

## MATHS INTENT STATEMENT

At Oldbrook First School, our aim is to design a curriculum, which is accessible to all and will maximise the development of every child's ability and academic achievement. We deliver lessons that are creative and engaging. We want children to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We intend for our children to be able to apply their mathematical knowledge to science, DT and other subjects. We want our children to know that it is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. As our children progress, we intend for our pupils to be able to understand the world, have the ability to reason mathematically and to have a sense of enjoyment and curiosity about the subject. We encourage and support children to communicate clearly and fluently about mathematics, using the appropriate mathematical language.

## MATHS IMPLEMENTATION

The maths curriculum is a broad and balanced curriculum which includes elements of number, calculation, geometry, measures and statistics. We aim to build fluency and precision in these areas and to think about numbers in a different way. Due to the interconnected nature of mathematics, we aim to teach maths in a cross curricular manner as well as discretely to teach the practical application of mathematical skills. We focus not only on the mathematical methods but also focus on mathematical vocabulary and to use a range of strategies to broaden and deepen mathematical understanding. We aim for each child to be confident in each yearly objective and develop their ability to use this knowledge to develop a greater depth understanding to solve varied fluency problems as well as problem solving and reasoning questions.

### EYFS

Mathematics is one of the four specific areas within the Early Years Foundation Stage (EYFS). We teach sequences of lessons on counting, addition, subtraction, problem solving using doubling, halving and sharing, shape and space and measures. Children are taught through direct instruction following a clear, small-step progression, use of varied representations, exploring number and calculation practically, discussing their learning and applying their learning in real-life situations and in their play. Adults work with children on focussed tasks and in the provision developing children's accurate use of language and vocabulary to describe their mathematics.

We recognise the importance of children developing good number sense at an early age, with an ability to visualise numbers in different representations, to understand how our number system works, to recognise patterns and relationships between numbers and to apply their knowledge in different contexts.

## 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. We teach number and place value, addition subtraction, multiplication, division and fractions every term so that KS1 children can revisit learning regularly and consolidate small step progress throughout the year. Autumn term in both Year 1 and Year 2 focusses on number and place value to ensure children have a secure understanding before progressing with calculation.

In addition to main teaching units, counting skills and number facts, written and mental calculation in the four operations are revisited regularly throughout the term to ensure that skills are consolidated and children can apply their skills fluently.

Children will be taught mathematical knowledge, skills and understanding through pedagogy specifically appropriate to the developmental needs in Key Stage One:

- Direct instruction following a clear, small-step progression, building gradually on previous learning and providing appropriate challenge for all.
- Using mathematical models, varied representations and real-life examples to develop number sense and secure conceptual understanding.
- Exploring varied representations of number and calculations and using mental images of numbers and their relationships to support the development of mental calculation strategies.
- Practical activity, exploration and discussion, exploring using a variety of resources, including ICT resources.
- Using mathematical ideas in practical activities and recording these using objects, pictures, diagrams, words, numerals and symbols.
- Quality questioning and supported discussion to probe understanding and identify and address misconceptions. Children will be supported in making their thinking clear to themselves as well as others when discussing their mathematics using appropriate mathematical language.
- Explicit teaching of problem-solving skills including a wide range of increasingly complex problems.
- Measuring in a practical context and drawing inferences from data collected from real -life contexts.

## MATHS IMPACT

Pupils at Oldbrook First School a variety of methods are used to find out what the children know and understand. Lesson activities are differentiated to suit the different abilities and learning styles. Mathematics lessons allow for collaborative learning and thus encourage children to talk in pairs, small groups or through class discussion, to share learning. For those children who grasp concepts rapidly, they will be challenged through a range of problems, whilst those not sufficiently fluent will be provided with opportunities to consolidate their understanding through additional practice and first response intervention. Children's understanding of taught concepts will be assessed using end of term assessment tasks which provide opportunities for children to demonstrate their understanding fully. Evidence of the children's learning journey through each Mathematics topic will be recorded in Maths books and next steps for each child recorded.

As each unit of work is covered, we consider the related intended learning, recognise children who are working at or beyond the expected level for Key Stage 1, as well as identifying the children who need and who will therefore receive support. Children in the Foundation Stage will be assessed against the Early Years Learning Goal. Children in Year 2 will be assessed against the End of Year 2 Teacher Assessment Framework.

Mathematics monitoring includes book looks, lesson observations and/or learning walks, across key stage, year group and whole school moderations. pupil voice interviews in order to ascertain correct curriculum coverage, the quality of teaching and learning as well as the children's attitudes to and retention of maths learning. This information is then used to inform further curriculum developments and provision is adapted accordingly.

