MATHEMATICS CURRICULUM AIMS

By the time children leave St. Mary's Catholic Primary School, they will be:

Successful Learners

Through the enjoyment of learning, develop enquiring minds in order to process information, reason, question and evaluate, enabling all children to achieve the best they can now and in the future.

Confident Individuals

Become increasingly independent, are able to take the initiative and organise themselves, showing a willingness to try new things and making the most of opportunities.

Responsible Citizens

Are enterprising, well prepared for life and able to work co-operatively in a diverse, multi-faith/ cultural society.

They take account of and respect the needs of present and future generations in the choices they make and know that they can change things for the better.

To achieve this the school helps pupils: -

- Attain a high standard of achievement, satisfaction and enjoyment in all areas of the curriculum.
- Grow in self-confidence, have a sense of personal worth and be able to adapt to the changing world in which they live.
- Mix with their peers and adults, to communicate feelings and share experiences, building a better understanding and mutual respect for each other.
- Apply themselves to tasks individually and as contributing members of a team.
- Develop a set of moral values, understand the world in which they live and respect the views of others, tolerating different opinions and beliefs whether racial, religious or political.
- Develop lively, enquiring minds with the ability to communicate their findings.
- Be aware of and take an interest in the beauty and wonder of the world around them and recognise the need for conservation.

Our aim is that all pupils have access to a broad, balanced, engaging and enjoyable curriculum. Teachers set high expectations for every pupil, whatever their prior attainment. Assessment is used to set targets which are deliberately ambitious; but which enable pupils to experience success as learners. Potential areas of difficulty are identified and these areas are addressed at the outset through intervention, differentiated resources and targeted teaching to remove barriers to pupil achievement. This results in our Curriculum being accessible to all.

At St. Mary's Catholic Primary School, we offer a curriculum which is broad and balanced, engages and inspires children, yet builds on the knowledge, understanding and skills of all: regardless of their r starting points, as they progress through each Key Stage. The curriculum incorporates the statutory requirements of the National Curriculum and other experiences and opportunities which best meet the learning and developmental needs of the pupils in our school. It ensures that academic success, creativity and problem solving, respect, responsibility and resilience, as well as physical development, well-being and mental health are key elements that support the development of the whole child and promote a positive attitude to learning. The curriculum celebrates diversity and utilises the skills and knowledge of the whole school and wider community while supporting the pupils' spiritual, moral, social and cultural development.

The aim of our curriculum is for pupils to have the requisite skills to be successful, independent and motivated lifelong learners in readiness for their next stage of education. To best meet the needs of all of our pupils, a knowledge-rich yet skills based curriculum is delivered.

Across the EYFS the curriculum is delivered through broad topic work and also through the interests of the children and current themes. In Nursery, planning in the moment can also have an impact on learning and the environment. Staff support children in their choices and provide them with a rich and well-resourced environment. Children across the Foundation Stage are encouraged to become independent learners. Staff challenge children through questioning, specific tasks and independent learning. In Nursery, we build on the foundations to give our children the skills they need when transitioning into Reception. In our Reception class, activities are planned with a variety of adult directed, adult support and independent work. We tailor our curriculum to meet the needs of our children. Where children are ready for a more formal approach, staff will plan for this through directed teaching. Those who still need a play based approach will be supported by all staff through scaffolding and modelling.

If needed, pupils may still work on the Early Learning Goals of the Early Years Foundation Stage Curriculum as they enter Year 1. However, the Year 1 National Curriculum is taught from the outset. Throughout this period and beyond, all children are developing their phonic knowledge using SoundsWrite phonics programme.

The RE curriculum is provided as part of each child's entitlement to a broad and balanced education contributing to their spiritual, moral and cultural development.

RE within our curriculum promotes:

- religious literacy
- the chance to think and ask questions
- the development of empathy skills
- a broader understanding of different values
- an awareness of diversity through looking at major religions and beliefs in the UK and beyond

The curriculum is delivered through discretely taught subjects, where possible, the subjects may overlap. The more able are challenged further in their learning and children who find aspects of their learning more difficult are appropriately supported so that they too are enabled to experience success. National requirements and school requirements are mapped out as a whole school and then individual year groups plan the curriculum for their pupils accordingly.

