Curriculum Implementation 2023-24

Primary

LCA Strand	Maths
Subject	Maths

| What are the key concepts taught? | **EYFS**

1. Understanding that the cardinal value of a number refers to the quantity, or 'howmanyness' of things it represents
2. Understanding that comparing numbers involves knowing which numbers are worth more or less than each other
3. Understanding that one number can be made up from (composed from) two or more smaller numbers
4. Looking for and finding patterns helps children notice and understand mathematical relationships
5. Understanding what happens when shapes move, or combine with other shapes, helps develop wider mathematical thinking
6. Comparing different aspects such as length, weight and volume, as a preliminary to using units to compare later

Chapter 1

1. Counting to and across 100, forwards and backwards, beginning with zero or one, or from any given number
2. Counting, reading and writing numbers to 100 in numerals and numbers one to 20 in numerals and words; counting in multiples of two, five and ten
3. Given a number within 100, identifying one more and one less
4. Representing and using number bonds and related subtraction facts within 20
5. Solving one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and solving missing number problems
6. Solving problems that involve grouping and sharing, including halving and doubling
7. Comparing, describing and solving practical problems for length and height, mass or weight, and capacity and volume
8. Comparing, describing and solving practical problems for time and telling the time to the hour and half past the hour; drawing the hands on a clock face to show these times |

9. Recognising and naming common 2- D shapes, including rectangles (including squares), circles and triangles
10. Recognising and naming common 3- D shapes, including cuboids (including cubes), pyramids and spheres.

Chapter 2

1. Compare and order numbers from zero up to 100 using the and = signs
2. Recognise the place value of each digit in a two-digit number
3. Count in steps of two, three and five from zero, and in tens from any number, forward and backward
4. Recall and use addition and subtraction facts to 20 fluently, deriving and using related facts to 100
5. Solve problem with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers quantities and measures including money (and giving change)
6. Recall and use multiplication and division facts for the two, five and ten multiplication tables, including recognising odd and even numbers
7. Solves problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
8. Recognise, find, name and write fractions half, quarter and three quarters of a length, shape, set of objects or quantity
9. Solve simple problems in a practical context involving addition and subtraction of mass, capacity and length
10. Compare and sort common 2-D and 3-D shapes and everyday objects and order and arrange combinations in patterns and sequences
11. Use mathematical vocabulary to describe position, direction and movement including movement in a straight line, and distinguish between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
12. Ask and answer questions about totalling and comparing categorical data
13. 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

Chapter 3

1. Counting from zero in multiples of four, eight, 50 and 100
2. Recognising the place value of each digit in a three-digit number (hundreds, tens and ones) and finding 100 more or less than a given number
3. Using place value and number facts to solve number problems and practical problems
4. Adding and subtracting numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds

5. Applying addition and subtraction to numbers with up to three digits using the columnar addition method
6. Solving scaling and correspondence problems for multiplication and division using the multiplication tables that are known, including problems that involve multiplying a two-digit number by a one-digit number
7. Recognising, finding and writing fractions of a discrete set of objects, including unit fractions and non-unit fractions with small denominators
8. Measuring, comparing, adding and subtracting: lengths (m, cm, mm); mass (kg, g); volume or capacity (l, ml)
9. Telling and writing the time from an analogue clock and in 12-hour format, and comparing durations of events
10. Identifying right angles; recognising that two right angles make a half-turn, three right angles make three quarters of a turn and four right angles a complete turn; identifying whether angles are greater than or less than a right angle. 3G–1 Recognise right angles as a property of shape or a description of a turn, and identify right angles in 2-D shapes presented in different orientations. 3G–2 Draw polygons by joining marked points, and identify parallel and perpendicular sides.
11. Interpreting and presenting data using bar charts, pictograms and tables.

Chapter 4

1. Count in multiples of six, seven, nine, 25 and 1000
2. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones) and find 1000 more or less than a given number
3. Round any number to the nearest ten, hundred or thousand
4. Solve addition and subtraction two-step problems in contexts, including measures and money, deciding which operations and methods to use and why including columnar addition and subtraction where appropriate
5. Solve multiplication and division problems using recall of the multiplication tables up to 12 × 12 including integer scaling and correspondence problems
6. Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by one digit and record using formal written layout where appropriate
7. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
8. Recognise equivalent fractions and write decimal equivalents to and any number of tenths or hundredths including in the context of simple measure and money problems
9. Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
10. Read, write and convert time between analogue and digital 12- and 24-hour clocks

11. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
12. Identify lines of symmetry in 2-D shapes presented in different orientations
13. Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
14. Interpreting and presenting data using bar charts, pictograms and tables.

