



Mathematics

Rationale

God's Love in Action

Our children are at the heart of everything we do through **Christian values and relationships**. **Living and learning together** we celebrate the uniqueness and diversity of everyone in our family. We nurture a sense of **self belief, mutual respect and belonging** through Social Emotional Learning and academic excellence. We are dedicated to building the foundations for **happy and successful life-long learning**.

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1. Curriculum Vision

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. (National Curriculum in England 2013)

Our whole School maths visions aims to:

- cultivate and foster positive attitudes that enthuse, inspire and motivate through exploration of mathematical concepts.
- develop a 'maths for all' culture whereby every learner, regardless of ability, has the opportunity to reason and problem solve.
- explore how mathematics is used in the wider world by making rich and varied real life connections.
- Strengthen and expand the correct use of mathematical vocabulary wherever possible.
- Incorporate cross-curricular mathematics both vertically and horizontally (science, geography, history, art/DT)
- Enable all pupils to reason and problem solve by working systematically.

2. Curriculum Overview & Ready to Progress Mapping

Maths Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer
Reception	<p>Match, Sort and Compare</p> <ul style="list-style-type: none"> -Match pictures and objects -Sort objects using different techniques and different rules -Compare amounts <p>Measure and Patterns</p> <ul style="list-style-type: none"> -Compare size, mass and capacity -Continue a pattern and create a pattern 	<p>It's me 1,2,3</p> <ul style="list-style-type: none"> -Find, subitise and represent 1,2 and 3 -Find 1 more and 1 less -Composition of 1,2,3 <p>Circles and Triangles</p> <ul style="list-style-type: none"> -Identify, name and compare circles and triangles -Shapes in the environment -Describe position <p>1,2,3,4,5</p> <ul style="list-style-type: none"> -Find, represent and subitise 4 and 5 -1 more and 1 less -Composition of 1-5 <p>Shapes with 4 sides</p> <ul style="list-style-type: none"> -Identify, name and combine shapes with 4 sides. -Shapes in the environment -Day and night 	<p>Alive in 5</p> <ul style="list-style-type: none"> -Find, subitise and represent 0-5 -Find 1 more and 1 less -Conceptual subitising 1 to 5 <p>Mass and Capacity</p> <ul style="list-style-type: none"> -Compare mass and find a balance -Explore and compare capacity <p>Growing 6,7,8</p> <ul style="list-style-type: none"> -Find, represent and composition of 6,7,8 -Find 1 more and 1 less -Make pairs (odd and even) -Find and make a double to 8 	<p>Length, Height and Time</p> <ul style="list-style-type: none"> -Explore and compare length and height -Be able to talk about, order and sequence time <p>Building 9 and 10</p> <ul style="list-style-type: none"> -Find, represent, compare and subitise to 10 -Find 1 more and 1 less -Bond to 12 <p>Explore 3D shapes</p> <ul style="list-style-type: none"> -Recognise, name and use 3D shapes for tasks -Identify more complex patterns and continue them, including in the environment 	<p>To 20 and Beyond</p> <ul style="list-style-type: none"> -Build numbers beyond 10 including patterns and verbal counting up to and beyond 20 <p>How many now?</p> <ul style="list-style-type: none"> -Adding and taking away. -How many did I add or take away? <p>Manipulate, compose and decompose</p> <ul style="list-style-type: none"> -Select shapes for a purpose -Rotate, manipulate and explain shape arrangements. -Compose and decompose shapes Copy 2D shapes and find 2D shapes within 3D shapes. 	<p>Sharing and Regrouping</p> <ul style="list-style-type: none"> -Explore sharing -Sharing -Explore grouping -Grouping -Even and odd sharing -Play with and build doubles -Visualise, build and map <p>Visualise, Build and Map</p> <ul style="list-style-type: none"> -Identify units of repeating patterns -Create own pattern rules -Explore own pattern rules -Replicate and build scenes and constructions -Visualise from different positions -Describe positions -Give instructions to build -Explore mapping <p>Make Connections</p> <ul style="list-style-type: none"> -Deepen understanding -Patterns and relationships

