

# Nailsworth C of E Primary School

Together, inspired by the challenge...

## Mathematics

### Mathematics Curriculum Progression Map

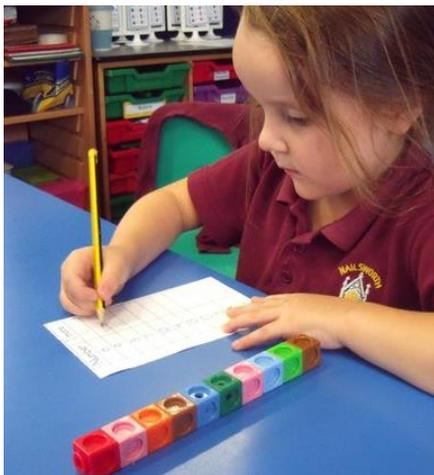
#### Intent

At Nailsworth C of E Primary School, we deliver a high quality Mathematics education so that pupils are able to become competent in this subject, one of the most essential to everyday life.

[National Curriculum Mathematics Programme of Study](#)

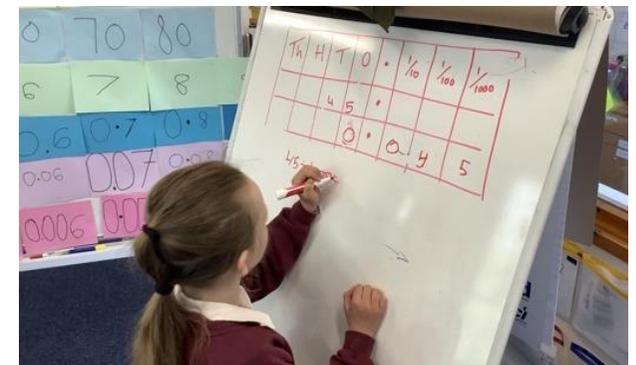
Our curriculum is planned carefully and coherently to deliver our children a high-quality mathematics education which provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

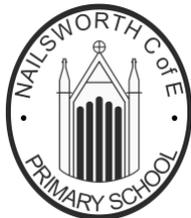
#### Implementation



#### Key for progression map, below:

- Place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Geometry
- Measurement
- Statistics
- Algebra





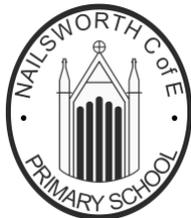
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EYFS (not colour coded)	Y1	Y2	Y3	Y4	Y5	Y6
<p><b>Number ELG</b> Children at the expected level of development will: Have a deep understanding of number to 10, including the composition of each number; - Subitise (recognise quantities without counting) up to 5; - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</p> <p><b>Numerical Patterns ELG</b> Children at the expected level of development will: - Verbally count beyond 20, recognising the pattern of the counting system; - Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.</p>	<p>Place value within 10.</p> <p>Addition and subtraction within 10.</p>	<p>Place value within 100, including counting objects, reading and writing numbers, partitioning, comparing and ordering.</p> <p>Addition and subtraction within 100, including number families to 20, add and subtract 1s and 10s, add and subtract a 2 digit and 1 digit crossing tens and add 2 2digit numbers crossing 10.</p>	<p>Place value within 1000, including 1s, 10s, 100s, 1000s, comparing numbers to 1000, ordering numbers to 1000 and counting in 50s.</p> <p>Add and subtract up to 2 digit from 3 digit numbers, crossing 100.</p>	<p>Place value, including rounding to 10 and 100, counting in 1000s, 1s, 10s, 100s, 1000s, finding 1, 10, 100, 1000 less and number line to 10000. Compare numbers. Addition and subtractions of up to 4 digit numbers with more than one exchange.</p>	<p>Place value, including rounding, comparing and ordering numbers to 1 million, negative numbers and Roman numerals to 1000.</p> <p>Addition and subtraction, including columnar addition and subtraction of numbers with more than 4 digits, rounding to approximate and estimate and multi-step problems.</p> <p>Statistics, including to read, interpret and draw line graphs and use line graphs to solve problems.</p>	<p>Place value, including numbers to 10 million, ordering/comparing/rounding any number and negative numbers. Addition and subtraction, including adding and subtracting integers.</p> <p>Multiplication, including multiplying up to a 4 digit by 2 digit number, multiples and primes to 100, square and cube numbers and reasoning from known facts.</p> <p>Division, including short division, division using factors, long division, common factors to 100, square and cube numbers and reasoning from known facts.</p>