Chapter 5

1. Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit; including counting forwards and backwards in steps of powers of 10
2. Use and interpret negative numbers in context, and calculate intervals across zero
3. Add and subtract whole numbers with more than 4 digits flexibly
4. Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.
5. Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.
6. Compare and order fractions, including mixed number and improper fractions whose denominators are all multiples of the same number.
7. Solve problems involving numbers up to 3 decimal places including reading, writing, ordering and comparing numbers.
8. Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation, including scaling.
9. Convert between different units of measure (e.g. kilometre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).
10. Calculate and compare the areas of rectangles, including standard units of square cm and square m, and estimate the area of irregular shapes.
11. Know angles are measured in degrees and estimate, compare, draw and measure acute, obtuse and reflex angles.
12. Identify angles at a point and one whole turn (total 360°); angles at a point on a on a straight line and half a turn (total 180°); other multiples of 90°.
13. Identify, describe and represent coordinates in the first quadrant.
14. Complete, read and interpret information in tables, including timetables.

Chapter 6

1. Round any whole number to a required degree of accuracy.
2. Decide which methods to use when solving multi-step problems involving addition, subtraction, multiplication and division, using estimation to check answers.

	3. Divide numbers up to 4 digits by a one- or two-digit whole number using the appropriate formal written methods of short and long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate.
	4. Identify common factors, common multiples and prime numbers.
	5. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
	6. Multiply simple pairs of proper fractions and divide a proper fraction by a whole number, writing answers in their simplest form.
	7. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
	8. Solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison
	9. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
	10. Understand and use algebraic notation to solve simple problems.
	11. Use, read and write standard units; converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.
	12. Choose and use the appropriate formula for finding the area of 2-D shapes, including parallelograms and triangles.
	13. Compare and classify geometric shapes based on their properties and sizes and find unknown angles in triangles, quadrilaterals and regular polygons.
	14. Draw 2-D shapes using given dimensions and angles.
	15. Draw and translate simple shapes on the coordinate plane, in all four quadrants, and reflect them in the axes.

What is the sequencing of units?	**EYFS** Unit 1: Early Mathematical experiences Unit 2: Pattern and Early Number Unit 3: Numbers within 6 Unit 4: Addition and subtraction within 6 Unit 5: Measures Unit 6: Shape and sorting Unit 7: Numbers within 10 Unit 8: Calendar and time Unit 9: Addition and subtraction within 10 Unit 10: Grouping and Sharing Unit 11: Number patterns within 15 Unit 12: Doubling and halving Unit 13: Shape and pattern Unit 14: Securing addition and subtraction facts Unit 15: Number patterns within 20 Unit 16: Number patterns beyond 20

Unit 17: Money
Unit 18: Measures
Unit 19: Exploration of patterns within number

Chapter 1

Unit 1: Numbers to 10
Unit 2: Addition and subtraction within 10
Unit 3: Shape and patterns
Unit 4: Numbers to 20
Unit 5: Addition and subtraction within 20
Unit 6: Time
Unit 7: Exploring calculation strategies within 20
Unit 8: Numbers to 50
Unit 9: Addition and subtraction within 20 (comparison)
Unit 10: Fractions
Unit 11: Measures (1): Length and mass
Unit 12: Numbers 50 to 100 and beyond
Unit 13: Addition and subtraction (applying strategies)
Unit 14: Money
Unit 15: Multiplication and division
Unit 16: Measures (2): Capacity and volume

Chapter 2

Unit 1: Numbers within 100
Unit 2: Addition and subtraction of 2-digit numbers
Unit 3: Addition and subtraction word problems
Unit 4: Measures: Length
Unit 5: Graphs
Unit 6: Multiplication and division
Unit 7: Time
Unit 8: Fractions
Unit 9: Addition and subtraction of 2-digit numbers (regrouping and adjusting)
Unit 10: Money
Unit 11: Faces, shapes and patterns; lines and turns
Unit12: Numbers within 1000
Unit 13: Measures: Capacity and volume
Unit 14: Measures: Mass
Unit 15: Exploring calculation strategies
Unit 16: Applying multiplicative thinking

Chapter 3

Unit 1: Number sense and exploring calculation strategies
Unit 2: Place Value
Unit 3: Graphs
Unit 4: Addition and subtraction
Unit 5: Length and perimeter
Unit 6: Multiplication and division
Unit 7: Calculating with multiplication and division
Unit 8: Time
Unit 9: Fractions
Unit 10: Angles and Shape

