

# Mathematics Mastery Curriculum

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
N	<p><b>Routines</b> Introduce and develop morning routines incorporating daily number rhymes and songs. Counting at snack time. Daily exposure to orally rote counting.</p> <p><b>Maths Area</b> Introduce maths area where children can explore a range of counting materials and collections.</p> <p><b>Numicon</b> Become familiar with the numicon shapes. Play sorting activities and matching games.</p> <p><b>Counting and Cardinality</b> Begin to say number words in sequence, may be at string level where words are continuous undifferentiated. Will use some counting words randomly. Develop one-to-one correspondence when setting up the home</p>	<p><b>Routines</b> Introduce the Birthday Box with numerals, cards, hats, candles etc. For celebrating birthdays. Children discuss how old they are and look for their numbers in the box. Story: Spot's Birthday</p> <p><b>Maths Area</b> Introduce 5 frames for counting songs to 5 with props for reciting and acting out the songs. (linked to children's interests)</p> <p><b>Numicon</b> Recognise and name numicon pieces to five.</p> <p><b>Counting and Cardinality</b> Consistently use the number words in the same order (stable order principle) Christmas Performance songs</p>	<p><b>Routines</b> Children help adult to count out a number of things from a larger group focusing on the 'stopping number' during snack time</p> <p><b>Maths Area</b> Investigate mathematical tools eg calculators, timers, measuring tapes.</p> <p><b>Numicon</b> Match numerals to the numicon shapes and practise ordering them (1-3) Find numicon pieces that are equal/the same.</p> <p><b>Counting and Cardinality</b> Know that numbers identify how many objects are in a set. Count every item in a set only once, using only one number word (one-one principle) Can predict what the</p>	<p><b>Routines</b> Introduce calendar and days of the week into daily routine. Counting down the days to an event. Children count and say how many (cardinal principle) for their snack.</p> <p><b>Maths Area</b> Incorporate mathematical problems into role play areas for transport eg. fiveframes for trains and buses, tickets, train times, directions.</p> <p><b>Numicon</b> Find a numicon shape that is less/more than mine. Count and match counters to numicon pieces.</p> <p><b>Counting</b> Count actions, such as claps or jumps. Count at different speeds as they jump quickly/slowly, or a mixture of the two? Listening games for counting. Playing track</p>	<p><b>Maths Area</b> Free exploration of conservation of number using sorting trays set (such as ice cubes trays and egg boxes) Introduce Hungarian 5 frame and 10 frame.</p> <p><b>Numicon</b> Order Numicon pieces to 5. Match Numicon pieces to groups of given objects. (minibeast game) Make repeating patterns using numicon shapes.</p> <p><b>Comparison</b> Match groups of objects with the same number Know that the quantity of objects stays the same when they are spread out or moved closer together.</p> <p><b>Subitising</b> Can show a number of fingers to five 'all at once', without counting. Recognise</p>	<p><b>Numicon</b> Match numerals to the numicon shapes and practise ordering them (1-10) Use a magic feely bag to find matching numbers. Composition of 5: find two shapes that make up 5.</p> <p><b>Counting</b> Develop order irrelevance principle by counting irregular arrangements of objects. Children can say one more than a given number within 5. Can count backwards from 5 then 10. Begin to count on from a given number within 10 using a number line.</p> <p><b>Comparison</b> Compare sets of objects, saying if it is one more or one less using duplo. Children being to reason using full sentences.</p> <p><b>Subitising</b> Automatically know numbers on a dice to 5. (Hungarian 5 frame games to support)</p>

	<p>corner. Encourage children to set up each plate with a cup etc.</p> <p><b>Comparison</b> Describe the groups using mathematical language eg 'few' and 'lots'</p> <p><b>Subitising</b> Play 'grabbing games' where children develop a sense of 'two-ness' and 'one-ness' Explore groups of two eg. Two eyes, two hands, two feet ect. Children instantly recognise groups of two without the need to count.</p> <p><b>Number Recognition</b> Notice numbers in the environment. Recognise numbers of personal significance eg. Their birthday</p> <p><b>Shape, Space, Colour</b> Complete simple puzzles and shape sorters. Name a range of different colours Children can sort objects by size, colour and shape. Some objects can be identical.</p>	<p>based on counting songs</p> <p><b>Comparison</b> Children develop understanding of 'fair' and 'unfair' with numbers. Children can share fairly through practical activities such as putting food on plates or sharing toys equally; Teddy Bear's Picnic Children can check that groups are equal.</p> <p><b>Subitising</b> Makes a small collection of up to three objects to match another collection of objects.