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	<p>Place Value (Up to 10)</p> <ul style="list-style-type: none"> -Sorting, counting and representing objects -Counting on from any number -Counting backwards within 10 -Find 1 more -Represent numbers as words 	<p>Addition and Subtraction (up to 10)</p> <ul style="list-style-type: none"> -Introduce parts and wholes using part-whole models -Write number sentences -Number bonds to 10 and within 10 -Addition (including 1 more) and addition problems -Different methods for subtraction <p>Shape</p> <ul style="list-style-type: none"> -Recognise, name and sort 2D and 3D shapes. -Patterns with 2D and 3D shapes. 	<p>Place Value (Up to 20)</p> <ul style="list-style-type: none"> -Count within 20 -Understand every number up to 20 -1 more and 1 less -Use a number line to 20 <p>Addition and Subtraction (up to 20)</p> <ul style="list-style-type: none"> -Add by counting on with 20 -Add ones using number bonds -Add and subtract using number bonds to 20 -Find doubles and near doubles -Subtraction by counting back and by finding the difference 	<p>Place Value (Up to 50)</p> <ul style="list-style-type: none"> -Count from 20 to 50 and understand multiples of 10 up to 50 -Count by making groups of tens and ones -Partition into tens and ones Use a number line to 50 and be able to estimate on a number line -Fine 1 more and 1 less <p>Length and Height</p> <ul style="list-style-type: none"> -Compare lengths and heights -Measure length using objects -Measure length in centimetres <p>Mass and volume</p> <ul style="list-style-type: none"> -Understand heavier and lighter -Measure and compare mass -Understand full and empty -Compare volume -Measure and compare capacity 	<p>Multiplication and division</p> <ul style="list-style-type: none"> -Count in 2s, 10s and 5s -Recognise and be able to add equal groups -Make arrays -Make doubles Make equal groups (grouping) <p>Fractions</p> <ul style="list-style-type: none"> -Recognise and find half of a shape or object Recognise and find half of a quantity -Recognise and find a quarter of a shape or object -Recognise and find a quarter of a quantity. <p>Position and Direction</p> <ul style="list-style-type: none"> -Describe turns -Describe the following positions-left and right, forwards and backwards, above and below -Ordinal numbers 	<p>Place Value (up to 100)</p> <ul style="list-style-type: none"> -Count from 50 to 100 -Tens to 100 -Partition into tens and ones -Use a number line to 100 -1 more and 1 less -Compare numbers with the same number of 10s -Compare any two numbers <p>Money</p> <ul style="list-style-type: none"> -Unitising -Recognising coins and notes -Count in coins <p>Time</p> <ul style="list-style-type: none"> -Before and after -Days of the week -Months of the year -Hours, minutes and seconds -Tell the time to the hour and half hour

