

**Brookside Primary School Curriculum Knowledge Map**

**Maths**

<b>Year Group</b>	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>
<b>Key Stage 1</b>						
<b>Year 1</b>	<p><b>Number &amp; Place Value</b> 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 2s, 5s and 10s</p> <p>given a number, identify 1 more and 1 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><b>Addition &amp; Subtraction</b> 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 0</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 = ? - 9</math>.</p>	<p><b>Multiplication &amp; Division</b> 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.</p>	<p><b>Fractions</b> recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity</p> <p>recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity.</p> <p><b>Properties of Shapes</b> recognise and name common 2-D and 3-D shapes, including: 2-D shapes 3-D shapes</p>	<p><b>Measurement (Time)</b> compare, describe and solve practical problems for time</p> <p>measure and begin to record the following: time (hours, minutes, seconds)</p> <p>sequence events in chronological order using language</p> <p>recognise and use language relating to dates, including days of the week, weeks, months and years</p> <p>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><b>Measurement (Money)</b> recognise and know the value of different denominations of coins and notes</p>	<p><b>Measurement (Length, Mass &amp; Capacity)</b> compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/hal] mass / weight capacity and volume</p> <p>measure and begin to record the following: lengths and heights mass/weight capacity and volume</p> <p><b>Position &amp; Direction</b> describe position, directions and movements, including whole, half, quarter and three-quarter turns.</p>
<b>Year 2</b>	<p><b>Number &amp; Place Value</b> count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward</p>	<p><b>Addition &amp; Subtraction</b> solve problems with addition and subtraction: using concrete objects and pictorial representations,</p>	<p><b>Multiplication &amp; Division</b> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables,</p>	<p><b>Fractions</b> recognise, find, name and write fractions <math>\frac{1}{3}</math>, <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math> and <math>\frac{3}{4}</math> of a length,</p>	<p><b>Measurement (Time)</b> compare and sequence intervals of time</p>	<p><b>Measurement (Length, Mass &amp; Capacity)</b> choose and use appropriate standard units to estimate and measure</p>

	<p>recognise the place value of each digit in a two-digit number (10s, 1s)</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>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: a two-digit number and 1s a two-digit number and 10s 2 two-digit numbers adding 3 one-digit numbers</p> <p>show that addition of 2 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>including recognising odd and even numbers</p> <p>calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (<math>\times</math>), division (<math>\div</math>) and equals (<math>=</math>) signs</p> <p>show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot</p> <p>solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.</p>	<p>shape, set of objects or quantity</p> <p>write simple fractions, for example <math>\frac{1}{2}</math> of <math>6 = 3</math> and recognise the equivalence of <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>.</p> <p><b>Properties of Shapes</b> 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>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><b>Measurement (Money)</b> 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>length/height in any direction (m/cm); mass (kg/g); temperature (<math>^{\circ}</math>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><b>Position &amp; Direction</b> 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> interpret and construct simple pictograms, tally charts, block diagrams and tables</p> <p>ask and answer simple questions by counting the</p>
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Lower Key Stage 2						
<b>Year 3</b>	<p><b>Number and Place Value</b> 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 3-digit number (100s, 10s, 1s)</p> <p>compare and order numbers up to 1,000</p> <p>identify, represent and estimate numbers using different representations</p> <p>read and write numbers up to 1,000 in numerals and in words</p> <p>solve number problems and practical problems involving these ideas.</p> <p><b>Addition &amp; Subtraction</b> add and subtract numbers mentally, including: a three-digit number and 1s a three-digit number and 10s</p>	<p><b>Multiplication &amp; Division</b> recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables</p> <p>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</p> <p>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>	<p><b>Fractions</b> 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</p> <p>compare and order unit fractions, and fractions</p>	<p><b>Properties of Shape</b> 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 2 right angles make a half-turn, 3 make three quarters of a turn and 4 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> <p><b>Measurement (Length and Perimeter)</b> measure, compare, add and subtract: lengths (m/cm/mm);</p>	<p><b>Measurement (Money)</b> add and subtract amounts of money to give change, using both £ and p in practical contexts</p> <p><b>Measurement (Mass, Capacity &amp; Volume)</b> measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml)</p> <p><b>Fractions</b> Revision where needed</p>	<p><b>Statistics</b> interpret and present data using bar charts, pictograms and tables</p> <p>solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables.</p>

