




Year Six Mathematics	Intent	Implementation	Impact
	<p>At St John Vianney Catholic Primary School, we recognise that Mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. We aim to provide a high-quality mathematics education with a mastery approach so that all children:</p> <ul style="list-style-type: none">• become fluent in the fundamentals of mathematics;• reason mathematically;• can solve problems by applying their mathematics. <p>(National Curriculum 2014)</p> <p>Our intent for mathematics is to teach a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding in each area. Staff are supported and aided in their roles ensuring confidence in the skills and facts they are required to teach. Lessons are child focused and maths is kept fun and current in school.</p> <p>Our curriculum allows children to better make sense of the world around them relating the pattern between mathematics and everyday life. Our policies, resources and schemes support our vision e.g. our calculations policy linked to our Mastery Text Book resource, Power Maths, which is based on White Rose Maths, and NCETM Teaching for Mastery.</p> <p>The mapping of Mathematics across school shows clear progression in line with age-related expectations and the National Curriculum. Mathematics in our school is enhanced by our focus on additional practise of key mathematics skills through Assertive Mentoring Weekly Skills Checks and our focus on key instant recall facts (KIRFs). We promote and encourage over learning of key facts through our use of Numbots and TT Rockstars competitions. We constantly seek to improve our provision and we are proud of enhancements made through our collaboration with partner schools within our M.A.C. and our work to develop our mastery approach to mathematics through our involvement with the Central Maths Hub.</p>	<p>The curriculum hours for mathematics are non-negotiable and followed by all staff. Teachers plan three lessons with a number focus per week and two lessons linked to either geometry, statistics or measures. Knowledge organisers linked to each of the mathematical areas, support the children with their learning.</p> <p>High quality teaching responds to the needs of children. Teachers use questioning well and aim to identify and address any misconceptions at an early stage.</p> <p>Planning: Lessons are planned and sequenced so that new knowledge and skills build on previous learning. Staff refer to the Calculation Policy when teaching formal methods but also understand that sometimes children find their own efficient methods along the way. Number bonds and times tables practice take place weekly to give children the opportunity to practise and improve their rapid recall of key mathematics facts.</p> <p>Teaching: At St John Vianney we employ a variety of teaching styles and opportunities for children to learn and develop their Mathematical skills and competencies, both individually and collaboratively. Our pupils are encouraged to physically represent mathematical concepts. Objects and pictures are used to demonstrate and visualise abstract ideas, alongside numbers and symbols.</p> <p>Concrete – children have the opportunity to use concrete objects and manipulatives to help them understand and explain what they are doing.</p> <p>Pictorial – children then build on this concrete approach by using pictorial representations, which can then be used to reason and solve problems.</p> <p>Abstract – With the foundations firmly laid, children can move to an abstract approach using numbers and key concepts with confidence.</p>	<p>The impact of our mathematics curriculum is that children understand the relevance of what they are learning in relation to real world concepts. We have fostered an environment where Maths is fun and where it is accepted that sometimes we will make errors on our journey to finding an answer. The children understand that learning from mistakes is a key skill.</p> <p>The children's Mathematics books demonstrate the use of a range of activities and show evidence of fluency, reasoning and problem solving. Positive verbal and written feedback and early intervention support the children to strive to be the best mathematicians they can be and ensure that a greater proportion of children are on track.</p> <p>The Mathematics leader, in collaboration with the Senior Leadership Team, takes responsibility for the monitoring of the Mathematics curriculum and the standards achieved by the children.</p> <p>The Mathematics leader monitors for appropriate pitch and progression at least once every half term. This monitoring takes the form of:</p> <ul style="list-style-type: none">• Lesson observations with written feedback;• Learning walks and pupil voice conversations;• Planning scrutiny followed by support where necessary;• Book scrutiny per term;• Termly data analysis;• Moderation with other Mathematic Subject Leaders with the M.A.C. <p>Data is collected half-termly and reported to SLT. All teachers contribute to a termly Pupil Progress Meetings, where the data is analysed to highlight those pupils not meeting expectations. The meetings focus on target setting and identifying the next steps to support the children to make good or better progress.</p>



Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions	Geometry – Properties of Shape	Geometry – Position and Direction	Geometry – Ratio and Proportion	Geometry – Statistics	Algebra	Measurement
I can read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.	I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.	I can use common factors to simplify fractions; use common multiples to express fractions in the same denomination.	I can draw 2-D shapes using given dimensions and angles.	I can describe positions on the full coordinate grid (all four quadrants).	I can solve problems involving relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.	I can interpret and construct pie charts and line graphs, and use these to solve problems.	I can use simple formulae.	I can solve problems involving calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
I can round any whole number to a required degree of accuracy.	I can perform mental calculations, including with mixed operations and large numbers.	I can 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.	I can compare and order fractions, including fractions > 1 .	I can recognise, describe and build simple 3-D shapes, including making nets.	I can draw and translate simple shapes on the coordinate plane, and reflect them on the axes.	I can solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison.	I can calculate and interpret the mean as an average.	I can generate and describe linear number sequences.	I can use, read, write and convert between standard units, converting measurement of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.
I can use negative numbers in context, and calculate intervals across zero.	I can use their knowledge of the order of operations to carry out calculations involving the four operations.	I can identify common factors, common multiples and prime numbers.	I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.	I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.		I can solve problems involving similar shapes where the scale factor is known or can be found.		I can express missing number problems algebraically.	I can convert between miles and kilometres.
I can solve number and practical problems that involve all of the above.	I can solve problems involving addition, subtraction, multiplication and division.	I can perform mental calculations, including mixed operations and large numbers.	I can multiply simple pairs of proper fractions, writing the answer in its simplest form (for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$).	I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.		I can solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.		I can find pairs of numbers that satisfy an equation with two unknowns.	I can recognise that shapes with the same areas can have different perimeters and vice versa.



Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions	Geometry – Properties of Shape	Geometry – Position and Direction	Geometry – Ratio and Proportion	Geometry – Statistics	Algebra	Measurement
	I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	I can use my knowledge of the order of operations to carry out calculations involving the four operations.	I can divide proper fractions by whole numbers (for example, $1/3 \div 2 = 1/6$).	I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite and find missing angles.				I can enumerate possibilities of combinations of two variables.	I can recognise when it is possible to use formulae for area and volume of shapes.
		I can solve problems involving addition, subtraction, multiplication and division.	I can associate a fraction with division and calculate decimal fraction equivalents (for example, 0.375) for a simple fraction (for example, $3/8$).						I can calculate the area of parallelograms and triangles.
		I can use estimation to check answers to calculations and determine, in the context of the problem, an appropriate degree of accuracy.	I can identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places.						I can calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic metres (m ³), and extending to other units (for example, mm ³ and km ³).
			I can multiply one-digit numbers with up to two decimal places by whole numbers.						
			I can use written division methods in case where the answer has up to two decimal places.						



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			I can solve problems which require answers to be rounded to specified degrees of accuracy.						
			I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.						

End of Upper Key Stage 2 Outcomes

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

Pupils should read, spell and pronounce mathematical vocabulary correctly.