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 2	<p>Place Value</p> <ul style="list-style-type: none"> -Numbers to 20 -Count objects to 100 by making tens -Recognise tens and ones -Use a place value chart -Partition numbers to 100 -Write numbers to 100 in words and expanded form -Use 10s and 1s on the number line to 100 -Estimate numbers on a number line -Compare and order objects and numbers -Count in 2s, 5s, 10s and 3s <p>Addition and Subtraction</p> <ul style="list-style-type: none"> -Bonds to 10 -Addition and subtraction bonds within 20 -Related facts -Bonds to 100 (Tens) -Add and subtract 1s 	<p>Addition and Subtraction</p> <ul style="list-style-type: none"> -Add by making 10 -Add three 1 digit numbers -Add to the next 10 -Add and subtract across 10 -Subtract from a 10 -Subtract 1 digit number from a 2 digit number across a 10 -10 more and 10 less -Add and subtract 10s -Add and subtract 2 digit numbers, across a 10 -Mixed addition and subtraction -Compare number sentences -Missing number problems <p>Shape</p> <ul style="list-style-type: none"> -Recognise 2D and 3D shapes -Count sides and vertices on 2D shapes -Draw 2D shapes -Find lines of symmetry on shapes and use them to complete shapes -Sort 2D and 3D shapes -Count faces, edges and vertices on 3D shapes -Make patterns with 2D and 3D shapes 	<p>Money</p> <ul style="list-style-type: none"> -Count money -pence and pounds (coins and notes) -Choose notes and coins -Make the same amount -Compare amounts of money -Calculate money -Make a pound -Find change -2 step problems <p>Multiplication and Division</p> <ul style="list-style-type: none"> -Recognise, make and add equal amounts -Introduce the multiplication symbol -Multiplication sentences -Make arrays -Make equal groups by grouping and sharing -The 2, 10 and 5 times table -Divide by 2, 10 and 5 -Doubling and halving -Odd and evens 	<p>Length and Height</p> <ul style="list-style-type: none"> -Measure in centimetres and metres -Compare and order lengths and heights -Four operations with lengths and heights <p>Mass, Capacity and temperature</p> <ul style="list-style-type: none"> -Compare mass -Measure in grams and kilograms -Four operations with mass -Compare volume and capacity -Measure in litres and millilitres -Four operations with volume and capacity -Temperature 	<p>Fractions</p> <ul style="list-style-type: none"> -Introduction to parts and wholes -Equal and unequal parts -Recognise and find a half -Recognise and find a quarter -Recognise and find a third -Find the whole -Unit and non-unit fractions -Recognise the equivalence of a half and two-quarters -Recognise and find three quarters -Count in fractions up to a whole <p>Time</p> <ul style="list-style-type: none"> -O clock, half past, quarter to and quarter past -Tell the time past the hour and to the hour -Tell the time to 5 minutes -Minutes in an hour and hours in a day - 	<p>Statistics</p> <ul style="list-style-type: none"> -Make tally charts -Tables -Block diagrams -Draw and interpret pictograms (1-1) -Draw and interpret pictograms (2,5 and 10) <p>Position and Direction</p> <ul style="list-style-type: none"> -Language of position -Describe movement and turns -Shape patterns with turns <p>Consolidation</p>

