

East Preston Infant School

Maths Progression Overview



Intent:

At East Preston Infant School, we believe that Maths is an important part of a child's development and transition into adulthood. We aim for the children to become confident, numerate young people who can apply mathematical skills in a range of contexts.

Implementation:

Our pupils develop their early maths skills through a daily focus on number fluency taught using Mastering Number (Rekenrek), alongside lessons focusing on the wider aspects of the maths curriculum, such as geometry, measurement, fractions and statistics. Children move through the concrete > pictorial > abstract approach using a range of practical and multi-sensory resources so that lessons are creative and absorbing. Half termly units build upon prior learning and enable consolidation and deepening of key concepts so that children can apply their learning in a range of contexts.

Intended Impact:

Through Maths, our children will:

- perceive maths as exciting, engaging and valuable, so that they become fluent and accurate with number facts and relationships, reason mathematically about their work
- become confident mathematicians who have the ability to solve problems
- make connections and apply mathematical knowledge both across maths lessons and the wider curriculum

Year Group	Number, Place Value & Fluency	Addition & Subtraction	Multiplication & Division	Fractions	Measurement	Geometry: properties of shape	Statistics
Reception Emerging ELG	Count objects, actions and sounds Develop fast recognition of up to 3 objects, without having to count them individually ('subitising') Link the number symbol (numeral) with its cardinal number value Count beyond ten Compare numbers and explore the composition of numbers to 10	Solve real world mathematical problems with numbers up to 5 Automatically recall number bonds for numbers 0–5 and some to 10 <i>Automatically recall number bonds to 5 and some to 10, including double facts</i> <i>Explore and represent patterns within numbers up to 10</i>	<i>Explore and represent evens and odds, double facts and how quantities can be distributed equally</i>		Compare length, weight, capacity	Select, rotate and manipulate shapes to develop spatial reasoning skills Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can Continue, copy and create repeating patterns	

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	<p>Subitise (recognise quantities without counting) up to 5</p> <p>Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity</p> <p>Verbally count beyond 20, recognising the pattern of the counting system</p> <p>Have a deep understanding of number to 10, including the composition of each number</p>						
Reception Key Vocabulary	<p>1, 2, 3, 4, 5, 6, 7, 8, 9, 10 one, two, three, four, five, six, seven, eight, nine, ten, zero, count, subitise, order, compare, forwards, backwards, numerals, digit, one more, one less, equal to, the same as, more than, greater than, less than, fewer than</p>	<p>Add, plus, altogether, total, take away, minus, number bonds, part, whole, digit,</p>	<p>Double, half, twice as many, equal, unequal, share, group, odd, even, difference</p>		<p>Measure, wide, wider, narrow, narrower, compare, long, longer, longest, short, shorter, shortest, length, weight, heavier, lighter, big, bigger, biggest, full, empty, half, time, quicker, slower, earlier, later, first, next, today, yesterday, tomorrow, hour, minutes, seconds</p>	<p>2D shapes, rectangle, square, triangle, circle, characteristics, 3D shapes, cuboids, cubes, cone, spheres, curved, straight, flat, over, under, between, around, through, on, into, next to, behind, beneath, order, repeat, patterns, on top of,</p>	
Year One Ready to progress criteria	<p><u>Number place value</u> Count (demonstrate fluency) to and across 100, forwards and backwards starting with any number</p> <p>Count, read and write numbers to 100 in</p>	<p>Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers</p> <p>Read, write and interpret equations</p>	<p><u>Problem solving</u> Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations</p>	<p><u>Recognising fractions</u> Recognise, find and name a half as one of two equal parts of an object, shape or quantity (length)</p> <p>Recognise, find and name a quarter as one</p>	<p><u>Comparing and estimating</u> Compare, describe and solve practical problems for (measures of increasing complexity):</p> <ul style="list-style-type: none"> Lengths and heights Mass/weight 	<p>Recognise common 2-d and 3-d shapes presented in different orientations and know that rectangles, triangles, cuboids and pyramids are not always similar to one another</p>	

