

# Maths progression document

	Year 3	Year 4	Year 5	Year 6
<b>Place Value</b>	<ul style="list-style-type: none"> <li>• Composition of 100 – 50s, 25s and 20s.</li> <li>• Place value of 3 digit numbers (including ordering, comparing and representing)</li> <li>• Count in hundreds and tens on a number line</li> <li>• Identify previous, next and nearest multiple of 100 on a number line</li> <li>• Find 10 and 100 more/less than a given number</li> <li>• Count in multiples of 2, 20, 5, 50 and 25</li> <li>• Use place value to solve addition and subtraction</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding 1,000</li> <li>• Place value of 4 digit numbers (including ordering, comparing and representing)</li> <li>• Rounding 4 digit numbers to the nearest 1,000, 100 and 10</li> <li>• Find 1,000 more or less than a given number</li> <li>• Composition of 1,000 – 100, 200, 250 and 500</li> <li>• Use place value to solve addition and subtraction calculations and problems</li> </ul>	<ul style="list-style-type: none"> <li>• Identify, understand and represent tenths, hundredths and thousandths</li> <li>• Compare and order decimals</li> <li>• Rounding decimals to the nearest tenth and whole number</li> <li>• Use place value to solve addition and subtraction calculations and problems related to decimals (up to 3 dp).</li> <li>• Read and write negative numbers</li> <li>• Interpret negative numbers</li> </ul>	<ul style="list-style-type: none"> <li>• Understand composition of 10,000 (1,000, 5,000, 2,500 and 2,000) and 100,000 (1,000, 50,000, 250,000 and 200,000).</li> <li>• Place value of numbers up to 7 digits (including ordering, comparing and representing)</li> <li>• Place 5 and 6 digit multiples of 1,000 on unlabelled number lines.</li> <li>• Identify numbers with up to 7 digits on marked numberlines.</li> <li>• Round up to 7 digit numbers to any power of 10.</li> <li>• Use place value to solve addition and subtraction calculations and problems</li> </ul>



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	calculations and problems			
<b>Addition and subtraction</b>	<ul style="list-style-type: none"><li>• Add 3 addends</li><li>• Add and subtract numbers that bridge through 10</li><li>• Add 3 digit numbers using mental strategies such as adjusting, redistribution and partitioning</li><li>• Develop an understanding of the additive relationship</li><li>• Use column addition, including with regrouping</li><li>• Use column subtraction, including with exchanging</li><li>• Solve addition and subtraction problems</li></ul>	<ul style="list-style-type: none"><li>• Use column addition, including with regrouping</li><li>• Use column subtraction, including with exchanging</li><li>• Solve addition and subtraction problems</li></ul>	<ul style="list-style-type: none"><li>• Use column addition and subtraction to calculate with decimal numbers, including in the context of money</li><li>• Solve addition and subtraction problems</li></ul>	<ul style="list-style-type: none"><li>• Develop knowledge of additive structures and apply these to addition and subtraction problems</li><li>• Pupils add and subtract numbers with up to seven digits using column addition and subtraction</li><li>• Use a range of written and mental methods to solve addition and subtraction problems</li><li>• Balance equations with addition and subtraction expressions</li><li>• Understand the order of operations and use this to solve calculations.</li></ul>
<b>Multiplication and division</b>	<ul style="list-style-type: none"><li>• To be able to recall multiplication and division facts for 2, 4 and 8 times tables.</li></ul>	<ul style="list-style-type: none"><li>• To recall multiplication and division facts for times tables up to 12 x 12</li></ul>	<ul style="list-style-type: none"><li>• Multiply a two digit number by one digit using partitioning</li><li>• Multiply up to 3 digits by one digit using formal</li></ul>	<ul style="list-style-type: none"><li>• Mental methods of multiplication and division, including scaling.</li><li>• Multiply three digit numbers by up to two digits using long</li></ul>