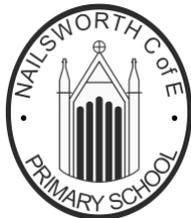
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	<p>Addition and subtraction within 10.</p> <p>Shape, including to recognise and name 2D shapes including rectangle, circle, square, triangle and 3D shapes including cube, cylinder, cuboid, pyramid, cone, sphere.</p> <p>Place value within 20.</p>	<p>Addition and subtraction within 100 including number families to 20, add and subtract 1s and 10s, add and subtract a 2 digit and 1 digit crossing tens and add 2, 2 digit numbers crossing 10.</p> <p>Measurement of Money, including counting, selecting, comparing, finding difference and finding change.</p> <p>Multiplication and division, including within 100, making and adding equal groups and making arrays.</p>	<p>Add and subtract 3 digits from 3 digit-exchange. Estimate and check answers.</p> <p>Multiplication and division including multiply and divide by 10, 5, 2 and 3 and 3 times table.</p>	<p>Addition and subtraction up to 4 digit numbers, including efficient subtraction and estimation/ checking.</p> <p>Length and perimeter including km and perimeter of rectilinear shapes.</p> <p>Multiplication and division, including by 10, 100, 3, 4, 5, 6, 8, 9 and 7, including those times tables</p>	<p>Statistics, including read and interpret tables, 2-way tables and timetables.</p> <p>Multiplication and division, including multiples, factors, common factors and prime, square and cube numbers. Also multiply by, divide by and multiples of 10, 100 and 1000.</p> <p>Perimeter and area including measuring, calculation and areas of rectangles, compound shapes and irregular shapes.</p>	<p>Fractions, including simplifying, on a number line, compare and order (numerator and denominator), mixed number addition and subtraction, multiply and divide fractions by integers, 4 rules with fractions and fractions of amount – finding the whole.</p> <p>Position and direction, including 4 quadrants, translations and reflections.</p>