At St. Mary's, we have a highly effective, carefully planned and tightly structured program for phonics teaching. This enables our children to learn phonic knowledge and skills with the expectation that they will become fluent readers, having secured word building and recognition skills. Our children are also taught high frequency words that do not conform to regular phonic patterns.

Reading is a vital life skill that will support children's learning across the whole curriculum. We strive to ensure that our children are taught to read with fluency, accuracy and understanding through a variety of high quality English lessons

and learning opportunities across all subject areas. We want children at St. Mary's to become enthusiastic, independent and reflective readers.

Mathematics curriculum is delivered using a range of resources which are developed around the CPA approach (concrete, pictorial and abstract). In all year groups there are small group interventions to support pupils in gaining the key skills to become successful readers, writers and mathematicians.

Specialist teachers and instructors support some music, physical education and the teaching of MFL. All subject leaders are given training and opportunity to develop their subject knowledge, skills and understanding to ensure curriculum development provides progression and sequencing of concepts across the school. This also enables them to provide high quality support to colleagues to improve pupil outcomes. Enrichment events, whole school activities and opportunities within and outside school all enrich and develop the children's learning.

Our aim is that all pupils have access to a broad, balanced, engaging and enjoyable curriculum. Teachers set high expectations for every pupil, whatever their prior attainment. Children are encouraged to apply skills learned, particularly in English and Mathematics, across the curriculum. Assessment is used to set targets which are deliberately ambitious; but which enable pupils to experience success as learners. Potential areas of difficulty are identified and these areas are addressed at the outset through intervention, differentiated resources and targeted teaching to remove barriers to pupil achievement. This results in our curriculum being accessible to all. Provision for the Most Able pupils is a mixture of depth and mastery with opportunities for independent working and reflection. Where appropriate, children working within the greater depth area of the curriculum are provided with an individual activity or challenge which reflects a greater depth of understanding and higher level of attainment.

After school clubs and events extend these opportunities further. Additional whole school programmes and approaches support quality teaching and learning and the school is well resourced in terms of learning materials, books and technology.

The outdoor environment and the local community are considered an opportunity for active learning for all our pupils. The school grounds have been developed so they can enrich different curriculum areas, particularly science.

Pupils have opportunities to share their learning with each other, their parents, carers and other learners through school-based and external exhibitions, performances, competitions and events involving other schools. Developing their independence and motivation as learners and their sense of responsibility as future citizens is at the heart of all our teaching and learning.

National Curriculum Programme of Study:

Purpose of study

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects. The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

Information and communication technology (ICT)

Calculators should not be used as a substitute for good written and mental arithmetic. They should therefore only be introduced near the end of key stage 2 to support pupils' conceptual understanding and exploration of more complex number problems, if written and mental arithmetic are secure. In both primary and secondary schools, teachers should use their judgement about when ICT tools should be used.

Spoken language

The national curriculum for mathematics reflects the importance of spoken language in pupils' development across the whole curriculum – cognitively, socially and linguistically. The quality and variety of language that pupils hear and speak are key factors in developing their mathematical vocabulary and presenting a mathematical justification, argument or proof. They must be assisted in making their thinking clear to themselves as well as others and teachers should ensure that pupils build secure foundations by using discussion to probe and remedy their misconceptions.

