



Maths



OUR CURRICULUM INTENT

To nurture independent, resilient, inquisitive learners, who have a breadth of knowledge, experiences and skills, with aspiration to succeed in the wider world.

The GOLDEN THREADS of our Intent

Oracy

Diversity

Independence



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	<ul style="list-style-type: none"> • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals • count in multiples of twos, fives and tens 	<ul style="list-style-type: none"> • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward 	<ul style="list-style-type: none"> • count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. 	<ul style="list-style-type: none"> • count in multiples of 6, 7, 9, 25 and 1000 • find 1000 more or less than a given number • count backwards through zero to include negative numbers 	<ul style="list-style-type: none"> • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero 	<ul style="list-style-type: none"> • use negative numbers in context, and calculate intervals across zero
Place Value		<ul style="list-style-type: none"> • recognise the place value of each digit in a two-digit number • compare and order numbers from 0 up to 100; use <, > and = signs 	<ul style="list-style-type: none"> • recognise the place value of each digit in a three-digit number • compare and order numbers up to 1000 	<ul style="list-style-type: none"> • recognise the place value of each digit in a four-digit number • order and compare numbers beyond 1000 • round any number to the nearest 10, 100 or 1000 	<ul style="list-style-type: none"> • read, write, order and compare numbers up to 1 000 000 and determine the value of each digit • round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 	<ul style="list-style-type: none"> • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • round any whole number to a required degree of accuracy
Representing number	<ul style="list-style-type: none"> • identify and represent numbers using objects and pictorial representations including the number line, & use language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words • read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs 	<ul style="list-style-type: none"> • identify, represent and estimate numbers using different representations, including the number line • read and write numbers to at least 100 in numerals and in words 	<ul style="list-style-type: none"> • identify, represent and estimate numbers using different representations • read and write numbers up to 1000 in numerals and in words 	<ul style="list-style-type: none"> • identify, represent and estimate numbers using different representations • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value 	<ul style="list-style-type: none"> • read Roman numerals to 1000 (M) and recognise years written in Roman numerals • recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) 	
Number facts (+/-)	<ul style="list-style-type: none"> • given a number, identify one more and one less • represent and use number bonds and related subtraction facts within 20 	<ul style="list-style-type: none"> • use place value and number facts to solve problems recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 				



<p>Mental +/-</p>	<ul style="list-style-type: none"> • add and subtract one-digit and two-digit numbers to 20, including zero 	<ul style="list-style-type: none"> • add and subtract numbers using concrete objects, pictorial representations, and mentally, including: TU+U, TU+T, TU+TU and U+U+U • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot 	<ul style="list-style-type: none"> • add and subtract numbers mentally, including: HTU+U, HTU+T and HTU+H 		<ul style="list-style-type: none"> • add and subtract numbers mentally with increasingly large numbers 	<ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers
<p>Written +/-</p>			<ul style="list-style-type: none"> • add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 	<ul style="list-style-type: none"> • add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate 	<ul style="list-style-type: none"> • add and subtract whole numbers with more than 4 digits, including using formal written methods 	
<p>Problems +/-</p>	<ul style="list-style-type: none"> • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$. 	<ul style="list-style-type: none"> • solve problems with addition and subtraction, using concrete, pictorial and abstract representations • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 	<ul style="list-style-type: none"> • estimate the answer to a calculation and use inverse operations to check answers • solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction 	<ul style="list-style-type: none"> • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why 	<ul style="list-style-type: none"> • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why 	
<p>Number facts (x/÷)</p>		<ul style="list-style-type: none"> • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers 	<ul style="list-style-type: none"> • recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables 	<ul style="list-style-type: none"> • recall multiplication and division facts for multiplication tables up to 12×12 	<ul style="list-style-type: none"> • identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 	<ul style="list-style-type: none"> • identify common factors, common multiples and prime numbers