</p> <p><b>Number Recognition</b> Recognise numbers in recipes eg. When making Gruffalo food and Reindeer Food</p> <p><b>Shape, Space, Pattern</b> Capacity making potions 'full' 'empty'</p>	<p>outcome will be in stories, rhymes and songs if one is added to, or if one is taken away. Act out with props linked to the story.</p> <p><b>Comparison</b> Can indicate which set has more or which set has less. Uses number language, such as 'less' or 'fewer'</p> <p><b>Subitising</b> Fast recognition of up to three objects Quick recognition of 'three' 'not three'</p> <p><b>Number Recognition</b> Representation Can represent numbers using fingers. Can pick out a matching numeral to a numeral that is shown to them up to 3. Can sort different representations up to three linked to fairy tale characters <b>Measure, Pattern</b> Beanstalk height order and describe. Size ordering Goldilocks and the three bears. Story:</p>	<p>games and counting along the track.</p> <p><b>Comparison</b> Children can compare numbers that are far apart reasoning explaining unfair sharing - 'This one has more because it has 5 and that one only has 2'</p> <p><b>Conservation</b> knowing that the number does not change if things are rearranged (as long as none have been added or taken away) linked to bus and train games</p> <p><b>Representation</b> Count out objects to match numbers up to 3 then 5</p> <p><b>Patterns/Shape</b> Create an ABAB pattern with colours and shapes. Use shapes to create pictures. Copy pictures and create my own pictures.</p>	<p>the significance and value of zero</p> <p><b>Number Recognition, Representation and Ordering</b> Can record using marks that they can interpret and explain. Can recognise numerals 0 to 5. Can read numbers beyond on a number line by dropping back to 0. Can represent numbers using marks on paper or pictures</p> <p><b>Patterns</b> Develop reasoning skills for finding 'odd one out' in pictures. Create and extend and ABAB patterns</p>	<p><b>Patterns</b> I can recognise follow ,copy and create patterns with sounds and actions. I can notice and correct an error in a simple repeating pattern</p>
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		<p>'nearly empty' Positional language linked to Bear Hunt Story. Patterns for wrapping paper at the Elves workshops: spotty/zig zag/</p>	<p>'Simon Sock' matching pairs of socks by their pattern</p>			
R	<p><u>Developing Early Mathematical Concepts</u> To classify objects and to sort them into sets. To match equal and unequal sets of objects using one-to-one correspondence. To compare objects by size. To compare sets without counting. To order objects according to size. To orders sets without counting.</p>	<p><u>Pattern and early number</u> Recognise, describe and copy colour, extend and create size and colour patterns. Count, recognise and represent numbers one, two and three</p> <p><u>Numbers within 6</u> Recognise, count and order numbers; say which numbers are 'more or less'</p> <p><u>Addition and subtraction within 6</u> Add two numbers by counting on. Subtract by taking away. Describe the direction on a number track when adding or subtracting.</p>	<p><u>Numbers within 10</u> Recognise, count and order numbers; say which numbers are 'one more or one greater' 'one fewer or one less'. Apply knowledge of 10 to solve mathematical problems</p> <p><u>Calendar and Time</u> Use everyday language to discuss time, days of the week and seasons. Sequence events and record periods of time.</p> <p><u>Addition and subtraction within 10</u> Add two numbers by counting on. Subtract by taking away. Describe the direction on a number track when adding or</p>	<p><u>Numbers within 15</u> Recognise, count and order numbers; estimate and compare groups of objects.</p> <p><u>Doubling and halving</u> Solve problems and explore the relationship between doubling and halving</p> <p><u>Shape and Pattern</u> Describe 2D shapes and create patterns. Begin to describe 3D shapes.</p>	<p><u>Securing addition and subtraction facts</u> Commutativity Explore addition and subtraction. Compare two amounts</p> <p><u>Number patterns within 20</u> Count up to 10 and beyond with objects. Represent, compare and explore numbers to 20. One more or fewer.</p> <p><u>Number patterns beyond 20</u> One more one less. Estimate and count. Grouping and sharing.</p>	<p><u>Money</u> Recognise and use everyday language related to money</p> <p><u>Measure</u> Compare objects and quantities, solve size, weight and capacity problems</p> <p><u>Explorations of pattern within number</u> Explore numbers and strategies Recognise and extend patterns Apply number, shape and measures knowledge Count forwards and backwards</p> <p><u>Addition and Subtraction consolidation</u> Compare quantities to solve problems that include doubling, halving and sharing</p>