Maths - End of Year Expectations- Nursery

	0-3	3 year olds
Number	• Combines Objects. • Takes part in finger rhymes with numbers. • Reacts to changes of amount in a group of up to 3 items. • Compares amounts. Vocab 'Lots' 'More' 'Same' • Develops counting like behaviour. • Counts in everyday contexts, sometimes skipping numbers 1,2,3,5. • Develop fast recognition of up to 3 objects, without having to count them individually. • Recite numbers past 5. • Say one more for each item in order: 1, 2,3,4,5. • Know that the last number reached when counting a small set of objects tells you how many there are in total. (Cardinal principle) • Show 'finger numbers' up to 5. • Link numeral and amount. • Experiment with their own symbols and marks as well as numerals. • Solve real world mathematical problems with numbers up to 5.	• Combines Objects. • Takes part in finger rhymes with numbers. • Reacts to changes of amount in a group of up to 3 items. • Compares amounts. Vocab 'Lots' 'More' 'Same' • Develops counting like behaviour. • Counts in everyday contexts, sometimes skipping numbers 1,2,3,5. • Develop fast recognition of up to 3 objects, without having to count them individually. • Recite numbers past 5. • Say one more for each item in order: 1, 2,3,4,5. • Know that the last number reached when counting a small set of objects tells you how many there are in total. (Cardinal principle) • Show 'finger numbers' up to 5. • Link numeral and amount. • Experiment with their own symbols and marks as well as numerals. • Solve real world mathematical problems with numbers up to 5.
Numerical patterns	• Notice patterns and arrange things in patterns. • Talk about and identify the patterns around them. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Begin to describe a sequence of events using words such as 'first', 'then'	• Notice patterns and arrange things in patterns. • Talk about and identify the patterns around them. • Extend and create ABAB patterns – stick, leaf, stick, leaf. • Notice and correct an error in a repeating pattern. • Begin to describe a sequence of events using words such as 'first', 'then'
Shape, Space, Measure	• Uses language such as 'on top of' 'up' 'down' 'through' • Compares sizes, weights. Uses gesture and language 'bigger/little/smaller', 'high/low/heavy'. • Talk about and explore 2D and 3D shapes. • Understand position through words alone. • Compare quantities with language: 'more than', 'fewer than' • Describe a familiar route. • Discuss routes and locations using words like 'in front of' and 'behind' • Make comparisons between objects relating to size, length, weight and capacity. • Select shapes appropriately: flat surfaces for building, triangular prism for roof etc.	• Uses language such as 'on top of' 'up' 'down' 'through' • Compares sizes, weights. Uses gesture and language 'bigger/little/smaller', 'high/low/heavy'. • Talk about and explore 2D and 3D shapes. • Understand position through words alone. • Compare quantities with language: 'more than', 'fewer than' • Describe a familiar route. • Discuss routes and locations using words like 'in front of' and 'behind' • Make comparisons between objects relating to size, length, weight and capacity. • Select shapes appropriately: flat surfaces for building, triangular prism for roof etc.

Maths - End of Year Expectations - Reception

Number	• Count objects, actions and sounds. • Subitise (recognise number patterns without counting) • Link number symbol with its cardinal number value. • Count beyond ten • Compare numbers • Understand the 'one more then/one less than' relationship between consecutive numbers. • Explore the composition of numbers to 10. • Automatically recall number bonds for numbers 0-10.	ELG	• Children have a deep understanding of number to 10, including the composition of each number. • Subitise up to 5 • Automatically recall number bonds up to 5 and some number bonds to 10, including double facts.
Numerical patterns	• To Continue, copy and create repeating patterns.	ELG	• Verbally count beyond 20, recognising the pattern of the counting system. • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Shape, Space, Measure	• Select, rotate and manipulate shapes in order to develop spatial reasoning skills. • Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can. • Compare length, weight and capacity.	ELG	

Maths - End of Year Expectations - Year 1

Number	• To count numbers from 0-40. • To compare numbers using the terms 'greater than/smaller than and greatest/smallest as well as arrange in ascending or descending order. • To sequence objects or numbers to form a pattern. • To make number bonds. • To understand ordinal numbers are for describing the position of something. • To understand that numbers to 40 can be represented as tens and ones in a place value chart. • To add two 1 digit numbers by using the 'make 10' strategy and the 'regrouping into tens and ones' strategy. • To subtract 2 digit numbers by regrouping into tens and ones. • To solve word problems by applying the 'part-whole'. 'adding on' and 'taking away' concepts in addition and subtraction. • To understand multiplication as repeated addition. • To understand division as dividing/sharing a set of objects equally.	Statistics	• To organize data into a horizontal or vertical picture graph.
Measurement	• To compare length using the terms tall/taller, long/longer, short/shorter and highest. • To measure length using objects as non-standard units. • To compare masses using a pan balance. • To find the mass using objects as non-standard units. • To understand that time can be used to measure the duration of an event. • To tell the time to the hour and to the half hour. • To recognise and know the value of different denominations of coins and notes. • To understand that a coin or note of one denomination can be used as the equivalent of another set of coins or notes of a smaller denomination. • To solve money word problems using addition and subtraction.	Ratio	•
Geometry	• To understand properties of a circle, square, triangle and rectangle. • To understand that patterns are formed by repeating a particular arrangement of shape, size and/or colour.	Algebra	•