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	<ul style="list-style-type: none"><li>Scale known multiplication facts by 10.</li></ul>	<ul style="list-style-type: none"><li>To understand what factors represent in a multiplication calculation</li><li>Explain the effect of multiplying by 0</li><li>To multiply a two digit number by 10 and 100</li><li>To divide three and four digit numbers by 10 and 100</li><li>Solve division calculations with remainders, including in context</li></ul>	<p>short multiplication, including regrouping</p> <ul style="list-style-type: none"><li>Divide up to 3 digits by 1 digit using short division, including with exchanging and remainders</li><li>Multiply and divide numbers, including decimals, by 10, 100 and 1,000</li><li>Explain what a cube number is</li><li>Understand the terminology of factors and identify factor pairs</li><li>Identify prime numbers, factors and multiples</li></ul>	<p>multiplication, including with regrouping</p> <ul style="list-style-type: none"><li>Use associative law to multiply effectively</li><li>Use long division to divide three digits by two digits, including with remainders and representing these as remainders, fractions and decimals</li><li>Understand the order of operations and use this to solve calculations.</li></ul>
<b>Geometry, shape, position and direction</b>	<ul style="list-style-type: none"><li>Identify right angles</li><li>Compare angles</li><li>Horizontal, vertical, parallel and perpendicular lines</li></ul>	<ul style="list-style-type: none"><li>Identify and name acute and obtuse angles</li><li>Compare and order angles</li></ul>	<ul style="list-style-type: none"><li>Identify and name different angles, including reflex angles</li><li>Measure and draw angles</li></ul>	<ul style="list-style-type: none"><li>Calculate missing angles in quadrilaterals and polygons</li><li>Label the parts of a circle and calculate</li></ul>



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	<ul style="list-style-type: none"><li>• Recognise, draw and describe 2D shapes</li><li>• Recognise and describe 3D shapes</li></ul>	<ul style="list-style-type: none"><li>• Name, identify and classify polygons, triangles and quadrilaterals</li><li>• Describe and mark positions on a grid as co-ordinates in first quadrant</li><li>• Translate polygons in the first quadrant</li><li>• Complete symmetrical patterns</li><li>• Identify lines of symmetry</li><li>• Complete symmetrical shapes using a line of symmetry</li></ul>	<p>using a protractor</p> <ul style="list-style-type: none"><li>• Calculate missing angles on a straight line, a triangle and around a point</li><li>• Using nets to identify and name 3D shapes</li><li>• Translate and reflect shapes using co-ordinates</li></ul>	<p>the radius and diameter</p> <ul style="list-style-type: none"><li>• Read and plot points in all four quadrants.</li><li>• Solve problems involving co-ordinates</li><li>• Translate and reflect simple shapes across all 4 quadrants</li></ul>
<b>Measure</b>	<ul style="list-style-type: none"><li>• Estimate and measure length and height, mass and volume</li><li>• Convert whole units of measure using knowledge of 10 and 100 (cm, m and mm)</li><li>• Read scales in a range of contexts</li></ul>	<ul style="list-style-type: none"><li>• Convert units of measure using knowledge of 1,000 (kg and g, m and km)</li><li>• Finding the perimeter by counting squares</li><li>• Calculating the perimeter of rectangles,</li></ul>	<ul style="list-style-type: none"><li>• Use knowledge of multiplying and dividing by 10, 100 and 1,000 to convert between units of measure</li><li>• Convert between units of measure, including</li></ul>	<ul style="list-style-type: none"><li>• Read scales and graphing in measures context</li><li>• Convert between standard metric units of measure up to 3dp</li><li>• Solve problems involving converting between standard metric units of measure</li></ul>