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		<p><u>Measure</u> Ordering objects by size. Compare capacity and weight. Estimating and exploring length.</p> <p><u>Shape and sorting</u> Describe and sort the properties of 3-D shapes. Use 3-D shapes create a variety of stable structures. Describe the position of an object or person using mathematical vocabulary. Follow instructions related to positional language</p>	<p>subtracting. Explaining what happens when we add or take away from zero.</p> <p><u>Grouping and sharing</u> Solve practical problems involving equal and unequal groups. Explore counting in steps of 2.</p>			<p><u>Time consolidation</u> Sequence events in the day and begin to tell the o'clock time.</p>
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1	<p><u>Numbers to 10</u> Count, read, write, identify, represent, double and half, and use comparative language.</p> <p><u>Addition and subtraction within 10</u> Represent and use number bonds; read, write, interpret, represent and solve.</p> <p><u>Shapes and patterns</u> Recognise common 2-D and 3-D shapes; describe position, direction and movement.</p>	<p><u>Numbers to 20</u> Count, read, write, identify, represent, double and half, and use comparative language.</p> <p><u>Addition and subtraction within 20</u> Augmentation and reduction. Represent and use number bonds; read, write, interpret and solve one-step problems.</p>	<p><u>Time</u> Tell the time to the hour and half-past the hour; solve practical problems for time.</p> <p><u>Exploring calculation strategies within 20</u> Represent and use number bonds; use concrete and pictorial representation to solve one-step problems</p> <p><u>Numbers to 50</u> Count, read, write, identify, represent in numerals and words; recognise place value.</p>	<p><u>Adding and subtracting within 50</u> Represent and use number bonds; read, write, interpret and solve one-step problems.</p> <p><u>Fractions</u> Recognise, find and name a half and a quarter as one of two or four equal parts respectively.</p> <p><u>Measures (1): Length and weight</u> Compare, describe, measure, record and solve practical problems.</p>	<p><u>Numbers 50 to 100 and beyond</u> Count from a given number in 1s, 2s, 5s and 10s; represent, identify and estimate numbers; recognise place value.</p> <p><u>Adding and subtracting within 100</u> Represent and use number bonds; read, write, interpret and solve one-step problems.</p> <p><u>Money</u> Recognise and value coins and notes; solve one-step addition/subtraction problems.</p>	<p><u>Multiplication and division</u> Solve one-step problems using concrete and pictorial representations and arrays.</p> <p><u>Measures (2):</u> Capacity and volume Compare, describe, measure, record and solve practical problems.</p>
2	<p><u>Numbers within 100</u> Use place value and number facts to solve problems; identify, represent, compare and order numbers.</p> <p><u>Add and subtract 2-digit numbers</u> Build addition/subtraction facts/methods to 100; understand commutativity.</p> <p><u>Addition and</u></p>	<p><u>Measuring length</u> Understand appropriate units of measure (cm, m); compare and order; read scales to 100.</p> <p><u>Graphs</u> Interpret and construct tables, tally charts, pictograms and block diagrams; ask/answer questions about</p>	<p><u>Fractions</u> Recognise, find, name and write simple fractions of objects and quantities; recognise equivalences between fractions</p> <p><u>Time</u> Tell and write the time to five minutes; compare and sequence intervals of time.</p>	<p><u>Money</u> Recognise units symbols (£, p); explore combinations of money; solve simple problems, including giving change.</p> <p><u>Faces, shapes and patterns; lines and turns</u> Identify and describe properties of 2-D and 3-D shapes; compare and sort common shapes and objects; describe position and</p>	<p><u>Numbers within 1000</u> Use, identify and represent place value and number facts to solve problems; compare, read, write and order numbers.</p> <p><u>Measures: capacity and volume</u> Understand appropriate units of measure; compare and order; read scales to 1000.</p>	<p><u>Exploring calculation strategies</u> Add/subtract numbers mentally and using formal written methods</p> <p><u>Multiplication and division by 3 and 4</u> Recall and use facts for the 3 and 4 times tables; calculate mathematical statements; solve problems using concrete, pictorial, written and mental methods.</p>

	<u>subtraction word problems</u> Solve problems using concrete and pictorial representations to develop mental and written methods; recognise inverse relationships of operations.	totaling and comparing data.  <u>Multiplication and division by 2, 5 and 10</u> Calculate mathematical statements; understand commutativity; solve problems using concrete, pictorial, written and mental methods.	<u>Addition and subtraction of 2-digit numbers (regrouping and adjusting)</u> Solve problems involving numbers, quantities and measures; estimate and check calculations.	movement in mathematical language	<u>Measures: mass</u> Understand appropriate units of measure; compare and order; read scales to 1000.	