<p>Mental (x/÷)</p>		<ul style="list-style-type: none"> • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (÷) and equals (=) signs • show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot 	<ul style="list-style-type: none"> • 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 methods 	<ul style="list-style-type: none"> • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers • recognise and use factor pairs and commutativity in mental calculations 	<ul style="list-style-type: none"> • multiply and divide numbers mentally drawing upon known facts • multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 	<ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers
<p>Written (x/÷)</p>			<ul style="list-style-type: none"> • Progress to formal written methods calculations as above 	<ul style="list-style-type: none"> • multiply two-digit and three-digit numbers by a one-digit number using formal written layout 	<ul style="list-style-type: none"> • 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 • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context 	<ul style="list-style-type: none"> • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to context
<p>Problems (x/÷)</p>	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects 	<ul style="list-style-type: none"> • solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple 	<ul style="list-style-type: none"> • use their knowledge of the order of operations to carry out calculations involving the four operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check



					fractions and problems involving simple rates	answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
Recognising fractions	<ul style="list-style-type: none"> • recognise, find and name a half as one of two equal parts of an object, shape or quantity • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • count up and down in hundredths; • recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. 	<ul style="list-style-type: none"> • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number 	
Comparing fractions			<ul style="list-style-type: none"> • compare and order unit fractions, and fractions with the same denominators • recognise and show, using diagrams, equivalent fractions with small denominators 	<ul style="list-style-type: none"> • recognise and show, using diagrams, families of common equivalent fractions 	<ul style="list-style-type: none"> • compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths 	<ul style="list-style-type: none"> • use common factors to simplify fractions • use common multiples to express fractions in the same denomination • compare and order fractions, including fractions > 1
Finding fractions of quantities			<ul style="list-style-type: none"> • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators 	<ul style="list-style-type: none"> • 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 		
Calculating with fractions		<ul style="list-style-type: none"> • write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$. 	<ul style="list-style-type: none"> • add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] 	<ul style="list-style-type: none"> • add and subtract fractions with the same denominator 	<ul style="list-style-type: none"> • add and subtract fractions with the same denominator and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams 	<ul style="list-style-type: none"> • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form



						<ul style="list-style-type: none"> • divide proper fractions by whole numbers
Decimals as fractional amounts				<ul style="list-style-type: none"> • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$ • find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths 	<ul style="list-style-type: none"> • read and write decimal numbers as fractions 	<ul style="list-style-type: none"> • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction • identify the value of each digit in numbers given to three decimal places
Ordering decimals				<ul style="list-style-type: none"> • round decimals with one decimal place to the nearest whole number • compare numbers with the same number of decimal places up to two decimal places 	<ul style="list-style-type: none"> • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents • round decimals with two decimal places to the nearest whole number and to one decimal place • read, write, order and compare numbers with up to three decimal places 	
Calculating with decimals						<ul style="list-style-type: none"> • multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • multiply one-digit number with up to two decimal places by whole numbers • use written division methods in cases where the answer has up to two decimal places



<p>Percentages</p>					<ul style="list-style-type: none"> • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal 	<ul style="list-style-type: none"> • solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison
<p>Fraction problems</p>			<ul style="list-style-type: none"> • solve problems using all fraction knowledge 	<ul style="list-style-type: none"> • solve simple measure and money problems involving fractions and decimals to two decimal places 	<ul style="list-style-type: none"> • solve problems involving number up to three decimal places • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25 	<ul style="list-style-type: none"> • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
<p>Ratio & Proportion</p>						<ul style="list-style-type: none"> • solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

<p>Algebra</p>						<ul style="list-style-type: none"> • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables.
<p>Measures</p>	<ul style="list-style-type: none"> • compare, describe and solve practical problems for: length/height, weight/mass, capacity/volume & time • measure and begin to record length/height, weight/mass, capacity/volume & time 	<ul style="list-style-type: none"> • choose and use appropriate standard units to estimate and measure length/height (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = 	<ul style="list-style-type: none"> • measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) 	<ul style="list-style-type: none"> • Convert between different units of measure • estimate, compare and calculate different measures, including money in pounds and pence 	<ul style="list-style-type: none"> • convert between different units of metric measure • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • estimate volume and capacity 	<ul style="list-style-type: none"> • solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate • use, read, write and convert between 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 up to three decimal places • convert between miles and kilometres
<p>Mensuration</p>			<ul style="list-style-type: none"> • measure the perimeter of simple 2-D shapes 	<ul style="list-style-type: none"> • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares 	<ul style="list-style-type: none"> • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes 	<ul style="list-style-type: none"> • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units.



