach to finding pairs that sum to 10.	• revisit what is meant by 'comparing' and see that quantities can be compared according to different attributes, including numerosity.	As above.

3 **Children will:**	• continue to practise conceptually subitising numbers they have already explored the composition of.		• review the composition of numbers within 10, linking these to part-part-whole representations • practise recalling missing parts for numbers within 10.	• compare numbers within 10, linking this to their understanding of the linear system • use the inequality symbol to create expressions, e.g. 7 > 2, and use the language of 'greater than' and 'less than' • reason about inequalities, drawing on their knowledge of the composition of numbers, e.g. Is this true or false? 3 and 2 is less than 4.	• develop their recall of number bonds within 10, through the use of exercises which use written numerals but not the symbols +, − , or =.
4 **Children will:**	• continue to practise conceptually subitising numbers they have already explored the composition of.	• review the linear number system to 10, looking at a range of representations, including a number line • explore the use of 'midpoints' to enable them to identify the location of other numbers.	• review the composition of odd and even numbers, linking this to doubles and near doubles • explore the composition of the numbers 11–20, seeing representations which show the structure of these numbers as 'ten and a bit'.		• continue to develop their recall of bonds within 10, through the use of exercises which do NOT involve written equations, such as 4 + 3 = ? • identify doubles and near doubles through visual representations of odd and even numbers.
5 **Children will:**	• continue to practise conceptually subitising numbers they have already explored the composition of. • conceptually subitise numbers within 20 as they become more familiar with the composition of	• review the linear number system to 20, looking at a range of representations, including a number line • explore the use of 'midpoints' to enable them to identify the location of other numbers.	• continue to explore representations which expose the composition of numbers within 20.	• compare numbers within 20, including questions which use the symbols +, <, >, or =, such as: True or false? 10 + 4 < 14 10 + 4 = 14	• develop their fluency in additive relationships within 10, using a range of activities and games • draw on their knowledge of the composition of numbers to complete written equations • revisit strategies for addition and subtraction

				10 + 4 > 14	within 10 and apply these to a range of questions, including written equations.
numbers within 20.					
6 **Children will:**	• continue to use conceptual subitising, especially when using a rekenrek.		• apply their knowledge of the composition of numbers, to calculations within 10 and 20.	• continue to draw on their knowledge of the relative size of numbers when answering questions using the inequality symbol.	• continue to practise recalling additive facts within 20, applying their knowledge of the composition of numbers within 20 and strategies within 10.

NCETM Mastering Number: Overview of Content – Year 2

Strand/ Half-term	Subitising	Cardinality, ordinality and counting	Composition	Comparison	Addition and subtraction/ Number facts
1 **Children will:**	• develop conceptual subitising skills as they become more familiar with patterns made by numbers within 10 and understand their composition • use perceptual and conceptual subitising when using a rekenrek.	• explore the linear number system within 10, looking at a range of representations • compare number tracks and number lines and explore the use of 'midpoints' to enable them to identify the location of other numbers.	• focus on the composition of numbers within 10, with a particular emphasis on the composition of numbers 6, 7, 8 and 9 as '5 and a bit', as well as exploring the composition of numbers 5 and 6 in-depth • explore the composition of odd and even numbers, identifying that even numbers are made of 2s and odd numbers have 'an extra 1' – they will link this to the 'shape' of these numbers.		• link their growing understanding of the composition of numbers within 10 to the related additive facts, including adding 2 to an odd or even number • practise recalling facts in a variety of ways, including through solving simple picture problems and completing equations with a missing sum or addend,
2 **Children will:**	• continue to practise conceptually subitising numbers they have already explored the composition of.	• review the linear number system as they compare numbers.	• continue to explore the composition of the numbers 7–9 in-depth, linking this to their understanding of odd and even numbers	• compare numbers within 10, linking this to their understanding of the linear number system • use the inequality symbols to create expressions, e.g. 7 > 2, and use the language of 'greater than' and 'less than' • draw on their knowledge of number bonds to answer questions in the	• continue to practise recalling additive facts for numbers within 10, using a range of equations, games and picture problems.

			form: True or false? 5 + 3 > 7	

3 **Children will:**	• continue to practise conceptually subitising numbers they have already explored the composition of, including 'teen' numbers when they have reviewed the composition of 11–19.		• review the composition of 11 to 19 as 'ten and a bit' and explore ways to represent this.		• focus on number bonds within 10 presented in the part-part-whole structure, including identifying a missing 'part' and relating this to subtraction equations • review strategies for adding 1 and 2 to odd and even numbers to subtraction facts presented in different ways • apply their knowledge of the composition of 11–19 to calculations in which 10 is a part • apply their knowledge of composition to facts involving 3 addends.
4 **Children**	• continue to conceptually subitise the numbers 11–19 using a range of	• revisit the structure of the linear number system within 20, making links between the midpoints of 5 and 10, and 15.	• review the composition of odd and even numbers, linking this to doubles and near doubles.	• continue to compare numbers within 20, including questions which use the symbols +, <, >, or =, such as:	• draw on their knowledge of the linear number system and apply this to calculations involving 1 more and 1 less, and pairs

will:	representations, which expose the structure of these numbers as 'ten and a bit'.			Write the correct symbol: 10 + 4 ☐ 15 10 + 4 ☐ 14 10 + 4 ☐ 13	of numbers with a difference of 1 • use their understanding of the composition of odd and even numbers to find doubles and near doubles • apply known facts to calculations involving larger numbers, e.g. 5 + 2, 15 + 2, 25 + 2.
5 **Children will:**	• revisit previous activities which develop their subitising skills.	• review the linear number system to 100, applying their knowledge of midpoints to place numbers on a structured number line – they will identify the multiples of 10 that come before and after a given number.	• revisit previous activities which develop their understanding of the composition of numbers within 10 and 20.	• reason about equalities and inequalities using equations and answering questions, such as: True or false? 5 + 3 = 6 + 2 9 + 4 > 9 + 5 9 + 6 < 10 + 5 This will help them become fluent in the use of the inequality symbol	• become fluent in a range of strategies involving calculations within 20, using 'make 10' strategies to add, and subtracting through the tens boundary • practise recalling number bonds through a range of activities and games which will encourage them to reason about sums and differences.

				as well as practising their number bond knowledge.	
6 **Children will:**	As above.		As above.		• develop their fluency in additive relationships within 20, using a range of activities and games and revisiting previously taught strategies where necessary.