Maths - End of Year Expectations - Year 2

<table>
<tr>
<td>Number</td>
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To count numbers up to 1000 by using concrete representations.
To find the next number in a pattern, we add or subtract a certain fixed number.
To compare numbers within 1000.
To add and subtract numbers within 1000.
To use column addition and subtractions with regrouping.
To solve simple one and two step addition and subtraction problems.
To multiply by 2, 3, 4, 5 and 10.
To understand division as sharing equally.
To use number bonds to add and subtract numbers.
To convert pounds to pence.
To compare amounts.
To solve one and two step problems involving money and all 4 operations.
To compare and order fractions.
To add and subtract like fractions.
To learn how to read an analogue time and know AM and PM.

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<td>Statistics</td>
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To read and draw picture graphs.
To interpret picture graphs to solve problems.

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<tr>
<td>Measurement</td>
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To compare lengths in CM and M.
To add, subtract, multiply and divide measurements in CM and M.
To compare mass in G and KG.
To add, subtract, times and divide masses in G and KG.
To understand Volume as a measurement of capacity.
To represent lengths with straight lines.
To identify flat surfaces and curved surfaces.

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<td>Ratio</td>
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<tr>
<td>Geometry</td>
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To identify semi-circle and quarter circles.
To visualize 3D shapes.
To make patterns by repeating sequences.

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<td>Algebra</td>
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Maths - End of Year Expectations - Year 3

Number	• To count numbers up to 10 000. • To know that numbers up to 10 000 can be compared and arranged in ascending or descending order. • Addition within 10 000 without regrouping. • Addition with regrouping in ones, tens and hundreds. • To subtract with regrouping in ones, tens, hundreds and thousands. • To subtract with numbers that have zeros by regrouping from thousands to hundreds, tens and ones in subtraction. • To solve one and two step addition and subtraction word problems, using models. • To multiply by 6, 7, 8 and 9, using skip counting and understand that repeated addition is used for multiplication. • The use relating facts to find a more difficult multiplication facts for multiplying 6, 7, 8 and 9. • To know that division is the inverse of multiplication. • To understand that division involve the distribution of a set of items equally into some groups by relating multiplication facts. • To multiply a 2-digit number or a 3-digit number by a 1-digit number and know that it is the sum of multiplying values from different places. • To use regrouping in ones, tens, hundreds and thousands when multiplying. • To divide a 2-digit number by a 1-digit number with or without remainder. • To solve one and two step multiplication and division word problems, using models. • To apply number bonds to assist mental calculations. • A whole is divided into parts and the fraction symbol is used to determine the parts of the whole. • The terms 'numerator' and 'denominator' give precise definition of parts of a whole. • To use the multiplying/dividing factor techniques to find equivalent fractions. • To compare two fractions by referring to the values of the numerators when the denominators of the two fractions are the same. • To compare two fractions by referring to the values of the denominator when the numerators of the two fractions are the same. • To be able to add/subtract related fractions, by changing to like fractions first (same denominator).	Statistics	• To draw a bar graph with scales. • To read and interpret bar graphs.

Measurement	• To solve money problems using addition and subtraction. • To measure length in centimetres, metres and kilometres. • To measure weight in grams and kilograms. • To measure volume in millilitres and litres. • To solve one-step and two-step problems involving length, mass and volume. • To be able to tell analogue time using 'past' and 'to'. • To know that 1 hour = 60 minutes. • To find the duration of time be 'regrouping minutes and hours'.	Ratio	
Geometry	• To understand angles are measurements of turning which can also be made using 2D shapes. • To understand that a right angle is a special type of angle, which is formed by two straight lines meeting at a point. • To know that when two straight lines intersect each other at right angles, they are perpendicular to each other. • To draw perpendicular lines. • To know that parallel lines are two straight lines drawn in such a way that they will never meet and the distance between them will always be the same. • To draw parallel lines. • To know that the perimeter is the distance around a shape. • To find the perimeter of a shape. • To know that the area of a rectangle is the amount of space that covers the surface. • To find the area of rectangles.	Algebra	