The impact of our mathematics curriculum at Oldbrook First School is that children understand the relevance and importance of what they are learning in relation to real world concepts. Children know that maths is a vital life skill that they will rely on in many areas of their daily life. Children have a positive view of maths due to learning in an environment where maths is promoted as being an exciting and enjoyable subject in which they can investigate and ask questions; they know that it is reasonable to make mistakes because this can strengthen their learning through the journey to finding an answer. Children are confident to 'have a go' and choose the equipment they need to help them to learn along with the strategies they think are best suited to each problem. Our children have a good understanding of their strengths and targets for development in maths and what they need to do to improve. Our maths books evidence work of a high standard of which children clearly take pride; the components of the teaching sequences demonstrate good coverage of fluency, reasoning and problem solving. Our feedback and interventions support children to strive to be the best mathematicians they can be, ensuring a high proportion of children are on track or above. Our school standards are high, we moderate our books both internally and externally and children are achieving well.

## MATHS OVERVIEW

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Nursery</b>	Place value Representing numbers Number patterns Sorting by colour	Place value Representing numbers Number patterns Comparing size/ordering by size Shape	Place value Representing numbers Number patterns Weight Repeating pattern	Place value Representing numbers Number patterns Capacity Positional language	Place value Representing numbers Number patterns Time Days of the week Shape	Place value Representing numbers Number patterns Money, coins Directions/rotations Symmetry
<b>Reception</b>	Place value Equality Subitising Number bonds Calculation Representing numbers Number patterns Sorting by colour Comparing and matching patterns	Place value Equality Subitising Number bonds Calculation Representing numbers Number patterns Comparing size/ordering by size Shape	Place value Equality Subitising Number bonds Calculation Representing numbers Number patterns Weight Repeating pattern	Place value Equality Subitising Number bonds Calculation Representing numbers Number patterns Capacity Positional language	Place value Equality Subitising Number bonds Calculation Representing numbers Number patterns Time Days of the week Shape	Place value Equality Subitising Number bonds Calculation Representing numbers Number patterns Money, coins Directions/rotations Symmetry
<b>Year 1</b>	Place Value Addition & Subtraction	Addition & Subtraction Shape Place Value	Addition & Subtraction Place Value: multiples of 2s, 5s, 10s	Addition & Subtraction Multiplication & Division Measures: Length & Height Weight & Volume	Multiplication & Division Fractions Position & Direction	Place Value Calculation Money Time
<b>Year 2</b>	Place Value Addition & Subtraction	Money Multiplication	Division Shape Fractions	Statistics Time Addition & Subtraction Multiplication & Division	Position & Movement Reading scales Arithmetic Length & Height	Mass, capacity & temperature Addition & Subtraction Multiplication & Division

## CULTURAL CAPITAL OVERVIEW

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Nursery				World Maths Day		
Reception				World Maths Day		
Year 1				World Maths Day		
Year 2				World Maths Day		

## MATHS PROGRESSION OF SKILLS

	Early Years Foundation Stage	Year One	Year Two	Next Steps
<b>Number and Place Value</b>	<p>recognise and count reliably with numbers 1-20 and place them in order</p> <p>count objects reliably</p> <p>say which number is one more or less than a given number</p> <p>records using marks that they can interpret and explain</p>	<p>count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</p> <p>count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens</p> <p>given a number, identify one more and one less</p> <p>identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least</p> <p>read and write numbers from 1 to 20 in numerals and words.</p>	<p>count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward</p> <p>recognise the place value of each digit in a two-digit number (tens, ones)</p> <p>identify, represent and estimate numbers using different representations, including the number line</p> <p>compare and order numbers from 0 up to 100; use <math>&lt;</math>, <math>&gt;</math> and <math>=</math> signs</p> <p>read and write numbers to at least 100 in numerals and in words</p> <p>use place value and number facts to solve problems.</p>	<p>count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number</p> <p>recognise the place value of each digit in a three-digit number (hundreds, tens, ones)</p> <p>compare and order numbers up to 1000</p> <p>identify, represent and estimate numbers using different representations</p> <p>read and write numbers up to 1000 in numerals and in words</p> <p>solve number problems and practical problems involving these ideas.</p>

<p><b>Addition and Subtraction</b></p>	<p>using quantities and objects children add and subtract two single digit numbers and count on or back to find the answer</p> <p>begin to use the vocabulary involved in addition and subtraction</p> <p>identifies own mathematical problems based on own interests and fascinations</p>	<p>read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs</p> <p>represent and use number bonds and related subtraction facts within 20</p> <p>add and subtract one-digit and two-digit numbers to 20, including zero</p> <p>solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as <math>7 = \square - 9</math>.</p>	<p>solve problems with addition and subtraction:</p> <p>using concrete objects and pictorial representations, including those involving numbers, quantities and measures</p> <p>applying their increasing knowledge of mental and written methods</p> <p>recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100</p> <p>add and subtract numbers using concrete objects, pictorial representations, and mentally, including:</p> <p>a two-digit number and ones</p> <p>a two-digit number and tens</p> <p>two two-digit numbers</p> <p>adding three one-digit numbers</p> <p>show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</p> <p>recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.</p>	<p>add and subtract numbers mentally, including:</p> <p>a three-digit number and ones</p> <p>a three-digit number and tens</p> <p>a three-digit number and hundreds</p> <p>add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction</p> <p>estimate the answer to a calculation and use inverse operations to check answers</p> <p>solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.</p>
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**Multiplication and Division**

solve problems involving doubling halving and sharing

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.

recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ( $\times$ ), division ( $\div$ ) and equals (=) signs

show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot

solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

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

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.

<p><b>Fractions</b></p>	<p>solve problems involving doubling halving and sharing</p>	<p>recognise, find and name a half as one of two equal parts of an object, shape or quantity</p> <p>recognise, find and name a quarter as one of four equal parts of an object, shape or quantity</p>	<p>recognise, find, name and write fractions <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length, shape, set of objects or quantity</p> <p>write simple fractions e.g. <math>\frac{1}{2}</math> of 6 = 3 and recognise the equivalence of two quarters and one half.</p>	<p>count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10</p> <p>recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</p> <p>recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</p> <p>recognise and show, using diagrams, equivalent fractions with small denominators</p> <p>add and subtract fractions with the same denominator within one whole [for example, <math>\frac{5}{7} + \frac{1}{7} = \frac{6}{7}</math>]</p> <p>compare and order unit fractions with the same denominator</p> <p>solve problems that involve all of the above.</p>
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<p><b>Measurement</b></p>	<p>use everyday language to talk about size, weight, capacity, distance, time and money</p> <p>compare objects and quantities and solve problems</p> <p>order two or three items by length, weight, height and capacity</p> <p>orders and sequences three events within a day</p>	<p>compare, describe and solve practical problems for:</p> <p>lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</p> <p>mass/weight [for example, heavy/light, heavier than, lighter than]</p> <p>capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]</p> <p>time [for example, quicker, slower, earlier, later]</p> <p>measure and begin to record the following:</p> <p>lengths and heights</p> <p>mass/weight</p> <p>capacity and volume</p> <p>time (hours, minutes, seconds)</p> <p>recognise and know the value of different denominations of coins and notes</p> <p>sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</p> <p>recognise and use language relating to dates, including</p>	<p>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</p> <p>compare and order lengths, mass, volume/capacity and record the results using <math>&gt;</math>, <math>&lt;</math> and <math>=</math></p> <p>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>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>measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</p> <p>measure the perimeter of simple 2-D shapes</p> <p>add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p>tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</p> <p>estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight</p> <p>know the number of seconds in a minute and the number of days in each month, year and leap year</p> <p>compare durations of events [for example to calculate the time taken by particular events or tasks].</p>
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<p><b>Geometry- Properties of shape</b></p>	<p>recognise, create and describe patterns</p> <p>explore the characteristics of everyday objects and shapes 2-D/3-D and use mathematical language to describe them</p>	<p>recognise and name common 2-D and 3-D shapes, including:</p> <p>2-D shapes [for example, rectangles (including squares), circles and triangles]</p> <p>3-D shapes [for example, cuboids (including cubes), pyramids and spheres].</p>	<p>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, [for example, a circle on a cylinder and a triangle on a pyramid]</p> <p>compare and sort common 2-D and 3-D shapes and everyday objects.</p>	<p>draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them</p> <p>recognise angles as a property of shape or a description of a turn</p> <p>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</p> <p>identify horizontal and vertical lines and pairs of perpendicular and parallel lines.</p>
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<p><b>Geometry- position and direction</b></p>	<p>children use everyday language to talk about position and direction</p>	<p>describe position, direction and movement, including whole, half, quarter and three-quarter turns.</p>	<p>order and arrange combinations of mathematical objects in patterns and sequences</p> <p>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).</p>	
<p><b>Statistics</b></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>	<p>interpret and present data using bar charts, pictograms and tables</p> <p>solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.</p>

### Maths Vocabulary for EYFS

Size	Weight	Capacity	Position	Distance	Time	Money	Shape	Pattern
Tall/taller Big Little Middle size Small Medium Long Short Tiny Large Cm Thickest enormous	Heavy Heavier Light Lightest	Full Empty Half full Enough	Next to Between Behind Under In front Over High On top Up In On First Second Third Fourth	Far away	Today Tomorrow Day after Friday Saturday Early Evening Morning Yesterday Night	2p 10p Pounds Enough Bill Change Amount Costs	Circles Hexagons Square Rectangle Triangle Diamond Sphere Sides Corners Flat curved	A,B – green, blue, green, blue A,B,C – Red, blue, green, red, blue, green

