

# Maths Progression Documents

Planning shows a clear sequential progression from concrete to pictorial to abstract so that our pupils gain a secure and deep learning of all concepts in maths. Progression in the teaching of calculation is displayed within our Calculation Policy, which has been carefully planned to ensure sequential learning is embedded across year groups so that children always build on prior knowledge when learning a new concept. Calculation methods are taught across the school by linking manipulatives with formal and informal methods, e.g., use of ten grids leading to pictorial methods then to formal addition and subtraction: number lines leading to mental methods.

The progression documents show key knowledge and skills from EYFS – Year 6.

EYFS Mathematics				
Number	Number facts	Numerical Patterns	Measure, Shape and Space	Vital Vocabulary
<ul style="list-style-type: none"> <li>• <b>Have a deep understanding</b> of number to 10, including the composition of each number;</li> <li>• <b>Subitise</b> (recognise quantities without counting) up to 5</li> </ul>	<ul style="list-style-type: none"> <li>• Automatically <b>recall</b> (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.</li> </ul>	<ul style="list-style-type: none"> <li>• Verbally <b>count</b> beyond 20, <b>recognising</b> the pattern of the counting system;</li> <li>• <b>Compare</b> quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;</li> <li>• <b>Explore and represent</b> patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</li> </ul>	<ul style="list-style-type: none"> <li>• Safely <b>use</b> and <b>explore</b> a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; including measuring.</li> <li>• <b>Recognise</b> a range of shapes and link items that have the same shape.</li> </ul>	<p><b>Use</b> enriching and widening children's vocabulary that will support later reading comprehension</p>
<ul style="list-style-type: none"> <li>• Count</li> <li>• Read and write</li> <li>• Identify</li> <li>• Represent</li> </ul>	<ul style="list-style-type: none"> <li>• Recall</li> <li>• Count</li> <li>• Add</li> <li>• Subtract</li> </ul>	<ul style="list-style-type: none"> <li>• Count</li> <li>• Compare</li> <li>• Explore</li> <li>• Represent</li> </ul>	<ul style="list-style-type: none"> <li>• Use</li> <li>• Explore</li> <li>• Recognise</li> </ul>	<ul style="list-style-type: none"> <li>• Use</li> <li>• Explore</li> </ul>

**Progression of knowledge and skills – Number and place value**

Strand	1	2	3	4	5	6
<b>Number and place value</b>	<ul style="list-style-type: none"> <li>• <b>count</b> to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number</li> <li>• <b>count, read and write</b> numbers to 100 in numerals; <b>count</b> in multiples of 2s, 5s and 10s</li> <li>• given a number, <b>identify</b> 1 more and 1 less</li> <li>• <b>identify and represent</b> numbers <b>using</b> objects and pictorial representations including the number line, and <b>use</b> the language of: equal to, more than, less than (fewer), most, least</li> <li>• <b>read and write</b> numbers from 1 to 20 in numerals and words</li> </ul>	<ul style="list-style-type: none"> <li>• <b>count</b> in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward</li> <li>• <b>recognise</b> the place value of each digit in a two-digit number (10s, 1s)</li> <li>• <b>identify, represent and estimate</b> numbers using different representations, including the number line</li> <li>• <b>compare and order</b> numbers from 0 up to 100; use &lt;, &gt; and = signs</li> <li>• <b>read and write</b> numbers to at least 100 in numerals and in words</li> <li>• <b>use</b> place value and number facts to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>• <b>count</b> from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.</li> <li>• <b>recognise</b> the place value of each digit in a 3-digit number (100s, 10s, 1s)</li> <li>• <b>compare and order</b> numbers up to 1,000</li> <li>• <b>identify, represent and estimate</b> numbers using different representations</li> <li>• <b>read and write</b> numbers up to 1,000 in numerals and in words</li> <li>• <b>solve</b> number problems and practical problems involving these ideas</li> </ul>	<ul style="list-style-type: none"> <li>• <b>count</b> in multiples of 6, 7, 9, 25 and 1,000</li> <li>• <b>identify</b> 1,000 more or less than a given number</li> <li>• <b>count backwards</b> through 0 to include negative numbers</li> <li>• <b>recognise</b> the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)</li> <li>• <b>order and compare</b> numbers beyond 1,000</li> <li>• <b>identify, represent and estimate</b> numbers using different representations</li> <li>• <b>round</b> any number to the nearest 10, 100 or 1,000</li> <li>• <b>solve</b> number and practical problems that involve all of the above and with increasingly large positive numbers</li> <li>• <b>read</b> 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</li> </ul>	<ul style="list-style-type: none"> <li>• <b>read, write, order and compare</b> numbers to at least 1,000,000 and <b>determine the value</b> of each digit</li> <li>• <b>count forwards or backwards</b> in steps of powers of 10 for any given number up to 1,000,000</li> <li>• <b>interpret</b> negative numbers in context, <b>count forwards and backwards</b> with positive and negative whole numbers, including through 0</li> <li>• <b>round</b> any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000</li> <li>• <b>solve</b> number problems and practical problems that involve all of the above</li> <li>• <b>read</b> Roman numerals to 1,000 (M) and recognise years written in Roman numerals</li> </ul>	<ul style="list-style-type: none"> <li>• <b>read, write, order and compare</b> numbers up to 10,000,000 and <b>determine the value</b> of each digit</li> <li>• <b>round</b> any whole number to a required degree of accuracy</li> <li>• <b>use</b> negative numbers in context, and <b>calculate</b> intervals across 0</li> <li>• <b>solve</b> number and practical problems that involve all of the above</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Read and write</li> <li>○ Identify</li> <li>○ Represent</li> <li>○ Use</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Read and write</li> <li>○ Identify</li> <li>○ Recognise</li> <li>○ Represent</li> <li>○ Use</li> <li>○ Compare and order</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Read and write</li> <li>○ Identify</li> <li>○ Recognise</li> <li>○ Represent</li> <li>○ Use</li> <li>○ Compare and order</li> <li>○ Estimate</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Read and write</li> <li>○ Identify</li> <li>○ Recognise</li> <li>○ Represent</li> <li>○ Compare and order</li> <li>○ Estimate</li> <li>○ Solve</li> <li>○ Round</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Read and write</li> <li>○ Identify</li> <li>○ Recognise</li> <li>○ Represent</li> <li>○ Compare and order</li> <li>○ Estimate</li> <li>○ Solve</li> <li>○ Round</li> <li>○ Determine</li> <li>○ Interpret</li> </ul>	<ul style="list-style-type: none"> <li>○ Read and write</li> <li>○ Identify</li> <li>○ Recognise</li> <li>○ Calculate</li> <li>○ Compare and order</li> <li>○ Estimate</li> <li>○ Solve</li> <li>○ Round</li> <li>○ Determine</li> <li>○ Use</li> </ul>