How do we encourage pupils to see the links between different units and concepts?	Our maths curriculum is knowledge-rich and precisely defined. The rich and broad body of core knowledge is clearly and meticulously specified in the Programmes of Study for each year group. Pupils are provided with opportunities to rehearse key facts through 5 for fluency, Do Nows, transitions, Maths Meetings, diagnostic quizzes, homework as well as the cumulative nature of the curriculum. In our curriculum, extended time is spent within a single area of mathematics. This allows teachers to spend more time developing learners' conceptual understanding and make connections with other areas of mathematics. For learners to make sense of a new idea or relationship, they need to incorporate it into their current understanding to connect with ideas and relationships they have encountered previously. The greater their understanding of what has been taught previously, the more sense-making they will be able to do in the future with increasingly complex mathematics. • Tasks are sequenced to help learners build a narrative through different topics. • These topics are then sequenced in a logical progression that allows learners to establish connections and draw comparisons. • Multiple representations are extendable within and between different areas of mathematics. • Using these rich models encourages learners to develop different perspectives on a concept. • Tasks are designed so that learners are active participants and construct their own understanding of concepts.
What are the planned opportunities for adaptive teaching, including for SEND, the more and able and disadvantaged pupils?	Our curriculum enables teachers to support the needs of all learners, including SEND, by building in opportunities for teachers to constantly assess and respond to the needs of their pupils. Teachers and leaders ensure that pupils are secure with the identified pre-requisite knowledge and understanding prior to beginning the teaching of new content. This might be done through starter activities; Do Nows, 5 for Fluency or homework. In some lessons, the adaption might be offered in a level of task; a bronze, silver or gold task. Scaffolded tasks are part of our daily planning. For those pupils who require concrete manipulatives to help support their learning, teachers will provide and encourage this resource to stay in place as necessary. The talk tasks in each lesson are a gateway for all pupils to apply new learning, in paired work. Teaching assistants receive high quality training on how to support pupils to use resources, manipulatives and how to connect learning.

	The dimensions of depth, together with differentiation are central within out curriculum and challenge our pupils to become resilient problem solvers.
What are the planned opportunities for retrieval and reflection by pupils?	Our curriculum is cumulative. Concepts that are taught earlier in the curriculum are revisited in the context of a new area of mathematics, enabling learners to make connections between different mathematical concepts. Retrieving, using and applying concepts regularly, transferring to new contexts helps develop fluency as well as conceptual understanding. Interventions, Maths Meetings, 5 for fluency, transitions and Do Nows allow pupils more time to practice important facts and methods.

Our maths curriculum is knowledge-rich and precisely defined. The rich and broad body of core knowledge is clearly and meticulously specified in the Programmes of Study for each year group. Pupils are provided with opportunities to rehearse key facts through Do Nows, transitions, Maths Meetings, quizzes as well as the cumulative nature of the curriculum. The planning is sequenced so that pupils learn new ideas by reference to ideas that they already know. Therefore, within units and across the whole curriculum, knowledge is positions to build on what has come before. |
| What are the opportunities for feed forward by the teacher post assessment outcomes? | Following on from each progress point, teachers review assessment outcomes and continue to align intervention, seating plans, differentiation and parent intervention, where necessary.

Teachers are encouraged to continuously adapt planning, unit time allocation and content in line with what they see happening in the classroom. Formatively making changes to meet the needs of the learners. There is flexibility, within our curriculum design, to address identified gaps in pupils' knowledge that could hinder their capacity to learn and apply new content. |
| What are the planned opportunities for developing Reading? | At the beginning of each maths lesson, new vocabulary is read to pupils and they are given the opportunity to read new and familiar vocabulary in context, throughout the lesson.

Most develop learning activities are modelled by both pupils and teacher and generally require reading out loud, reading independently or reading to a partner. |
| What are the planned opportunities for developing literacy, numeracy, oracy and SMSC? | **Literacy:**
Subject specific vocabulary plays a big part in our curriculum and we have been impressed with how strong the use and understanding of mathematical vocabulary is used by our pupils. We ensure planned opportunities to discuss and record learning in an explanation. We encourage pupils to:
- Spell key terms correctly
- Use mathematical language during lessons |

- Develop literacy through discussion

Numeracy:
Sense of number and maths related content is embedded in our curriculum. We develop estimation throughout our curriculum and give pupils various opportunities to make sense of talk, number, questions, answers and conjectures.

Oracy:
Children constantly interact orally with each other during talk tasks, games, sharing ideas and cooperating in groups. We use prompts during lessons and stem sentences. We encourage sentence repetition and regularly use: think, pair, share.

SMSC:
Learning to take turns; winning and losing; talk tasks; big picture subjects. Our maths curriculum supports spiritual and social development through engaging with the depth of thinking and problem solving; giving pupils the opportunities to discuss their learning with their peers. We expose pupils to a range of different approaches to problem solving and reasoning skills. Children are encouraged to look, discuss and evaluate a range of social and moral issues found in the world, through our presentation and topic of posed problems. This can sometimes draw upon other areas of study, such as history or geography.