### Mathematics vocabulary for Year 1

Number and place value	Addition and subtraction	Multiplication and division	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions	General/problem solving
Number Zero, one, two, three to twenty, and beyond None Count (on/up/to/from/down) Before, after	Number bonds, number line Add, more, plus, make, sum, total, altogether Inverse commutative	Odd, even Count in twos, threes, fives Count in tens (forwards from/backwards from) How many times? Lots of, groups	Full, half full, empty Holds Container Weigh, weighs, balances Heavy, heavier, heaviest, light, lighter, lightest Scales Time Days of the week: Monday, Tuesday, etc.	Position Over, under, underneath, above, below, top, bottom, side on, in, outside, inside around, in front, behind Front, back	Group, sort Cube, cuboid, pyramid, sphere, cone, cylinder, circle, triangle, square Shape Flat, curved, straight, round	Whole Equal parts, four equal parts One half, two halves A	Listen, join in Say, think, imagine, remember Start from, start with, start at Look at, point to Put, place, fit Arrange, rearrange Change, change over Split, separate

<p>More, less, many, few, fewer, least, fewest, smallest, greater, lesser          Equal to, the same as          Odd, even          Pair          Units, ones, tens          Ten          more/less          Digit          Numeral          Figure(s)          Compare (In) order/a different order          Size          Value          Between, halfway between          Above, below</p>	<p>Double, near double          Half, halve          Equals, is the same as (including equals sign)          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..?</p>	<p>of          Once, twice, three times, five times          Multiple of, times, multiply, multiply by          Repeated addition          Array, row, column          Double, halve          Share, share equally          Group in pairs, threes, etc.          Equal groups of          Divide, divided by, left, left over</p>	<p>Seasons: spring, summer, autumn, winter          Day, week, month, year, weekend          Birthday, holiday          Morning, afternoon, evening, night, midnight          Bedtime, dinnertime, playtime          Today, yesterday, tomorrow          Before, after          Next, last          Now, soon, early, late          Quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly          Old, older, oldest, new, newer, newest          Takes longer, takes less time          Hour, o'clock, half past          Clock, watch, hands          How long ago? How long will it be to...? How long will it take to...? How often?          Always, never, often, sometimes, usually          Once, twice          First, second, third, etc.          Estimate, close to, about the same as, just over, just under          Too many, too few, not enough, enough          Length, width, height, depth          Long, longer, longest, short, shorter shortest, tall,</p>	<p>Before, after          Beside, next to, Opposite          Apart          Between, middle, edge, centre          Corner          Direction          Journey          Left, right, up, down, forwards, backwards, sideways          Across          Close, far, near          Along, through          To, from, towards, away from          Movement          Slide, roll, turn, whole turn, half turn          Stretch, bend</p>	<p>Hollow, solid          Corner (point, pointed)          Face, side, edge          Make, build, draw</p>	<p>quarter, two quarters</p>	<p>Carry on, continue, repeat &amp; what comes next?          Find, choose, collect, use, make, build          Tell me, describe, pick out, talk about, explain, show me          Read, write, record, trace, copy, complete, finish, end          Fill in, shade, colour, tick, cross, draw, draw a line between, join (up), ring, arrow          Cost          Count, work out, answer, check same          number(s)/different          number(s)/missing          number(s)          Number facts, number line, number track, number square, number cards          Abacus, counters, cubes, blocks, rods, die, dice, dominoes, pegs, peg board          Same way, different way, best way, another way          In order, in a different order          Not all, every, each<sub>SEP</sub></p>
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			taller, tallest, high, higher, highest Low, wide, narrow, deep, shallow, thick, thin Far, near, close Metre, ruler, metre stick Money, coin, penny, pence, pound, price, cost, buy, sell, spend, spent, pay, change, dear(er), costs more, costs less, cheaper, costs the same as How much? How many? Total				
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Maths Vocabulary for Year 2						
Number and place value	Measure	Geometry (position and direction)	Geometry (properties of shape)	Fractions	Data/statistics	General/problem solving
Numbers to one hundred Hundreds Partition, recombine Hundred more/less	Quarter past/to m/km, g/kg, ml/l Temperature (degrees)	Rotation Clockwise, anticlockwise Straight line Ninety degree turn, right angle	Size Bigger, larger, smaller Symmetrical, line of symmetry Fold Match Mirror line, reflection Pattern, repeating pattern	Three quarters, one third, a third Equivalence, equivalent	Count, tally, sort Vote Graph, block graph, pictogram, Represent Group, set, list, table Label, title Most popular, most common, least popular, least common	Predict Describe the pattern, describe the rule Find, find all, find different Investigate