**Progression of knowledge and skills – Addition and Subtraction**

Strand	1	2	3	4	5	6
<b>Addition and Subtraction</b>	<ul style="list-style-type: none"> <li>• <b>read, write and interpret</b> mathematical statements involving addition (+), subtraction (-) and equals (=) signs</li> <li>• <b>represent</b> and <b>use</b> number bonds and related subtraction facts within 20</li> <li>• <b>add</b> and <b>subtract</b> one-digit and two-digit numbers to 20, including 0</li> <li>• <b>solve</b> one-step problems that involve <b>addition</b> and <b>subtraction</b>, using concrete objects and pictorial <b>representations</b>, and missing number problems such as <math>7 = ? - 9</math></li> </ul>	<ul style="list-style-type: none"> <li>• <b>solve</b> problems with <b>addition</b> and <b>subtraction</b>:</li> <li>• <b>using</b> concrete objects and pictorial <b>representations</b>, including those involving numbers, quantities and measures</li> <li>• <b>applying</b> their increasing knowledge of <b>mental</b> and <b>written</b> methods</li> <li>• <b>recall</b> and <b>use</b> <b>addition</b> and <b>subtraction</b> facts to 20 <b>fluently</b>, and <b>derive</b> and <b>use</b> related facts up to 100</li> <li>• <b>add</b> and <b>subtract</b> numbers using concrete objects, pictorial <b>representations</b>, and <b>mentally</b>, including:             <ul style="list-style-type: none"> <li>• a two-digit number and 1s</li> <li>• a two-digit number and 10s</li> <li>• 2 two-digit numbers</li> <li>• adding 3 one-digit numbers</li> </ul> </li> <li>• <b>show</b> that <b>addition</b> of 2 numbers can be done in any order (commutative) and <b>subtraction</b> of 1 number from another cannot</li> <li>• <b>recognise</b> and <b>use</b> the <b>inverse</b> relationship between <b>addition</b> and <b>subtraction</b> and use this to <b>check</b> calculations and <b>solve</b> missing number problems</li> </ul>	<ul style="list-style-type: none"> <li>• add and subtract numbers mentally, including:             <ul style="list-style-type: none"> <li>• a three-digit number and 1s</li> <li>• a three-digit number and 10s</li> <li>• a three-digit number and 100s</li> </ul> </li> <li>• <b>add</b> and <b>subtract</b> numbers with up to 3 digits, using <b>formal written</b> methods of columnar addition and <b>subtraction</b></li> <li>• <b>estimate</b> the answer to a <b>calculation</b> and <b>use</b> <b>inverse</b> operations to <b>check</b> answers</li> <li>• <b>solve</b> problems, including missing number problems, using number facts, place value, and more complex <b>addition</b> and <b>subtraction</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>add</b> and <b>subtract</b> numbers with up to 4 digits using the <b>formal written</b> methods of columnar <b>addition</b> and <b>subtraction</b> where appropriate</li> <li>• <b>estimate</b> and <b>use</b> <b>inverse</b> operations to <b>check</b> answers to a <b>calculation</b></li> <li>• <b>solve</b> <b>addition</b> and <b>subtraction</b> two-step problems in contexts, <b>deciding</b> which operations and methods to <b>use</b> and why</li> </ul>	<ul style="list-style-type: none"> <li>• <b>add</b> and <b>subtract</b> whole numbers with more than 4 digits, including using formal written methods (columnar <b>addition</b> and <b>subtraction</b>)</li> <li>• <b>add</b> and <b>subtract</b> numbers <b>mentally</b> with increasingly large numbers</li> <li>• <b>use</b> <b>rounding</b> to <b>check</b> answers to <b>calculations</b> and <b>determine</b>, in the context of a <b>problem</b>, levels of accuracy</li> <li>• <b>solve</b> <b>addition</b> and <b>subtraction</b> <b>multi-step</b> problems in contexts, <b>deciding</b> which operations and methods to <b>use</b> and why</li> </ul>	<ul style="list-style-type: none"> <li>• <b>perform mental calculations</b>, including with mixed operations and large numbers</li> <li>• <b>use</b> their knowledge of the <b>order of operations</b> to carry out <b>calculations</b> involving the 4 operations</li> <li>• <b>solve</b> <b>addition</b> and <b>subtraction</b> multi-step problems in contexts, <b>deciding</b> which operations and methods to <b>use</b> and why</li> <li>• <b>solve</b> problems involving <b>addition</b> and <b>subtraction</b></li> <li>• <b>use</b> <b>estimation</b> to <b>check</b> answers to <b>calculations</b> and <b>determine</b>, in the context of a problem, an appropriate degree of accuracy</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>○ Read and write</li> <li>○ Interpret</li> <li>○ Represent</li> <li>○ Use</li> <li>○ Add</li> <li>○ Subtract</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Recall</li> <li>○ Check</li> <li>○ Represent</li> <li>○ Use</li> <li>○ Add</li> <li>○ Subtract</li> <li>○ Solve</li> <li>○ Apply</li> <li>○ Mental methods</li> <li>○ Prove (show)</li> <li>○ Inverse</li> </ul>	<ul style="list-style-type: none"> <li>○ Add</li> <li>○ Subtract</li> <li>○ Use</li> <li>○ Solve</li> <li>○ Apply</li> <li>○ Mental methods</li> <li>○ Formal methods</li> <li>○ Prove (show)</li> <li>○ Inverse</li> <li>○ Estimate</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Add</li> <li>○ Subtract</li> <li>○ Use</li> <li>○ Solve</li> <li>○ Apply</li> <li>○ Mental methods</li> <li>○ Formal methods</li> <li>○ Prove/explain (why)</li> <li>○ Inverse</li> <li>○ Estimate</li> <li>○ Calculate</li> <li>○ Determine/decide</li> </ul>	<ul style="list-style-type: none"> <li>○ Add</li> <li>○ Subtract</li> <li>○ Use</li> <li>○ Solve</li> <li>○ Apply</li> <li>○ Mental methods</li> <li>○ Formal methods</li> <li>○ Prove/explain (why)</li> <li>○ Inverse</li> <li>○ Estimate</li> <li>○ Calculate</li> <li>○ Determine/decide</li> </ul>	<ul style="list-style-type: none"> <li>○ Add</li> <li>○ Subtract</li> <li>○ Use</li> <li>○ Solve</li> <li>○ Apply</li> <li>○ Mental methods</li> <li>○ Formal methods</li> <li>○ Prove/explain (why)</li> <li>○ Inverse</li> <li>○ Estimate</li> <li>○ Calculate</li> <li>○ Determine/decide</li> </ul>