<p>Money</p>	<ul style="list-style-type: none"> • recognise and know the value of different denominations of coins and notes 	<ul style="list-style-type: none"> • recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value • find different combinations of coins that equal the same amounts of money • solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change 	<ul style="list-style-type: none"> • add and subtract amounts of money to give change, using both £ and p in practical contexts 		<ul style="list-style-type: none"> • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling 	
<p>Time</p>	<ul style="list-style-type: none"> • sequence events in chronological order using language • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times 	<ul style="list-style-type: none"> • compare and sequence intervals of time • 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 • know the number of minutes in an hour and the number of hours in a day 	<ul style="list-style-type: none"> • tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • 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 • know the number of seconds in a minute and the number of days in each month, year and leap year • compare durations of events 	<ul style="list-style-type: none"> • Convert between different units of measure (e.g. Hours to minutes) • read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days 	<ul style="list-style-type: none"> • solve problems involving converting between units of time 	
<p>Shape vocabulary</p>	<ul style="list-style-type: none"> • recognise and name common 2-D shapes (e.g. Square, circle, triangle) • recognise and name common 3-D shapes (e.g. Cubes, cuboids, pyramids & spheres) 	<p>(vertices, edges, faces, symmetry)</p>	<ul style="list-style-type: none"> • identify horizontal and vertical lines and pairs of perpendicular and parallel lines 			<ul style="list-style-type: none"> • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius



<p>Properties of 2-d shape</p>		<ul style="list-style-type: none"> • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. • compare and sort common 2-D and 3-D shapes and everyday objects. 	<ul style="list-style-type: none"> • draw 2-D shapes 	<ul style="list-style-type: none"> • compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry. 	<ul style="list-style-type: none"> • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles. 	<ul style="list-style-type: none"> • draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes
<p>Properties of 3-d shape</p>		<ul style="list-style-type: none"> • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes. compare and sort common 2-D and 3-D shapes and everyday objects. 	<ul style="list-style-type: none"> • make 3-D shapes using modelling materials • recognise 3-D shapes in different orientations and describe them 		<ul style="list-style-type: none"> • identify 3-D shapes, including cubes and other cuboids, from 2-D representations 	<ul style="list-style-type: none"> • recognise, describe and build simple 3-D shapes, including making nets • find unknown angles in any triangles, quadrilaterals, and regular polygons
<p>Angles</p>			<ul style="list-style-type: none"> • recognise angles as a property of shape or a description of a turn • 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 or less than right angle 	<ul style="list-style-type: none"> • identify acute and obtuse angles and compare and order angles up to two right angles by size 	<ul style="list-style-type: none"> • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (°) • identify angles at a point and one whole turn (total 360°); at a point on a straight line and ½ a turn (total 180°) • identify other multiples of 90° 	<ul style="list-style-type: none"> • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
<p>Position & Direction</p>	<ul style="list-style-type: none"> • describe position, direction and movement, including whole, half, quarter and three-quarter turns. 	<ul style="list-style-type: none"> • order and arrange combinations of mathematical objects in patterns and sequences. • use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in 		<ul style="list-style-type: none"> • describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon 	<ul style="list-style-type: none"> • identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed 	<ul style="list-style-type: none"> • describe positions on the full coordinate grid (all four quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes.



		terms of right angles for quarter, half and $\frac{3}{4}$ turns				
Interpreting data		<ul style="list-style-type: none"> • interpret and construct simple pictograms, tally charts, block diagrams and simple tables 	<ul style="list-style-type: none"> • interpret and present data using bar charts, pictograms and tables 	<ul style="list-style-type: none"> • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs 	<ul style="list-style-type: none"> • complete, read and interpret information in tables, including timetables 	<ul style="list-style-type: none"> • interpret and construct pie charts and line graphs calculate and interpret the mean as an average
Extract info from data		<ul style="list-style-type: none"> • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totalling and comparing categorical data 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs 	<ul style="list-style-type: none"> • solve comparison, sum and difference problems using information presented in a line graph 	<ul style="list-style-type: none"> • use pie charts and line graphs to solve problems