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<p>Deepening Understanding</p>	<p>numerals: count in multiples of 2, 5 and 10s (demonstrate fluency)</p> <p>Reason about the location of numbers to 20 within the linear number system, including comparing using $< > =$</p> <p><u>Number fluency</u> Develop fluency in addition and subtraction facts within 10</p> <p>Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple and count forwards and backwards through the odd numbers</p> <p>When given a number, (consistently) identify one more and one less</p> <p><u>Identifying, representing and estimating numbers</u> Identify and represent numbers using objects and pictorial representations (using increasingly complex representations) including the number line, and (consistently) use the language of equal to, more than, less than (fewer), most, least</p>	<p>containing addition, subtraction and equals symbols and relate additive expressions and equations to real life contexts</p> <p><u>Number bonds</u> Represent and use number bonds and related subtraction facts within 20 (and use these to derive new unknown facts)</p> <p><u>Mental calculation</u> Add and subtract one-digit and two-digit numbers to 20, including zero (mentally)</p> <p><u>Written methods</u> Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs</p> <p><u>Problem solving</u> Solve one-step (two-step) problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$ (using a wider range of numbers)</p>	<p>and arrays with the support of the teacher</p> <p>Count in 2's, 5's and 10's from 0 to answer questions involving multiplication facts</p> <p>Recall doubles and halves of numbers to 20</p> <p>Solve 1-step problems involving multiplication and division, by calculating the answer by using concrete objects, pictorial representations and arrays</p>	<p>of four equal parts of an object, shape or quantity (length)</p>	<ul style="list-style-type: none"> • Capacity and volume • Time <p>Sequence events in chronological order using language</p> <p><u>Measuring and calculating</u> Measure and begin to record the following:</p> <ul style="list-style-type: none"> • Lengths and heights • Mass/weight • Capacity and volume • Time (hours, minutes, seconds) <p>Recognise and know the value of different denominations of coins and notes (solve problems of increasing complexity)</p> <p><u>Telling the time</u> Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times</p> <p>Recognise and use language relating to dates, including days of the week, weeks, months and years</p>	<p>Recognise and name common 2d and 3d shapes (using increasingly sophisticated mathematical vocabulary) including:</p> <ul style="list-style-type: none"> • 2-d shapes • 3-d shapes <p>Compose 2d and 3d shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations</p> <p>Compare and sort shapes using one criterion</p> <p>Reason about and solve more complex problems relating to shapes and their properties</p> <p><u>Position, direction and movement</u> Describe position, direction and movement, including half, quarter and three-quarter turns</p> <p>Apply knowledge of position to problem solving across the curriculum</p> <p>Solve more complex problems involving position and movement</p>	
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	<p><u>Reading and writing numbers</u> Read and write numbers from 1 to 20 in numerals and words</p>						
Year One Key Vocabulary	<p>Build upon Reception vocabulary</p> <p>Number Zero, one, two, three to twenty and beyond None Count (on/up/to/from/down) Before, after More, less, many, few, fewer, least, fewest, smallest, greater, lesser Equal to, the same as Odd, even Ones, tens Ten more/less Digit Numeral Figure(s) Compare (In) order/a different order Size Value Between, halfway between Above, below Ten frame</p>	<p>Build upon Reception vocabulary</p> <p>Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse Double, near double Half, halve Equals, is the same as (=) Difference between How many more to make ...? How many more is ... than ...? How much more is ...? Subtract, take away, minus How many fewer is ... than ...? How much less is ...? Part whole model Part, whole Ten frame</p>	<p>Build upon Reception vocabulary</p> <p>Count in twos, fives Count in tens (forwards from/backwards from) How many times? Lots of, groups of Once, twice, five times Multiple of, times, multiply, multiply by Array, row Double, halve Share, share equally Group in pairs etc... Equal groups of</p>	<p>Whole Equal parts, four equal parts One half, two halves A quarter, two quarters</p>	<p>Build upon Reception vocabulary</p> <p>Full, half full, empty Holds Container Weigh, weighs, balances Heavy, heavier, heaviest, light, lighter, lightest Scales Time Days of the week: Monday, Tuesday etc... Seasons: Spring, Summer, Autumn, Winter Day, week, month, year, weekend Birthday, holiday Morning, afternoon, evening Today, yesterday, tomorrow Before, after Hour, o'clock, half past Clock, watch, hands First, second, third etc... Estimate Length, width, height, depth Metre, ruler, metre stick Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change</p>	<p>Build upon Reception vocabulary</p> <p>Group, sort Cube, cuboid, pyramid, sphere, cone, cylinder, triangular prism circle, triangle, square, pentagon, hexagon, octagon Shape Flat, curved, straight, round Hollow, solid Corner (point, pointed) Face, side, edge Make, build, draw Position Over, under, underneath, above, below, top, bottom, side On, in, outside, inside, around, in front, behind Left, right, up, down, forwards, backwards, whole turn, half turn</p>	