## Progression of knowledge and skills – Multiplication and Division

Strand	1	2	3	4	5	6
<b>Multiplication and Division</b>	<p><b>solve</b> one-step problems involving <b>multiplication</b> and <b>division</b>, by <b>calculating</b> the answer using concrete objects, pictorial <b>representations</b> and <b>arrays</b> with the support of the teacher</p>	<ul style="list-style-type: none"> <li>• <b>recall</b> and <b>use multiplication</b> and <b>division</b> facts for the 2, 5 and 10 <b>multiplication</b> tables, including <b>recognising</b> odd and even numbers</li> <li>• <b>calculate</b> mathematical statements for <b>multiplication</b> and <b>division</b> within the <b>multiplication</b> tables and <b>write</b> them using the <b>multiplication</b> (<math>\times</math>), <b>division</b> (<math>\div</math>) and equals (=) signs</li> <li>• <b>show</b> that <b>multiplication</b> of 2 numbers can be done in any order (commutative) and <b>division</b> of 1 number by another cannot</li> <li>• <b>solve</b> problems involving <b>multiplication</b> and <b>division</b>, using materials, <b>arrays</b>, <b>repeated addition</b>, <b>mental methods</b>, and <b>multiplication</b> and <b>division</b> facts, including <b>problems</b> in contexts</li> </ul>	<ul style="list-style-type: none"> <li>• <b>recall</b> and use <b>multiplication</b> and <b>division</b> facts for the 3, 4 and 8 <b>multiplication</b> tables</li> <li>• <b>write</b> and <b>calculate</b> mathematical statements for <b>multiplication</b> and <b>division</b> using the <b>multiplication</b> tables that they know, including for two-digit numbers times one-digit numbers, <b>using mental</b> and progressing to <b>formal written methods</b></li> <li>• <b>solve</b> problems, including missing number problems, involving <b>multiplication</b> and <b>division</b>, including positive integer <b>scaling</b> problems and correspondence problems in which n objects are connected to m objects</li> </ul>	<ul style="list-style-type: none"> <li>• <b>recall multiplication and division</b> facts for <b>multiplication</b> tables up to <math>12 \times 12</math></li> <li>• <b>use</b> place value, known and <b>derived facts</b> to <b>multiply</b> and <b>divide mentally</b>, including: <b>multiplying</b> by 0 and 1; <b>dividing</b> by 1; <b>multiplying</b> together 3 numbers</li> <li>• <b>recognise</b> and <b>use</b> factor pairs and commutativity in <b>mental calculations</b></li> <li>• <b>multiply</b> two-digit and three-digit numbers by a one-digit number <b>using formal written layout</b></li> <li>• <b>solve</b> problems involving <b>multiplying</b> and <b>adding</b>, including using the distributive law to <b>multiply</b> two-digit numbers by 1 digit, integer <b>scaling</b> problems and harder correspondence problems such as n objects are connected to m objects</li> </ul>	<ul style="list-style-type: none"> <li>• <b>identify multiples and factors</b>, including <b>finding</b> all factor pairs of a number, and <b>common factors</b> of 2 numbers</li> <li>• <b>know</b> and <b>use</b> the vocabulary of <b>prime numbers</b>, <b>prime factors</b> and <b>composite (non-prime) numbers</b></li> <li>• <b>establish</b> whether a number up to 100 is prime and <b>recall</b> prime numbers up to 19</li> <li>• <b>multiply</b> numbers up to 4 digits by a one- or two-digit number <b>using a formal written method</b>, including <b>long multiplication</b> for two-digit numbers</li> <li>• <b>multiply</b> and <b>divide</b> numbers <b>mentally</b>, drawing upon known facts</li> <li>• <b>divide</b> numbers up to 4 digits by a one-digit number using the <b>formal written method</b> of <b>short division</b> and <b>interpret</b> remainders appropriately for the context</li> <li>• <b>multiply and divide</b> whole numbers and those involving decimals by 10, 100 and 1,000</li> <li>• <b>recognise and use square numbers and cube numbers</b>, and the notation for squared (<math>^2</math>) and cubed (<math>^3</math>)</li> <li>• <b>solve</b> problems involving the four operations, including <b>using</b> their knowledge of factors and multiples, squares and cubes; including <b>scaling</b> by simple fractions and problems involving simple rates</li> </ul>	<ul style="list-style-type: none"> <li>• <b>multiply</b> multi-digit numbers up to 4 digits by a two-digit whole number <b>using the formal written method of long multiplication</b></li> <li>• <b>divide</b> numbers up to 4 digits by a two-digit whole number <b>using the formal written method of long division</b>, and <b>interpret</b> remainders as whole number remainders, <b>fractions</b>, or by <b>rounding</b>, as appropriate for the context</li> <li>• <b>divide</b> numbers up to 4 digits by a two-digit number using the <b>formal written method of short division</b> where appropriate, <b>interpreting</b> remainders according to the context</li> <li>• <b>perform mental calculations</b>, including with mixed operations and large numbers</li> <li>• <b>identify</b> common factors, common multiples and prime numbers</li> <li>• <b>use</b> their knowledge of the <b>order of operations</b> to carry out <b>calculations</b> involving the 4 operations</li> <li>• <b>solve</b> problems involving <b>multiplication and division</b></li> <li>• <b>use estimation</b> to <b>check</b> answers to <b>calculations</b> and <b>determine</b>, in the context of a problem, an appropriate degree of accuracy</li> </ul>

<b>Skills</b>	<ul style="list-style-type: none"> <li>○ Solve</li> <li>○ Represent</li> <li>○ Multiplication</li> <li>○ Division</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Recall</li> <li>○ Use</li> <li>○ Multiplication</li> <li>○ Division</li> <li>○ Recognise</li> <li>○ Write</li> <li>○ Show</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Recall</li> <li>○ Multiplication</li> <li>○ Division</li> <li>○ Recognise</li> <li>○ Write</li> <li>○ Formal/mental methods</li> <li>○ Scaling</li> <li>○ Solve</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Recall</li> <li>○ Multiplication</li> <li>○ Division</li> <li>○ Recognise</li> <li>○ Write</li> <li>○ Formal/mental methods</li> <li>○ Scaling</li> <li>○ Solve</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify</li> <li>○ Multiplication</li> <li>○ Division</li> <li>○ Recognise</li> <li>○ Know and use</li> <li>○ Formal/mental methods</li> <li>○ Scaling</li> <li>○ Solve</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify</li> <li>○ Multiplication</li> <li>○ Division</li> <li>○ Recognise</li> <li>○ Know and use</li> <li>○ Formal/mental methods</li> <li>○ Scaling</li> <li>○ Solve</li> <li>○ Estimate/calculate/check</li> </ul>
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**Progression of Knowledge and Skills – Fractions, Decimals and Percentages**