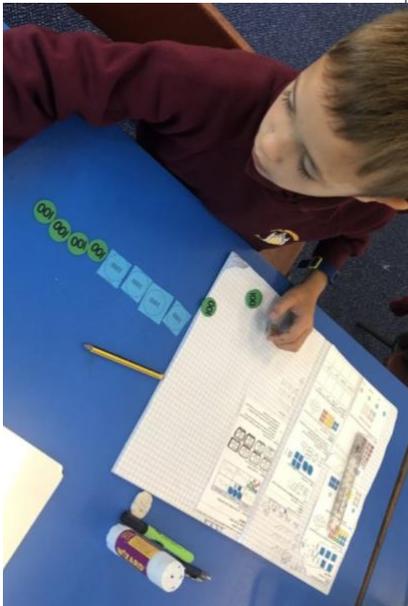


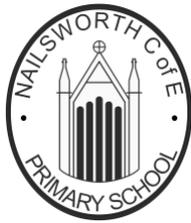
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	<p>Addition and subtraction within 20.</p> <p>Place value within 50</p>	<p>Multiplication and division, including within 100, multiplication using the X symbol, making doubles, 10, 5 and 2 times tables, dividing by 2, 5 and 10, making equal groups by sharing or grouping and odd and even numbers.</p> <p>Statistics, including making tally charts, draw/interpret 1-1 then 2, 5 and pictograms and make/interpret block diagrams.</p>	<p>Consolidate 2, 4 and 8 times table. Divide 2 digit by 1 digit and understand scaling.</p> <p>Count, convert, add and subtract pounds and pence.</p> <p>Statistics, including interpreting pictograms, bar charts and tally charts.</p>	<p>Multiplication and division, including 11, 12 times tables and multiplying and dividing 2 digits by 1 digit. Also, multiplying 3 digits by 1 digit.</p> <p>Area, including counting squares, making shapes and comparison.</p> <p>Fractions, including subtracting from whole amounts and calculating fractions of a quantity.</p>	<p>Multiplication and division, including multiplication and division of 4 digits by 1 and 2 digits, and division with remainders.</p> <p>Fractions, including equivalent, improper to mixed numbers, mixed numbers to improper, sequences and comparing and ordering fractions both less and greater than 1.</p>	<p>Decimals, including to 3 decimal places, multiplying and dividing by integers, decimals as fractions and fractions to decimals/decimals to fractions.</p> <p>Percentages, including fractions to percentages, equivalent FDP, ordering FDP, percentages of amounts and missing value percentages.</p> <p>Algebra, including find a rule – 2 and 2 step, forming expressions, substitution, formulae, forming equations, solving 1 and 2 step equations, finding pairs of values and enumerate possibilities.</p>





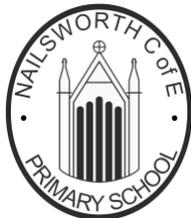
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	<p>Place value within 50</p> <p>Measurement of length and height, including measuring and comparing in centimetres and using vocabulary including longer, shorter, same, length, height and taller.</p> <p>Measurement of weight and volume, including comparing and measuring mass, weight and volume using vocabulary including heavier, lighter, equal, heaviest, lightest, empty, full and capacity.</p>	<p>Shape, including counting sides, vertices, faces and edges of 2D and 3D shapes. Also draw 2D shapes, sort 3D shapes, make patterns with 2D and 3D shapes and understand lines of symmetry.</p> <p>Fractions including unit and non-unit, equivalence of half and 2 quarters and counting in fractions.</p>	<p>Measurement of length and perimeter, including length measuring, equivalence, comparison, addition and subtraction. Perimeter measurement and calculation. All above in cm and m.</p> <p>Fractions, including recognising and finding halves, quarters and thirds both unit and non-unit. Equivalence of half and 2 quarters and counting in fractions.</p>	<p>Fractions, including equivalence, adding, subtracting (2 or more) and improper. Denominators up to 20, unit and non-unit.</p> <p>Decimals, including recognising tenths and hundredths and dividing by 10 and 100.</p>	<p>Fractions, including comparing, adding and subtraction of fractions more or less than 1 and adding 3 or more fractions.</p> <p>Decimals and percentages, including recognising, rounding and ordering decimals up to 3 decimal places and understanding percentages as decimals and fractions and being able to recognise equivalents.</p>	<p>Measurement, including converting and calculating with metric measurements, understanding kilometres, miles and imperial measurements.</p> <p>Perimeter, area and volume including shapes with the same area and areas of triangle and parallelograms. Also finding volume counting cubes and volume of a cuboid.</p> <p>Ratio including use of language and symbol and calculation. Also use and calculation of scale factors.</p>