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	<p>Place Value</p> <ul style="list-style-type: none"> -Represent and partition numbers to 100 -Use a Number line to 100 -Represent and partition numbers to 1000 -Flexible partitioning of numbers to a thousand -Hundreds, tens and ones -Find 1, 10 or 100 more or less -Use a number line to 1000 and be able to estimate -Compare and order numbers to 1000 -Count in 50s <p>Addition and Subtraction</p> <ul style="list-style-type: none"> -Apply number bond within 10 -Add and subtract 1s, 10s and 100s -Spot the pattern -Add and subtract 1s across a 10 -Add and subtract 10s across a 100 -Make connections 	<p>Addition and Subtraction</p> <ul style="list-style-type: none"> -Add and subtract two numbers (no exchange) -Add two numbers across a 10 and 100 -Subtract two numbers across a 10 and 100 -Add 2-digit and 3-digit numbers -Subtract a 2 digit number from a 3 digit number -Complements to 100 -Estimate answers -Inverse operations -Make decisions <p>Multiplication and Division</p> <ul style="list-style-type: none"> -Multiplication-equal groups -Use arrays -Multiples of 2, 5 and 10 -Sharing and grouping -Multiply and divide by 3 -3 times table -Multiply and divide by 4 -4 times table -Multiply and divide by 8 -8 times table 	<p>Multiplication and Division</p> <ul style="list-style-type: none"> -Multiples of 10 -Related calculations -Reasoning about multiplication -Multiply a 2-digit number by 1 digit numbers (and with exchange) -Link multiplication and division -Divide a 2-digit number by 1-digit number (no exchange) -Divide a 2-digit number by a 1-digit number – flexible partitioning -Divide a 2-digit number by a 1-digit number – with remainders -Scaling -How many ways? (possibilities) <p>Length and Perimeter</p> <ul style="list-style-type: none"> -Measure in metres, centimetres and millimetres -Equivalent lengths (metres and centimetres) -Equivalent lengths (centimetres and millimetres) -Compare, add and subtract lengths -Measuring and calculating perimeter 	<p>Fractions</p> <ul style="list-style-type: none"> -Understand the denominators of unit and non-unit fractions -Compare and order unit and non-unit fractions -Understand the whole Fractions and scales -Fractions on a number line -Count in fractions on a number line -Equivalent fractions on a number line -Equivalent fractions as bar models <p>Mass and Capacity</p> <ul style="list-style-type: none"> -Use scales -Measure in grams and kilograms -Equivalent masses (kilograms and grams) -Compare, add and subtract mass -Measure capacity and volume in litres and millilitres -Equivalent capacities and volumes (litres and millilitres) -Compare, add and subtract volume and capacity 	<p>Fractions</p> <ul style="list-style-type: none"> -Add and subtract fractions -Partition the whole - Unit and non-unit fractions of a set of objects - Reasoning with fractions of an amount <p>Money</p> <ul style="list-style-type: none"> -Pounds and pence -Convert pounds and pence -Add and subtract pence -Find change <p>Time</p> <ul style="list-style-type: none"> -Roman numerals to 12 -Tell the time to a minute and 5 minutes -Read time on a digital clock -Use am and pm -Years, months and days -Days, hours and minutes (use start and end times) -Hours and minutes (durations) -Minutes and seconds --Units of time Solve problems with time 	<p>Shape</p> <ul style="list-style-type: none"> -Turns and angles -Right angles -Compare angles -Measure and draw accurately -Horizontal and vertical -Parallel and perpendicular -Recognise and describe 2D shapes -Draw polygons -Recognise and describe 3D shapes -Make 3D shapes <p>Statistics</p> <ul style="list-style-type: none"> -Interpret and draw pictograms -Interpret and draw bar charts -Collect and represent data -Two-way tables