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<p>Year Two</p> <p style="text-align: center;">Ready to progress criteria</p> <p style="text-align: center;">Deepening Understanding</p>	<p><u>Number and Place Value</u> Recognise the place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning</p> <p>Reason about the location of any two-digit number in the linear number system, including identifying the previous and next multiple of 10</p> <p><u>Number Fluency</u> Secure fluency in addition and subtraction facts within 10, through continued practice</p> <p>Count in steps of 2,3,5 from zero and in tens from any number, forward or backward</p> <p><u>Comparing Numbers</u> Compare and order numbers from zero up to 100; use <, > and = signs</p> <p><u>Identifying, representing and estimating numbers</u> Identify, represent and estimate numbers using different representations, including the number line</p>	<p>Add and subtract across 10</p> <p>Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?"</p> <p>Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only 1s or only 10s to/from a two-digit number</p> <p>Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any two-digit numbers</p> <p><u>Number Bonds</u> Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p><u>Mental Calculation</u> Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <ul style="list-style-type: none"> • A two-digit number and ones • A two-digit number and tens • Two, two-digit numbers 	<p>Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables</p> <p>Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division)</p> <p><u>Multiplication and division facts</u> Count in steps of 2,3 and 5 from zero, and in tens from any number, forward or backward</p> <p>Recall and use multiplication and division facts for the 2,5,10 multiplication tables, including recognising odd and even numbers</p> <p><u>Mental Calculation</u> Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot</p> <p><u>Written Calculation</u></p>	<p><u>Recognising Fractions</u> 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</p> <p><u>Equivalence</u> Write simple fractions</p>	<p><u>Comparing and Estimating</u> Compare and order lengths, mass, volume/capacity and record the results using >, < and =</p> <p><u>Measuring and Calculating</u> Choose and use the appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}$C), capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels</p> <p><u>Money</u> Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value</p> <p>Find different combinations of coins that equal the same amounts of money</p> <p>Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</p> <p><u>Telling the Time</u></p>	<p>Use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and differences in properties</p> <p><u>Identifying shapes and their properties</u> Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces</p> <p>Identify 2-D shapes on the surface of 3-D shapes</p> <p>Compare and sort common 2-D and 3-D shapes and everyday objects</p> <p><u>Position, direction and movement</u> 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,</p>	<p>Interpret and construct simple pictograms, tally charts, block diagrams and simple tables</p> <p>Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity</p> <p>Ask and answer questions about totalling and comparing categorical data</p>
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	<p><u>Reading & writing Numbers</u> Read and write number to at least 100 in numerals and in words</p> <p><u>Understanding Place Value</u> Recognise the place value of each digit in a two-digit number (tens, ones)</p> <p><u>Problem Solving</u> Use place value and number facts to solve problems</p>	<ul style="list-style-type: none"> Adding three one-digit numbers <p>Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another number cannot</p> <p><u>Inverse Operations, Estimating and Checking Answers</u> Recognise and use the inverse relationships between addition and subtraction and use this to check calculations and solve missing number problems</p> <p><u>Problem Solving</u> Solve problems with addition and subtraction:</p> <ul style="list-style-type: none"> Using concrete objects and pictorial representations, including those involving numbers, quantities and measures Applying their increasing knowledge of mental and written methods 	<p>Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs</p> <p><u>Problem Solving</u> Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts</p>		<p>Compare and sequence intervals of time</p> <p>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</p> <p>Know the number of minutes in an hour and the number of hours in a day</p>	<p>half and three-quarter turns (clockwise and anti-clockwise)</p> <p><u>Pattern</u> Order and arrange combinations of mathematical objects in patterns and sequences</p>	
Year Two Key Vocabulary	Build upon Year 1 vocabulary Numbers to 100	Build upon Year 1 vocabulary Bar model	Build upon Year 1 vocabulary Repeated addition	Build upon Year 1 vocabulary	Build upon Year 1 vocabulary	Build upon Year 1 vocabulary Symmetry Line of symmetry	Axis Compare total Tally

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	Partition, recombine, Hundred more/less		Divide, divided by, left, leftover			symmetrical	Graph Venn diagram Block diagram Represent Interpret Most/least popular
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National Curriculum

The National Curriculum for Maths 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.

Assessment

- Teachers make regular on-going assessments against the learning intention.
- Through use of the Mastering Number (Rekenrek) programme, regular number fluency assessments are made in order to check children's number acquisition and inform next steps.