Maths - End of Year Expectations - Year 4

Number	• To compare and order numbers to 100,000. • To round numbers to the nearest 10 and 100. • To understand and identify factors and multiples. • To multiply 4 digit numbers by 1 digit. • To multiply 3 digit numbers by 2 digits. • To divide 4 digit numbers by 1 digit, using the bus stop method. • To solve problems with up to 3 steps involving all 4 operations. • To convert mixed fractions to improper fractions and vice versa. • To add and subtract fractions with related denominators. • To understand 10ths, hundredths and thousandths and know their decimal equivalents. • To compare and round decimals. • To add/subtract/multiply and divide decimals up to 3 decimal places. • To solve word problems involving decimal numbers and the 4 operations.	Statistics	• To interpret data in line graphs and bar charts. • To interpret data involving 2 variables.
Measurement	• To understand angles as a measurement of a turn. • To measure and draw angles up to 180 degrees. • To know that a right angle is 90 degrees and is a quarter turn. • To know the 8 compass points. • To draw perpendicular, parallel, horizontal and vertical lines. • To know the properties of squares and rectangles. • To understand and read the time on a 24 hour clock.	Ratio	
Geometry	• To identify semi-circle and quarter circles. • To visualize 3D shapes. • To make patterns by repeating sequences. • To calculate the perimeter and area of rectangles and squares. • To calculate the perimeter and area of composite shapes. • To solve word problems involving area and perimeter of composite shapes. • To identify symmetrical shapes and lines of symmetry. • To create symmetrical shapes and patterns. • To identify and draw tessellating shapes.	Algebra	

Maths - End of Year Expectations - Year 5

Number	• To understand place value up to 1,000,000. • To compare numbers within 1,000,000. • To estimate and round to the nearest 1000. • To use a calculator to calculate problems involving the 4 operations. • To multiply and divide by 10, 100 and 1000, including numbers up to 3 decimal places. • To understand the order of operations (BIDMAS). • To add and subtract unlike fractions. • To convert fractions to decimals and vice versa. • To add and subtract mixed numbers. • To solve word problems involving fractions. • To multiply proper, improper and mixed-number fractions. • To divide a fraction by a whole number. • To understand that percentage is out of 100. • To convert fractions and decimals to percentages and vice versa. • To calculate percentages of a quantity. •	Statistics	• To understand and calculate the mean of a set of data.
Measurement	• To calculate the area of a triangle. • To convert a larger measurement to a smaller measurement. • To calculate angles on a straight line and a full turn. • To understand and calculate vertically opposite angles. • To know the properties of the angles if a triangle. • To calculate missing angles of a triangle. •	Ratio	• To compare the relative sizes of 2 and 3 quantities or sets of items. • To divide the terms of a ratio of two quantities by the common factor to express a ratio in its simplest form. • To find the common factor of the terms of the ratio of two quantities. • To apply equivalent ratio concept, part-whole concept and comparison concept to solve up to 2-step word problems involving ratio of three quantities. •
Geometry	• To know the different types of triangles and their properties. • To know the properties of parallelograms, Rhombuses and Trapeziums. • To be able to draw a triangles and 4 sided shapes when given some of the properties. • To draw cubes and cuboids on isometric paper. • To calculate the volume of cubs and cuboids.	Algebra	

Maths - End of Year Expectations - Year 6

Number	• To carry out the 4 operations with fractions. • To divide by a proper fraction. • To solve word problems involving ratio and fraction. • To solve problems (Inc. higher level problems) involving percentages. • To calculate average speed by dividing the total distance travelled by the time taken. • To apply combinations of concepts such as mean (average), speed and rate to solve higher-order word problems.	Statistics	• To interpret information in a pie chart.
Measurement	• To find unknown angles in a variety of 2D shapes. • To know the properties of a variety of 3D shapes. • To identify 3D shapes from nets.	Ratio	• To solve word problems involving ratio and fractions. • To compare mixed ratios where quantities are increased and decreased in relation to each other.
Geometry	• To calculate the area, radius, diameter and circumference of a circle. • To calculate the perimeter and area of composite shapes. • To calculate volume of solids and liquids.	Algebra	• To use letters to represent numbers. • To simplify algebraic expressions.