	<p>a three-digit number and 100s</p> <p>add and subtract numbers with up to 3 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>		<p>with the same denominators</p> <p>solve problems that involve all of the above.</p> <p><b>Measurement (Time)</b> 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, am/pm, 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</p>	<p>measure the perimeter of simple 2-D shapes</p>		
<b>Year 4</b>	<p><b>Number and Place Value</b> count in multiples of 6, 7, 9, 25 and 1,000</p> <p>find 1,000 more or less than a given number</p>	<p><b>Multiplication &amp; Division</b> recall multiplication and division facts for multiplication tables up to <math>12 \times 12</math></p> <p>use place value, known and derived facts to</p>	<p><b>Fractions (including decimals)</b> recognise and show, using diagrams, families of common equivalent fractions</p>	<p><b>Properties of Shape</b> compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</p>	<p><b>Measurement (Money)</b> estimate, compare and calculate different measures, including money in pounds and pence</p>	<p><b>Position &amp; Direction</b> describe positions on a 2-D grid as coordinates in the first quadrant</p> <p>describe movements between positions as translations of a given unit</p>

<p>count backwards through 0 to include negative numbers</p> <p>recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s and 1s)</p> <p>order and compare numbers beyond 1,000</p> <p>identify, represent and estimate numbers using different representations</p> <p>round any number to the nearest 10, 100 or 1,000</p> <p>solve number and practical problems that involve all of the above and with increasingly large positive numbers</p> <p>read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value.</p> <p><b>Addition &amp; Subtraction</b> add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate</p>	<p>multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers</p> <p>recognise and use factor pairs and commutativity in mental calculations</p> <p>multiply two-digit and three-digit numbers by a one-digit number using formal written layout</p> <p>solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.</p>	<p>count up and down in hundredths; recognise that hundredths arise when dividing an object by a 100 and dividing tenths by 10.</p> <p>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</p> <p>add and subtract fractions with the same denominator</p> <p>recognise and write decimal equivalents of any number of tenths or hundredths</p> <p>recognise and write decimal equivalents to <math>\frac{1}{4}</math>; <math>\frac{1}{2}</math>; <math>\frac{3}{4}</math></p> <p>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</p> <p>round decimals with 1 decimal place to the nearest whole number</p> <p>compare numbers with the same number of</p>	<p>identify acute and obtuse angles and compare and order angles up to 2 right angles by size</p> <p>identify lines of symmetry in 2-D shapes presented in different orientations</p> <p>complete a simple symmetric figure with respect to a specific line of symmetry.</p> <p><b>Measurement (Length, Area and Perimeter)</b> convert between different units of measure</p> <p>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</p> <p>find the area of rectilinear shapes by counting squares</p>	<p><b>Measurement (Mass &amp; Capacity)</b> convert between different units of measure</p> <p><b>Fractions (including decimals)</b> Revision where needed</p>	<p>to the left/right and up/down</p> <p>plot specified points and draw sides to complete a given polygon.</p> <p><b>Statistics</b> interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</p> <p>solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.</p>
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	<p>estimate and use inverse operations to check answers to a calculation</p> <p>solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.</p>		<p>decimal places up to 2 decimal places</p> <p>solve simple measure and money problems involving fractions and decimals to 2 decimal places.</p> <p><b>Measurement (Time)</b> convert between different units of measure</p> <p>read, write and convert time between analogue and digital 12 and 24-hour clocks</p> <p>solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days</p>			
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Upper Key Stage 2