Strand	1	2	3	4	5	6
<b>FDP</b>	<ul style="list-style-type: none"> <li>● <b>recognise, find and name</b> a half as 1 of 2 equal parts of an object, shape or quantity</li> <li>● <b>recognise, find and name</b> a quarter as 1 of 4 equal parts of an object, shape or quantity</li> </ul>	<ul style="list-style-type: none"> <li>● <b>recognise, find, name and write</b> fractions third, quarter, two-quarters and three-quarters of a length, shape, set of objects or quantity</li> <li>● <b>write</b> simple fractions</li> </ul>	<ul style="list-style-type: none"> <li>● <b>count</b> up and down in tenths; <b>recognise</b> that tenths arise from <b>dividing</b> an object into 10 equal parts and in <b>dividing</b> one-digit numbers or quantities by 10</li> <li>● <b>recognise, find and write</b> fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</li> <li>● <b>recognise and use</b> fractions as numbers: unit fractions and non-unit fractions with small denominators</li> <li>● <b>recognise and show, using diagrams</b>, equivalent fractions with small denominators</li> <li>● <b>add and subtract fractions</b> with the same denominator within one whole</li> <li>● <b>compare and order</b> unit fractions, and fractions with the same denominators</li> <li>● <b>solve</b> problems that involve all of the above</li> </ul>	<ul style="list-style-type: none"> <li>● <b>recognise and show, using diagrams</b>, families of common equivalent fractions</li> <li>● <b>count</b> up and down in hundredths; <b>recognise</b> that hundredths arise when <b>dividing</b> an object by 100 and dividing tenths by 10</li> <li>● <b>solve</b> problems involving increasingly harder fractions to <b>calculate</b> quantities, and fractions to <b>divide</b> quantities, including non-unit fractions where the answer is a whole number</li> <li>● <b>add and subtract fractions</b> with the same denominator</li> <li>● <b>recognise and write</b> decimal equivalents of any number of tenths or hundreds</li> <li>● <b>recognise and write</b> decimal equivalents to quarter, half and three-quarters</li> <li>● <b>find</b> the effect of <b>dividing</b> a one- or two-digit number by 10 and 100, <b>identifying</b> the value of the digits in the answer as ones, tenths and hundredths</li> <li>● <b>round</b> decimals with 1 decimal place to the nearest whole number</li> <li>● <b>compare</b> numbers with the same number of decimal places up to 2 decimal places</li> <li>● <b>solve</b> simple measure and money problems involving fractions and decimals to 2 decimal places</li> </ul>	<ul style="list-style-type: none"> <li>● <b>compare and order</b> fractions whose denominators are all multiples of the same number</li> <li>● <b>identify, name and write</b> equivalent fractions of a given fraction, represented visually, including tenths and hundredths</li> <li>● <b>recognise</b> mixed numbers and improper fractions and <b>convert</b> from one form to the other and write mathematical statements <math>&gt; 1</math> as a mixed number</li> <li>● <b>add and subtract fractions</b> with the same denominator, and denominators that are multiples of the same number</li> <li>● <b>multiply</b> proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> <li>● <b>read and write</b> decimal numbers as fractions</li> <li>● <b>recognise and use</b> thousandths and relate them to tenths, hundredths and decimal equivalents</li> <li>● <b>round</b> decimals with 2 decimal places to the nearest whole number and to 1 decimal place</li> <li>● <b>read, write, order and compare</b> numbers with up to 3 decimal places</li> <li>● <b>solve</b> problems involving number up to 3 decimal places</li> <li>● <b>recognise</b> the per cent symbol (%) and <b>understand</b> that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction</li> <li>● <b>solve</b> problems which require knowing percentage and decimal equivalents of half, quarter, fifth, two-fifths, four-fifths and those fractions with denominators of multiples of 10 or 25.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>use</b> common factors to simplify fractions; <b>use</b> common multiples to <b>express</b> fractions in the same denomination</li> <li>● <b>compare and order</b> fractions, including fractions <math>&gt; 1</math></li> <li>● <b>add and subtract</b> fractions with different denominators and mixed numbers, <b>using</b> the concept of equivalent fractions</li> <li>● <b>multiply</b> simple pairs of proper fractions, <b>writing</b> the answer in its simplest form</li> <li>● divide proper fractions by whole numbers</li> <li>● <b>associate</b> a fraction with <b>division</b> and <b>calculate</b> decimal fraction equivalents [for example, 0.375] for a simple fraction</li> <li>● <b>identify</b> the value of each digit in numbers given to 3 decimal places and <b>multiply and divide</b> numbers by 10, 100 and 1,000 giving answers up to 3 decimal places</li> <li>● <b>multiply</b> one-digit numbers with up to 2 decimal places by whole numbers</li> <li>● <b>use written division</b> methods in cases where the answer has up to 2 decimal places</li> <li>● <b>solve</b> problems which require answers to be <b>rounded</b> to specified degrees of accuracy</li> <li>● <b>recall and use</b> equivalences between simple fractions, decimals and percentages, including in different contexts</li> </ul>
Skills	<ul style="list-style-type: none"> <li>○ Recognise</li> <li>○ Find</li> <li>○ Name</li> </ul>	<ul style="list-style-type: none"> <li>○ Recognise</li> <li>○ Find</li> <li>○ Name</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Find/Recognise</li> <li>○ Division</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Recognise/identify</li> <li>○ Division</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Recognise/identify</li> <li>○ Division</li> </ul>	<ul style="list-style-type: none"> <li>○ Count</li> <li>○ Recognise/identify/recall</li> <li>○ Division</li> </ul>