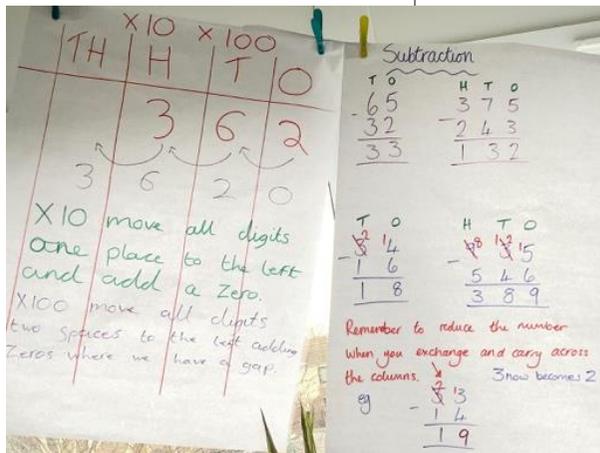


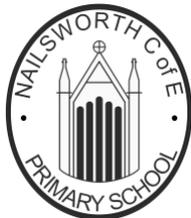
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	<p>Multiplication and division, including counting in 2s, 5s, 10s, making equal groups-grouping and sharing, making arrays, making doubles.</p> <p>Fractions, including finding half and finding quarter.</p> <p>Place value within 100.</p>	<p>Length and height, including measuring, ordering and 4 operations (cm and m).</p> <p>Position and direction, including describing movement, turns and making patterns with shapes.</p>	<p>Fractions, including tenths, ordering, adding and subtracting, fractions of a set of objects, equivalence, on a number line and ordering.</p> <p>Time, including months, years, hours in a day, am, pm and 24hr clock. Also, finding and comparing duration and measuring time in seconds.</p>	<p>Decimals, including writing, rounding, ordering, making the whole and comparing numbers up to 2 decimal places.</p> <p>Money, including pounds and pence, ordering, rounding and using the 4 operations.</p> <p>Time, including telling to the nearest minute, years, months, weeks days and analogue to digital with both 12hr and 24hr clock.</p>	<p>Decimals, including adding and subtracting within 1, complement to 1, adding and subtracting decimals with the same and different amount of places. Also, adding and subtracting wholes and decimals and decimal sequences. Multiplying and dividing by 10, 100 and 1000.</p> <p>Properties of shape, including measuring angles in degrees with a protractor.</p>	<p>Statistics, including reading/interpreting/drawing line graphs, using line graphs to solve problems, read/interpret/draw pie charts, pie charts with percentages and find the mean.</p> <p>Properties of shape, including calculating angles, vertically opposite angles, angles in a triangle – special cases/missing angles, special quadrilaterals, regular polygons, draw shapes accurately and draw nets of 3D shapes.</p>





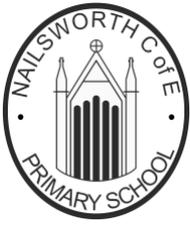
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EYFS	Y1	Y2	Y3	Y4	Y5	Y6
	<p>Position and direction, including half, quarter, three-quarter and full/whole turns, the vocabulary left, right, forwards, backwards, top, middle, bottom, above, below, behind, in front, between.</p> <p>Place value within 100.</p> <p>Money, including recognising coins and notes and counting in coins.</p> <p>Time, including vocabulary before, after, first, next, yesterday, tomorrow, morning, afternoon, evening, days of the week, faster, slower, earlier, later. On the hour and half past the hour and ordinal numbers.</p>	<p>Time, including telling time to half past, quarter past/to, to 5 minutes, hours and days and finding /comparing duration.</p> <p>Mass, capacity and temperature, including comparing volume, ml and l, measuring/comparing temperatures.</p>	<p>Shape, including turns, right angles in shapes and the comparison and drawing of angles. Also, horizontal, vertical, parallel and perpendicular lines. Recognise and describe 2D and 3D shapes and make 3D shapes.</p> <p>Measure, including the measuring, comparing, adding and subtraction of mass and capacity. Also temperature.</p>	<p>Statistics, including interpreting charts, comparison, sum and difference and an introduction to line graphs.</p> <p>Properties of shapes, including identification, comparison and ordering of angles, triangles, quadrilaterals, lines of symmetry and completing a symmetric figure.</p> <p>Position and direction, including describing, drawing and moving on a grid.</p>	<p>Properties shape, including drawing lines and angles accurately and calculating angles on a straight line. Also, calculating lengths and angles in shapes, regular and irregular polygons and reasoning about 3D shapes.</p> <p>Position and direction, including position in the first quadrant, translation with coordinates and reflection with coordinates.</p> <p>Measurement, including kg, km, mm, ml, imperial units, converting units of time and timetables.</p> <p>Measurement, including comparing and estimating volume and capacity.</p>	<p>Consolidation and themed projects.</p>





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### Impact

By the end of Year 6, our children will

- have 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.
- be able to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- have the ability to 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.