<b>Year 5</b>	<p><b>Number &amp; Place Value</b> read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit</p> <p>count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000</p> <p>interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0</p>	<p><b>Multiplication &amp; Division</b> identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.</p> <p>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</p> <p>establish whether a number up to 100 is prime and recall prime numbers up to 19</p>	<p><b>Fractions (Decimals &amp; Percentages)</b> compare and order fractions whose denominators are all multiples of the same number</p> <p>identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths</p> <p>recognise mixed numbers and improper fractions and convert from one form to the other and</p>	<p><b>Measurement</b> convert between different units of metric measure</p> <p>understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints</p> <p>estimate volume and capacity</p> <p>solve problems involving converting between units of time</p>	<p><b>Properties of Shape</b> identify 3-D shapes, including cubes and other cuboids, from 2-D representations</p> <p>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</p> <p>draw given angles, and measure them in degrees (o)</p> <p>identify: angles at a point and 1 whole turn (total 360o)</p>	<p><b>Multiplication &amp; Division</b> Revision where needed</p> <p><b>Fractions (Decimals &amp; Percentages)</b> Revision where needed</p>
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<p>round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000</p> <p>solve number problems and practical problems that involve all of the above</p> <p>read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.</p> <p><b>Addition &amp; Subtraction</b> add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</p> <p>add and subtract numbers mentally with increasingly large numbers</p> <p>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</p> <p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.</p>	<p>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</p> <p>multiply and divide numbers mentally drawing upon known facts</p> <p>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</p> <p>multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000</p> <p>recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)</p> <p>solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes</p> <p>solve problems involving addition, subtraction, multiplication and division and a combination of</p>	<p>write mathematical statements <math>&gt; 1</math> as a mixed number</p> <p>add and subtract fractions with the same denominator and denominators that are multiples of the same number</p> <p>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</p> <p>read and write decimal numbers as fractions</p> <p>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</p> <p>round decimals with 2 decimal places to the nearest whole number and to 1 decimal place</p> <p>read, write, order and compare numbers with up to 3 decimal places</p> <p>solve problems involving number up to 3 decimal places</p> <p>recognise the per cent symbol (%) and understand that per cent</p>	<p>use all four operations to solve problems involving measure using decimal notation including scaling.</p>	<p>angles at a point on a straight line and half a turn (total 180°) other multiples of 90°</p> <p>use the properties of rectangles to deduce related facts and find missing lengths and angles</p> <p>distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</p> <p><b>Position &amp; Direction</b> 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.</p> <p><b>Statistics</b> solve comparison, sum and difference problems using information presented in a line graph</p> <p>complete, read and interpret information in tables, including timetables.</p>	
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		<p>these, including understanding the meaning of the equals sign</p> <p>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.</p> <p><b>Measurement (Area &amp; Perimeter)</b> measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</p> <p>calculate and compare the area of rectangles (including squares) including using standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>) and estimate the area of irregular shapes</p>	<p>relates to “number of parts per 100”, and write percentages as a fraction with denominator 100, and as a decimal fraction</p> <p>solve problems which require knowing percentage and decimal equivalents of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, <math>\frac{1}{5}</math>, <math>\frac{2}{5}</math>, <math>\frac{4}{5}</math> and fractions with a denominator of a multiple of 10 or 25.</p>			
<b>Year 6</b>	<p><b>Number &amp; Place Value</b> read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</p> <p>round any whole number to a required degree of accuracy</p> <p>use negative numbers in context, and calculate intervals across 0</p>	<p><b>Multiplication &amp; Division</b> multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication</p> <p>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,</p>	<p><b>Fractions (Decimals &amp; Percentages)</b> associate a fraction with division and calculate decimal fraction equivalents for a simple fraction.</p> <p>identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers are up to three decimal places</p>	<p><b>Measurement (Perimeter, Area &amp; Volume)</b> recognise that shapes with the same areas can have different perimeters and vice versa</p> <p>recognise when it is possible to use formulae for area and volume of shapes</p> <p>calculate the area of parallelograms and triangles</p>	<p><b>Position &amp; Direction</b> describe positions on the full coordinate grid (all 4 quadrants)</p> <p>draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</p> <p><b>Statistics</b> interpret and construct pie charts and line graphs and use these to solve problems</p>	Consolidation and themed projects.



<p>solve number and practical problems that involve all of the above.</p> <p><b>Addition &amp; Subtraction</b> perform mental calculations, including with mixed operations and large numbers.</p> <p>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</p> <p>solve problems involving addition and subtraction, multiplication and division</p> <p>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p>	<p>as appropriate for the context</p> <p>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 the context</p> <p>identify common factors, common multiples and prime numbers</p> <p>use their knowledge of the order of operations to carry out calculations involving the 4 operations</p> <p>solve problems involving multiplication and division</p> <p>use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.</p> <p><b>Fractions (Decimals &amp; Percentages)</b> use common factors to simplify fractions; use common multiples to express fractions in the same denomination</p> <p>compare and order fractions, including fractions <math>&gt;1</math></p>	<p>multiply one-digit numbers with up to 2 decimal places by whole numbers</p> <p>use written division methods in cases where the answer has up to 2 decimal places</p> <p>solve problems which require answers to be rounded to specified degrees of accuracy</p> <p>recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.</p> <p><b>Algebra</b> use simple formulae</p> <p>generate and describe linear number sequences</p> <p>express missing number problems algebraically</p> <p>find pairs of numbers that satisfy an equation with two unknowns</p> <p>enumerate possibilities of combinations of 2 variables.</p> <p><b>Measurement</b> solve problems involving the calculation and conversion of units of</p>	<p>calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units</p> <p><b>Ratio &amp; Proportion</b> solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts</p> <p>solve problems involving the calculation of percentages and the use of percentages for comparison</p> <p>solve problems involving similar shapes where the scale factor is known or can be found</p> <p>solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.</p> <p><b>Properties of Shape</b> draw 2-D shapes using given dimensions and angles</p> <p>recognise, describe and build simple 3-D shapes, including making nets</p>	<p>calculate and interpret the mean as an average.</p>	
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