		<ul style="list-style-type: none"> <li>○ Write</li> </ul>	<ul style="list-style-type: none"> <li>○ Find</li> <li>○ Write</li> <li>○ Use/solve</li> <li>○ Show</li> <li>○ Add/subtract fractions</li> <li>○ Compare and order</li> </ul>	<ul style="list-style-type: none"> <li>○ Find</li> <li>○ Write</li> <li>○ Use (including diagrams)</li> <li>○ Show</li> <li>○ Add/subtract fractions</li> <li>○ Solve/calculate</li> <li>○ Compare</li> </ul>	<ul style="list-style-type: none"> <li>○ Find</li> <li>○ Write</li> <li>○ Use (including diagrams)</li> <li>○ Show</li> <li>○ Add/subtract fractions</li> <li>○ Solve/calculate</li> <li>○ Compare/order</li> </ul>	<ul style="list-style-type: none"> <li>○ Find</li> <li>○ Write</li> <li>○ Use (including diagrams)</li> <li>○ Show</li> <li>○ Add/subtract fractions</li> <li>○ Solve/calculate</li> <li>○ Compare/order</li> </ul>
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### Progression of Knowledge and Skills – Measurement

Strand	1	2	3	4	5	6
<b>Measurement</b>	<ul style="list-style-type: none"> <li>● <b>compare, describe and solve</b> practical problems for: length and heights, mass/weight, capacity and volume, time.</li> <li>● <b>measure</b> and begin to <b>record</b> the following: length and heights, mass/weight, capacity and volume, time.</li> <li>● <b>recognise and know</b> the value of different denominations of coins and notes</li> <li>● <b>sequence</b> events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]</li> <li>● <b>recognise and use</b> language relating to dates, including days of the week, weeks, months and years</li> <li>● <b>tell the time</b> to the hour and half past the hour and draw the hands on a clock face to show these times</li> </ul>	<ul style="list-style-type: none"> <li>● <b>choose and use</b> appropriate standard units to <b>estimate</b> and <b>measure</b> 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</li> <li>● <b>compare and order</b> lengths, mass, volume/capacity and record the results using &gt;, &lt; and =</li> <li>● <b>recognise and use</b> symbols for pounds (£) and pence (p); combine amounts to make a particular value</li> <li>● <b>find</b> different combinations of coins that equal the same amounts of money</li> <li>● <b>solve</b> simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change</li> <li>● compare and sequence intervals of time</li> <li>● <b>tell and write</b> the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times</li> <li>● <b>know</b> the number of minutes in an hour and the number of hours in a day</li> </ul>	<ul style="list-style-type: none"> <li>● <b>measure, compare, add and subtract:</b> lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)</li> <li>● <b>measure</b> the perimeter of simple 2-D shapes</li> <li>● <b>add and subtract</b> amounts of money to give change, using both £ and p in practical contexts</li> <li>● <b>tell and write</b> the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks</li> <li>● <b>estimate and read time</b> with increasing accuracy to the nearest minute; record and <b>compare time</b> in terms of seconds, minutes and hours; <b>use vocabulary</b> such as o'clock, am/pm, morning, afternoon, noon and midnight</li> <li>● <b>know</b> the number of seconds in a minute and the number of days in each month, year and leap year</li> <li>● <b>compare</b> durations of events</li> </ul>	<ul style="list-style-type: none"> <li>● <b>convert</b> between different units of measure</li> <li>● <b>measure and calculate</b> the