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	<p>(g and kg, ml and l)</p> <ul style="list-style-type: none"><li>• Tell the time to the nearest minute</li><li>• Read a digital clock and identify am/pm</li><li>• To know years/months/days</li><li>• To convert between seconds and minutes</li><li>• Calculate durations of time</li></ul>	<p>rectilinear shapes and polygons using addition and multiplication</p> <ul style="list-style-type: none"><li>• Convert between analogue and digital times</li><li>• Convert between 12 and 24 hour clock</li></ul>	<p>money, using their knowledge of decimals</p> <ul style="list-style-type: none"><li>• Calculate the volume of a cuboid</li><li>• Find the area of flat shapes using <math>\text{cm}^2</math> and <math>\text{m}^2</math></li><li>• Compare and describe measurements using knowledge of 4 operations</li><li>• Compare between metric and imperial units</li><li>• Convert between miles and km</li><li>• Convert between units of time</li><li>• Read timetables</li></ul>	<ul style="list-style-type: none"><li>• Calculate the area of triangles and parallelograms</li><li>• Read, plot, translate and reflect points and shapes in all 4 quadrants</li></ul>
<b>Fractions, decimals and percentages</b>	<ul style="list-style-type: none"><li>• Identify and represent unit and non – unit fractions in different ways</li><li>• Compare and order unit and non-unit fractions</li></ul>	<ul style="list-style-type: none"><li>• Place and estimate fractions on a marked but unlabelled number line.</li><li>• Express quantities as</li></ul>	<ul style="list-style-type: none"><li>• Multiply fractions, improper fractions and mixed numbers by a whole number</li></ul>	<ul style="list-style-type: none"><li>• Write fractions in their simplest form</li><li>• Add and subtract fractions with different denominators</li><li>• Comparing fractions with different denominators</li></ul>



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	<ul style="list-style-type: none"><li>• Calculate the value of a part in a fraction</li><li>• Marking fractions on a marked number line</li><li>• Identify simple equivalent fractions</li><li>• Add and subtract fractions with the same denominator (including to total 1)</li></ul>	<p>mixed numbers and improper fractions</p> <ul style="list-style-type: none"><li>• Convert between mixed numbers and improper fractions</li><li>• Add and subtract with mixed numbers and improper fractions</li><li>• Identify equivalent fraction families</li></ul>	<ul style="list-style-type: none"><li>• Find a fraction of a quantity</li><li>• Find the whole from a given fraction of a quantity</li><li>• Describe and compare two unlike fractions</li><li>• Explain relationship between equivalent fractions and use this to solve problems</li><li>• Identify decimal equivalents to <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math> and <math>\frac{3}{4}</math></li><li>• Simple conversions between fractions and decimals</li><li>• Compare fractions and decimals</li><li>• Understand and represent percentages</li></ul>	<ul style="list-style-type: none"><li>• Multiply two fractions</li><li>• Divide fractions by a whole number</li><li>• Understand fractions as division and calculate decimal equivalents</li><li>• Convert between fractions, decimals and percentages</li><li>• Calculate percentages of amounts and use this to solve problems in a range of contexts</li></ul>
<b>Statistics</b>	<ul style="list-style-type: none"><li>• Interpret and draw pictograms</li></ul>	<ul style="list-style-type: none"><li>• Interpret charts, including bar</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>• Read, interpret and construct line graphs</li></ul>



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	<ul style="list-style-type: none"><li>• Interpret and draw bar charts</li><li>• Interpret two way tables</li></ul>	<p>charts and time graphs</p> <ul style="list-style-type: none"><li>• Solve comparison, sum and difference problems using information presented in charts and graphs</li><li>• Draw and interpret line graphs</li></ul>		<ul style="list-style-type: none"><li>• Read and interpret dual bar charts</li><li>• Read and interpret pie charts (with and without percentages)</li><li>• Calculate the mean as an average</li></ul>
<b>Ratio &amp; Proportion</b>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>• Describe the relationship between two factors</li><li>• Use multiplication and division to calculate unknown variables</li><li>• Use a ratio grid to calculate unknown variables</li><li>• Solve scaling problems in context</li></ul>
<b>Algebra</b>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>•</li></ul>	<ul style="list-style-type: none"><li>• Generate and describe linear number sequences</li><li>• Use simple formulae</li><li>• Express missing number problems algebraically</li><li>• Find pairs of numbers that satisfy an</li></ul>



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