3	<u>Number sense and reasoning within 100</u> Solve number and practical problems, including estimation and checking; add and subtract money to give change in £ and p.  <u>Place Value</u> Identify, represent and estimate numbers in different contexts, recognise and use place value of 3-digit numbers in calculations.	<u>Graphs</u> Interpret and present data using charts and tables. Solve one and two-step problems using presented information.  <u>Addition and subtraction with up to 4 digits</u> Calculate mentally and using formal written methods; solve problems using number facts and place value.  <u>Length and perimeter</u> Measure, compare, add/subtract	<u>Multiplication and division word problems</u> Solve scaling and correspondence problems in which n objects are connects to m objects.  <u>Using 10s and 100s to multiply and divide large numbers</u> Calculate mathematical statements including for two-digit numbers by one-digit numbers; progress from mental to formal written methods.	<u>Time: analogue, digital and finding how long</u> Tell, record, write and compare the time, including using Roman numerals, 12 and 24-hour clocks, using correct vocabulary; compare durations.  <u>Fractions</u> Recognise, use, compare, order simple fractions; understand fractions as parts of a whole; add/subtracts fractions of same denominator.	<u>Angles and shape</u> Identify right-angles, recognising them as quarters of a turn; identify parallel and perpendicular lines; draw/make and measure 2-D and 3-D shapes.  <u>(Length), weight &amp; volume</u> Measure, compare, add/subtract and solve problems, using appropriate tools and units.	<u>6 &amp; 8 times tables</u> Recall and use multiplication/division facts for 6 & 8 times table; count in multiples of 6 & 8; calculate mathematical statements.  <u>Exploring calculation strategies and place value</u> Add/subtract numbers mentally; find 10, 100, 1000 more than a given number; order and compare beyond 1000; round any number to nearest 10, 100, 1000.

		lengths; solve problems using appropriate tools and units.				
4	<p><u>Reasoning with large numbers</u> 4-digit place value. Read, write, represent, order and compare Find 10, 100 or 1000 more or less Round numbers to the nearest 10, 100 or 1000</p> <p><u>Addition and subtraction</u> Select appropriate strategies to add and subtract Illustrate and explain appropriate addition and subtraction strategies including column method with regrouping</p>	<p><u>Multiplication and division</u> Distributive property including multiplying three 1-digit numbers Mental multiplication and division strategies using place value and known and derived facts Short multiplication and division</p> <p><u>Discrete and continuous data</u> Read, interpret and construct pictograms, bar charts and time graphs Compare tables, pictograms and bar charts</p>	<p><u>Securing multiplication facts</u> Identify and explore patterns in multiplication tables including 7 and 9</p> <p><u>Fractions</u> Explore different interpretations and representations of fractions Equivalent fractions Represent fractions greater than one as mixed number and improper fractions Add and subtract fractions with the same denominator including fractions greater than one</p> <p><u>Time</u> Analogue to digital, 12- hour and 24-hour Convert between units of time</p>	<p><u>Decimals</u> Decimal equivalents to tenths, quarters and halves Compare and order numbers with same number of decimal places Multiply and divide by 10 and 100 including decimals</p> <p><u>Area and perimeter</u> Perimeter of rectangles and rectilinear shapes Area of rectangles and rectilinear shapes Investigate area and perimeter</p>	<p><u>Solving measures and money problems</u> Convert units of measure Select appropriate units to measure Use strategies to investigate problems: trial and improvement, organising using lists and tables, working systematically</p> <p><u>Shape and symmetry</u> Classify, compare and order angles Compare and classify 2-D shapes Identify lines of symmetry</p>	<p><u>Position and direction</u> Describe and plot using coordinates Describe translations</p> <p><u>Reasoning with pattern and sequences</u> Roman numerals up to 100 Place value of other number systems Number sequences and patterns</p> <p><u>3-D shape</u> Use understanding of 3-D shapes Identify 3-D shapes from 2-D representations</p>