perimeter of a rectilinear figure (including squares) in centimetres and metres</li> <li>● <b>find</b> the area of rectilinear shapes by counting squares</li> <li>● <b>estimate, compare and calculate</b> different measures, including money in pounds and pence</li> <li>● <b>read, write and convert time</b> between analogue and digital 12- and 24-hour clocks</li> <li>● <b>solve</b> problems involving <b>converting</b> from hours to minutes, minutes to seconds, years to months, weeks to days</li> </ul>	<ul style="list-style-type: none"> <li>● <b>convert</b> between different units of metric measure</li> <li>● <b>understand and use</b> approximate equivalences between metric units and common imperial units</li> <li>● <b>measure and calculate</b> the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>● <b>calculate and compare</b> the area of rectangles (including squares), including <b>using</b> standard units, square centimetres (cm<sup>2</sup>) and square metres (m<sup>2</sup>), and <b>estimate</b> the area of irregular shapes</li> <li>● <b>estimate</b> volume and capacity</li> <li>● <b>solve</b> problems involving converting between units of time</li> <li>● <b>use</b> all four operations to <b>solve</b> problems involving measure [for example, length, mass, volume, money] using decimal notation, including <b>scaling</b></li> </ul>	<ul style="list-style-type: none"> <li>● <b>solve</b> problems involving the calculation and <b>conversion</b> of units of measure, <b>using</b> decimal notation up to 3 decimal places where appropriate</li> <li>● <b>use, read, write and convert</b> between standard units, <b>converting</b> measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, <b>using</b> decimal notation to up to 3 decimal places</li> <li>● <b>convert</b> between miles and kilometres</li> <li>● <b>recognise</b> that shapes with the same areas can have different perimeters and vice versa</li> <li>● <b>recognise</b> when it is possible to use formulae for area and volume of shapes</li> <li>● <b>calculate</b> the area of parallelograms and triangles</li> <li>● <b>calculate, estimate and compare</b> volume of cubes and cuboids <b>using</b> standard units, including cubic centimetres (cm<sup>3</sup>) and cubic metres (m<sup>3</sup>), and extending to other units</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>○ Compare and describe</li> <li>○ Solve</li> <li>○ Measure</li> <li>○ Recognise</li> <li>○ Know</li> <li>○ Use</li> <li>○ Sequence</li> <li>○ Tell the time</li> </ul>	<ul style="list-style-type: none"> <li>○ Choose and use</li> <li>○ Estimate and measure</li> <li>○ Compare and order</li> <li>○ Recognise</li> <li>○ Find and know</li> <li>○ Solve</li> <li>○ Compare and sequence</li> <li>○ Tell the time and write times</li> </ul>	<ul style="list-style-type: none"> <li>○ Measure</li> <li>○ Compare</li> <li>○ Tell and write the time</li> <li>○ Estimate</li> <li>○ Know</li> </ul>	<ul style="list-style-type: none"> <li>○ Measure</li> <li>○ Compare</li> <li>○ Read, tell and write the time</li> <li>○ Estimate</li> <li>○ Convert</li> <li>○ Solve</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Measure</li> <li>○ Compare</li> <li>○ Read, tell and write the time</li> <li>○ Estimate</li> <li>○ Convert</li> <li>○ Solve</li> <li>○ Calculate</li> </ul>	<ul style="list-style-type: none"> <li>○ Use, read and write</li> <li>○ Compare</li> <li>○ Convert</li> <li>○ Estimate</li> <li>○ Convert</li> <li>○ Solve</li> <li>○ Recognise</li> <li>○ Calculate</li> </ul>



