

Mathematics Progression in the Core Aims: Fluency, Problem Solving and Reasoning

Core aim	Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Fluency	<p>Efficient counting</p> <p>Recognising of numbers to 10</p> <p>Number names Children understand daily routines and structure of the day</p> <p>Mathematical vocabulary – comparative and specific</p> <p>The organisation of thinking, including practical resources</p>	<p>Number sense is secure</p> <p>Number bonds are used readily to solve calculations.</p> <p>The organisation of thinking, including practical resources and pictorial representations are integral to the working out.</p> <p>Recording is appropriate to the task set.</p> <p>Pupils are able to explore further and extend their</p>	<p>Number bonds and tables are used readily to solve calculations.</p> <p>The inverse is used to work out missing number problems.</p> <p>Commutativity is understood.</p> <p>The organisation of thinking, including practical resources and pictorial representations are integral to the working out.</p>	<p>Number bonds, tables and place value are used readily to solve calculations.</p> <p>To add and subtract fractions with the same denominator.</p> <p>Appropriate choices about when to calculate mentally or when to use written methods are made with confidence.</p> <p>The organisation of thinking, including</p>	<p>Number facts, number systems and place value, including decimals, are used readily to solve calculations, solving problems and investigating.</p> <p>Distributive law is used in multiplication.</p> <p>To add and subtract fractions with the same denominator.</p> <p>Appropriate choices about when to calculate mentally or when to use written methods are made</p>	<p>Patterns and relationships are used readily to solve equations and construct strategies for finding solutions.</p> <p>To add and subtract fractions with the same denominator, and multiples of the denominator.</p> <p>To multiply fractions.</p> <p>The organisation of thinking and recording is</p>	<p>Patterns and relationships are used readily to solve equations and construct strategies for finding solutions.</p> <p>The laws of arithmetic, including BODMAS are understood and applied.</p> <p>The organisation of thinking and recording is appropriate to the task set.</p> <p>Pupils can calculate with fractions,</p>

	<p>Understanding of the abstraction principle</p> <p>Understanding of the order irrelevance principle</p> <p>Understanding of stable order principle</p> <p>Understanding of cardinal principal</p> <p>Ability to subitise</p>	<p>number and mathematical skills through tasks which increase in complexity and depth</p>	<p>Recording is appropriate to the task set. Pupils are able to explore further and extend their number and mathematical skills through tasks which increase in complexity and depth</p>	<p>practical resources and pictorial representations are integral to the working out</p> <p>Sophisticated models and images are used to secure conceptual understanding.</p> <p>Recording is appropriate to the task set.</p> <p>Pupils are able to explore further and extend their number and mathematical skills through tasks which increase in complexity and depth</p>	<p>Formal written methods are used efficiently with all appropriate working evident.</p> <p>The organisation of thinking is effective to demonstrate understanding and diagrams and mathematical notation are used well.</p> <p>Sophisticated models and images are used to secure conceptual understanding.</p> <p>Recording is appropriate to the task set. and mathematical skills through tasks which increase in complexity and depth.</p>	<p>appropriate to the task set.</p> <p>Pupils are able to explore further and extend their number and mathematical skills through tasks which increase in complexity and depth.</p>	<p>decimals and percentages. explore further and extend their number and mathematical skills through tasks which increase in complexity and depth.</p>
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Problem solving	<p>Children explore the world around them – sand water, use of language</p> <p>Looking for and learning about patterns</p> <p>Beginning to identify the maths needed to solve a maths problem</p>	<p>To be able to identify the mathematics required and respond to problems in a variety of contexts with increasing fluency.</p> <p>Problem solving includes real life contexts and cross curricular application.</p>	<p>To be able to identify the mathematics required and respond to problems in a variety of contexts with increasing fluency</p> <p>Problem solving includes real life contexts and cross curricular application.</p> <p>Problems with more than one step can be solved</p>	<p>To be able to identify the mathematics required and respond to problems in a variety of contexts with increasing fluency</p> <p>Problem solving includes real life contexts and cross curricular application.</p> <p>Measures, money and time</p>	<p>To be able to identify the mathematics required and respond to problems in a variety of contexts with increasing fluency</p> <p>Problem solving includes real life contexts and cross curricular application.</p> <p>Multistep problems are readily solved in the contexts of measures, money and time</p>	<p>To be able to identify the mathematics required and respond to problems in a variety of contexts with increasing fluency</p> <p>Problem solving includes real life contexts and cross curricular application.</p>	<p>To be able to identify the mathematics required and respond to problems in a variety of contexts with increasing fluency</p> <p>Problem solving includes real life contexts and cross curricular application.</p> <p>Including conversions</p>

<p>Reasoning</p>	<p>To apply conceptual knowledge to recognise patterns and relationships,</p> <p>To be able to talk about their maths using accurate vocabulary.</p> <p>To begin to explain their thinking about maths</p>	<p>To apply conceptual knowledge to recognise patterns and relationships,</p> <p>to show results using clear mathematical models such as practical apparatus, diagrams or number sentences.</p>	<p>To apply conceptual knowledge to recognise patterns and relationships.</p> <p>To explain results using clear mathematical models such as practical apparatus, diagrams or number sentences</p>	<p>To apply conceptual knowledge to use patterns, relationships and properties of number</p> <p>to begin to generalise.</p> <p>To explain results using clear mathematical models such as practical apparatus, diagrams or number sentences as models of proof</p>	<p>To apply conceptual knowledge to use patterns, relationships and properties of number to draw conclusions and make general statements.</p> <p>Lines of enquiry are generated and justified with mathematic</p> <p>To explain results clearly using appropriate representations and communications to offer a proof.</p>	<p>To apply conceptual knowledge to make generalisations, conjecture relationships and provide sophisticated models of proof, including enquiry and reasoned argument.</p>	<p>apply conceptual knowledge to make generalisations, conjecture relationships and provide sophisticated models of proof, including formula and reasoned argument.</p>
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