5	<p><u>Reasoning with large whole integers</u> Read, write, order and compare numbers up to one million Round numbers within one million to the nearest multiple of powers of ten Read Roman numerals up to M</p> <p><u>Integer addition and subtraction</u> Use rounding to estimate Use a range of mental calculation strategies to add and subtract integers Illustrate and explain the written method of column addition and subtraction Select efficient calculation strategies</p> <p><u>Line graphs and timetables</u> Complete, read and</p>	<p><u>Multiplication and division</u> Identify multiples and factors Investigate prime numbers<sup>[1][SEP]</sup> Multiply and divide by 10, 100 and 1000 (integers)<sup>[1][SEP]</sup> Derived facts<sup>[1][SEP]</sup> Illustrate and explain formal multiplication and division strategies such as short and long Use a range of mental calculation strategies</p> <p><u>Perimeter and area</u> Investigate area and perimeter of rectilinear shapes<sup>[1][SEP]</sup> Estimate area of non-rectilinear shapes<sup>[1][SEP]</sup></p>	<p><u>Fractions and decimals</u> Read, write, order and compare decimals Round decimals to the nearest whole number Represent, identify, name, write, order and compare fractions (including improper and mixed numbers)<sup>[1][SEP]</sup> Calculate fractions of amounts</p> <p><u>Angles</u> Classify, compare and order angles Measure and draw angles with a protractor Understand and use angle facts to calculate missing angles</p>	<p><u>Fractions and percentages</u> Add, subtract fractions with denominators that are multiples of the same number Multiply fractions (and mixed numbers) by a whole number Explore percentage, decimal, fractions equivalence</p> <p><u>Transformations</u> Coordinates in all four quadrants Translation and reflection Calculate intervals across zero as a context for negative numbers</p>	<p><u>Converting units of measure</u> Convert between metric units of length, mass and capacity and units of time Know and use approximate conversion between imperial and metric</p> <p><u>Calculating with whole numbers and decimals</u> Mental strategies to add and subtract involving decimals Formal written strategies to add, subtract and multiply involving decimals Multiply and divide by 10, 100 and 1000 involving decimals Derive multiplication facts involving decimals</p>	<p><u>2-D and 3-D shape</u> Classify 2-D shapes and reason about regular and irregular polygons Properties of diagonals of quadrilaterals Classify 3-D shapes<sup>[1][SEP]</sup> 2-D representations of 3-D shapes.</p> <p><u>Volume</u> Use cube numbers and notation Estimate volume<sup>[1][SEP]</sup> Convert units of volume<sup>[1][SEP]</sup></p> <p><u>Problem solving</u> Negative numbers and calculating intervals across zero Calculating the mean Interpret remainders Investigate numbers: consecutive, palindromic, multiples</p>
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	interpret data presented in line graphs Read and interpret timetables including calculating intervals					
6	<p><u>Diagnostic assessment to determine the order and length of time taught in each of the following topic units.</u></p> <p><u>Integers and Decimals</u> Represent, read, write, order and compare numbers up to ten million Round numbers, make estimates and use this to solve problems in context Solve multi-step problems involving addition and subtraction</p> <p><u>Multiplication and Division</u> Identify and use properties of number, focusing on primes Multiply larger integers and decimal numbers using a range of strategies Divide integers by 1-digit and 2-digit numbers representing remainders appropriately Illustrate and explain formal multiplication and division strategies</p> <p><u>Calculations and Problems</u> Understand the use of brackets Use knowledge of the order of operations to carry out calculations Generate and describe linear number sequences Express missing number problems algebraically Solve equations with unknown values</p> <p><u>Missing angles and length</u> Compare and classify a range of geometric shapes Use angle facts to find unknown angles</p> <p><u>Fractions</u> Deepen understanding of equivalence Order, simplify and compare fractions, including those greater than one Recall equivalence between common fractions and decimals Find decimal quotients using short division Add and subtract fractions Represent multiplication involving fractions Multiply two proper fractions</p>					Consolidation Project based mathematical learning  KS3 preparation



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	<p>Divide a fraction by an integer</p> <p><u>Coordinates and shape</u> Draw a range of geometric shapes using given dimensions and angles Describe, draw, translate and reflect shapes on a co-ordinate plane Recognise and construct 3-D shapes Name and illustrate parts of a circle</p> <p><u>Decimals and measures</u> Use, read, write and convert between standard units of measures; length, mass, time, money and volume as well as imperial units Calculate the area of parallelograms and triangles Calculate, estimate and compare the volume of cuboids</p> <p><u>Percentages</u> Calculate and compare percentages of amounts Connect percentages with fractions Explore the equivalence of fractions, decimals and percentages Calculate the mean Construct and interpret lines graphs and pie charts Compare pie charts</p> <p><u>Proportion problems</u> Use fractions to express proportion • Identify ratio as a relationship between quantities and as a scale factor Unequal sharing involving ratio</p> <p><u>SATs preparation and consolidation</u></p>	
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