**Progression of Knowledge and Skills – Geometry**

Strand	1	2	3	4	5	6
<b>Geometry – Properties of shapes</b>	<ul style="list-style-type: none"> <li>● <b>recognise and name</b> common 2-D and 3-D shapes, including:                             <ul style="list-style-type: none"> <li>○ 2-D shapes [for example, rectangles (including squares), circles and triangles]</li> <li>○ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>identify and describe</b> the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line</li> <li>● <b>identify and describe</b> the properties of 3-D shapes, including the number of edges, vertices and faces</li> <li>● <b>identify</b> 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]</li> <li>● <b>compare and sort</b> common 2-D and 3-D shapes and everyday objects</li> </ul>	<ul style="list-style-type: none"> <li>● <b>draw</b> 2-D shapes and make 3-D shapes using modelling materials; <b>recognise</b> 3-D shapes in different orientations and describe them</li> <li>● <b>recognise</b> angles as a property of shape or a description of a turn</li> <li>● <b>identify</b> 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</li> <li>● <b>identify</b> horizontal and vertical lines and pairs of perpendicular and parallel lines</li> </ul>	<ul style="list-style-type: none"> <li>● <b>compare and classify</b> geometric shapes, including quadrilaterals and triangles, based on their properties and sizes</li> <li>● <b>identify</b> acute and obtuse angles and <b>compare and order</b> angles up to 2 right angles by size</li> <li>● <b>identify</b> lines of symmetry in 2-D shapes presented in different orientations</li> <li>● <b>complete a simple symmetric</b> figure with respect to a specific line of symmetry</li> </ul>	<ul style="list-style-type: none"> <li>● <b>identify</b> 3-D shapes, including cubes and other cuboids, from 2-D representations</li> <li>● <b>know</b> angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>● <b>draw</b> given angles, and measure them in degrees (°)</li> <li>● <b>identify:</b> <ul style="list-style-type: none"> <li>○ angles at a point and 1 whole turn (total 360°)</li> <li>○ angles at a point on a straight line and half a turn (total 180°)</li> <li>○ other multiples of 90°</li> </ul> </li> <li>● <b>use</b> the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>● <b>distinguish</b> between regular and irregular polygons based on <b>reasoning</b> about equal sides and angles</li> </ul>	<ul style="list-style-type: none"> <li>● <b>draw</b> 2-D shapes using given dimensions and angles</li> <li>● <b>recognise, describe and build</b> simple 3-D shapes, including making nets</li> <li>● <b>compare and classify</b> geometric shapes based on their properties and sizes and <b>find</b> unknown angles in any triangles, quadrilaterals, and regular polygons</li> <li>● <b>illustrate and name</b> parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius</li> <li>● <b>recognise</b> angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles</li> </ul>
<b>Geometry – Position and direction</b>	<ul style="list-style-type: none"> <li>● <b>describe</b> position, direction and movement, including whole, half, quarter and three-quarter turns</li> </ul>	<ul style="list-style-type: none"> <li>● <b>order and arrange</b> combinations of mathematical objects in patterns and sequences</li> <li>● <b>use</b> mathematical vocabulary to <b>describe</b> position, direction and movement, including movement in a straight line and <b>distinguishing</b> between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)</li> </ul>	<ul style="list-style-type: none"> <li>● Pupils connect decimals and rounding to drawing and measuring straight lines in centimetres, in a variety of contexts. (Non-statutory)</li> </ul>	<ul style="list-style-type: none"> <li>● <b>describe</b> positions on a 2-D grid as coordinates in the first quadrant</li> <li>● <b>describe</b> movements between positions as translations of a given unit to the left/right and up/down</li> <li>● <b>plot</b> specified points and draw sides to complete a given polygon</li> </ul>	<ul style="list-style-type: none"> <li>● <b>identify, describe and represent</b> the position of a shape following a reflection or translation, <b>using</b> the appropriate language, and <b>know</b> that the shape has not changed</li> </ul>	<ul style="list-style-type: none"> <li>● <b>describe</b> positions on the full coordinate grid (all 4 quadrants)</li> <li>● <b>draw and translate</b> simple shapes on the coordinate plane, and reflect them in the axes</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>○ Recognise</li> <li>○ Name</li> <li>○ Describe</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify</li> <li>○ Describe</li> <li>○ Compare</li> <li>○ Sort</li> <li>○ Order and arrange</li> <li>○ Use</li> <li>○ Distinguish</li> </ul>	<ul style="list-style-type: none"> <li>○ Draw</li> <li>○ Recognise</li> <li>○ Identify</li> <li>○ Connect</li> </ul>	<ul style="list-style-type: none"> <li>○ Classify</li> <li>○ Compare</li> <li>○ Identify</li> <li>○ Complete symmetry</li> <li>○ Describe</li> <li>○ Plot</li> </ul>	<ul style="list-style-type: none"> <li>○ Draw and know</li> <li>○ Recognise and describe</li> <li>○ Build</li> <li>○ Compare and classify</li> <li>○ Illustrate and name</li> <li>○ Distinguish</li> <li>○ Represent</li> </ul>	<ul style="list-style-type: none"> <li>○ Draw</li> <li>○ Recognise and describe</li> <li>○ Build</li> <li>○ Compare and classify</li> <li>○ Illustrate and name</li> <li>○ Translate</li> </ul>

**Progression of Knowledge and Skills – Statistics (Y2-6) Ratio and Proportion (Y6) Algebra (Y6)**

Strand	1	2	3	4	5	6
<p><b>Statistics (Y2, 3, 4, 5 and 6)</b></p> <p><b>Ratio and proportion – Y6 ONLY</b></p> <p><b>Algebra – Year 6 ONLY</b></p>	<p>N/A</p>	<ul style="list-style-type: none"> <li>• <b>interpret and construct</b> simple pictograms, tally charts, block diagrams and tables</li> <li>• <b>ask and answer</b> simple questions by counting the number of objects in each category and sorting the categories by quantity</li> <li>• <b>ask-and-answer</b> questions about totalling and comparing categorical data</li> </ul>	<ul style="list-style-type: none"> <li>• <b>interpret and present</b> data using bar charts, pictograms and tables</li> <li>• <b>solve</b> 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</li> </ul>	<ul style="list-style-type: none"> <li>• <b>interpret and present</b> discrete and continuous data using appropriate graphical methods, including bar charts and time graphs</li> <li>• <b>solve</b> comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs</li> </ul>	<ul style="list-style-type: none"> <li>• <b>solve</b> comparison, sum and difference problems <b>using</b> information presented in a line graph</li> <li>• <b>complete, read and interpret</b> information in tables, including timetables</li> </ul>	<p><b><u>Statistics</u></b></p> <ul style="list-style-type: none"> <li>• <b>interpret and construct</b> pie charts and line graphs and <b>use</b> these to solve problems</li> <li>• <b>calculate and interpret</b> the mean as an average</li> </ul> <p><b><u>Algebra</u></b></p> <ul style="list-style-type: none"> <li>• <b>use</b> simple formulae</li> <li>• <b>generate and describe</b> linear number sequences</li> <li>• <b>express</b> missing number problems algebraically</li> <li>• <b>find</b> pairs of numbers that satisfy an equation with 2 unknowns</li> <li>• <b>enumerate</b> possibilities of combinations of 2 variables</li> </ul> <p><b><u>Ratio and Proportion</u></b></p> <ul style="list-style-type: none"> <li>• <b>solve</b> problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts</li> <li>• <b>solve</b> problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison</li> <li>• <b>solve</b> problems involving similar shapes where the scale factor is known or can be found</li> <li>• <b>solve</b> problems involving unequal sharing and grouping</li> </ul>

						using knowledge of fractions and multiples
<b>Skills</b>		<ul style="list-style-type: none"> <li>○ Interpret</li> <li>○ Construct</li> <li>○ Ask and answer</li> </ul>	<ul style="list-style-type: none"> <li>○ Interpret</li> <li>○ Present</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Interpret</li> <li>○ Present</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Complete</li> <li>○ Read</li> <li>○ Interpret</li> <li>○ Solve</li> </ul>	<ul style="list-style-type: none"> <li>○ Interpret</li> <li>○ Construct</li> <li>○ Use</li> <li>○ Generate and describe</li> <li>○ Express</li> <li>○ Find</li> <li>○ Enumerate</li> <li>○ Solve</li> </ul>