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 4	<p>Place Value</p> <ul style="list-style-type: none"> -Represent and partition numbers to 1000 -Use number line to 1000 -Understand thousands <p>Represent and partition numbers to 10,000</p> <ul style="list-style-type: none"> -Flexible partitioning of numbers to 10,000 -Find 1, 10, 100, 1,000 more or less -Use and estimate numbers to 10,000 on a number line -Compare and order numbers to 10,000 -Understand Roman Numerals -Round to the nearest 10, 100 and 1000 <p>Addition and Subtraction</p> <ul style="list-style-type: none"> -Add and subtract 1s, 10s, 100s and 1,000s -Add up to two 4-digit numbers – no exchange and with exchanges -Subtract two 4-digit numbers – no exchange and with exchanges -Efficient Subtraction -Estimating answers -Checking strategies 	<p>Area</p> <ul style="list-style-type: none"> -What is area -Counting Squares -Make shapes -Compare areas <p>Multiplication and Division</p> <ul style="list-style-type: none"> -Multiples of 3 -Multiply and divide by 6 -6 times tables and division facts - Multiply and divide by 9 -9 times tables and division facts -Multiply and divide by 7 -7 times tables and division facts -11 and 12 times tables and division facts -Multiply by 1 and 0 -Divide a number by 1 and itself -Multiply three numbers 	<p>Multiplication and Division</p> <ul style="list-style-type: none"> -Using factor pairs -Multiplying by 10 and 100 -Dividing by 10 and 100 -Related facts-multiplication and division -Informal written methods for multiplication -Multiply up to 3-digit numbers by a 1-digit number -Divide up to 3-digit numbers by a 1-digit number -Correspondence problems -Efficient multiplication <p>Length and Perimeter</p> <ul style="list-style-type: none"> -Measure in kilometres and metres and find equivalent lengths -Perimeter of a grid -Perimeter of a rectangle and rectilinear shapes -Find missing lengths in rectilinear shapes -Calculate perimeter of rectilinear shapes -Perimeter of regular polygon and polygons 	<p>Fractions</p> <ul style="list-style-type: none"> -Understand the whole -Count beyond 1 -Compare, order and partition mixed numbers -Use number lines with mixed numbers -Understand improper fractions -Convert mixed numbers to improper fractions and vice versa -Equivalent fractions on a number line -Equivalent fraction families -Add 2 or more fractions -Add fractions and mixed numbers -Subtract two fractions -Subtract from whole amounts and mixed numbers <p>Decimals</p> <ul style="list-style-type: none"> -Tenths as fractions and decimals -Tenths on a place value chart and number line -Divide a 1- or 2-digit number by 10 -Hundredths as fractions and decimals -Hundredths on a place value chart -Divide a 1 or 2-digit number by 100 	<p>Decimals</p> <ul style="list-style-type: none"> -Make a whole with tenths and hundredths -Partition decimals -Flexibly partition decimals -Compare and order decimals -Round to the nearest whole -Halves and quarters as decimals <p>Money</p> <ul style="list-style-type: none"> -Write money using decimals -Convert between pounds and pence -Compare amounts of money -Estimate and calculate with money -Solve problems with money <p>Time</p> <ul style="list-style-type: none"> -Years, months, weeks and days -Hours, minutes and seconds -Convert between analogue and digital times -Convert to and from the 24-hour clock 	<p>Shape</p> <ul style="list-style-type: none"> -Understand angles as turns -Identify, compare and order angles -Explore triangles, quadrilaterals and polygons -Lines of symmetry -Compete a symmetrical figure <p>Statistics</p> <ul style="list-style-type: none"> -Interpret charts -Comparison, sum and difference -Interpret and draw line graphs Position and Direction -Describe position using coordinates -Plot coordinates -Draw 2D shapes on a grid -Translate on a grid -Describe translation on a grid

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 5	<p>Place Value</p> <ul style="list-style-type: none"> -Understand numbers to 10,000, 100,000 and 1,000,000 -Write numbers to 1,000,000 -Powers of 10 -Finding up to 100,000 more or less -Be able to partition numbers to 1,000,000 and use on a number line -Compare and order number up to 1,000,000 -Round to the nearest 10,100, 1000 -Round within 10,000 -Round within 1,000,000 <p>Addition and Subtraction</p> <ul style="list-style-type: none"> -Mental strategies -Add and subtract whole numbers with more than four digits -Round to check answers -Inverse operations -Multi-step addition and subtraction problems -Compare calculations -Find missing numbers 	<p>Multiplication and Division</p> <ul style="list-style-type: none"> -Multiples and common multiples -Factors and common factors -Prime numbers, square numbers and cube numbers -Multiply by 10, 100 and 1000 -Divide by 10, 100 and 1000 -Multiples of 10, 100 and 1000 <p>Fractions</p> <ul style="list-style-type: none"> -Find fractions equivalent to a unit and non-unit fraction -Recognise equivalent fractions -Convert improper fractions to mixed numbers and vice versa -Compare and order fractions less than 1 and greater than 1 -Add and subtract fractions with the same denominator -Add fractions within 1 and greater than 1 -Add mixed numbers -Subtract fractions Subtract from a mixed number (breaking the whole as well) 	<p>Multiplication and Division</p> <ul style="list-style-type: none"> -Multiply up to a 4-digit number by a 1-digit number -Multiply a 2, 3 and 4 digit number by a 2 digit number -Solve problems with multiplication -Short division -Divide a 4 digit number by a 1 digit number -Divide with remainders -Efficient division -Solve problems with multiplication and division <p>Fractions</p> <ul style="list-style-type: none"> -Multiply a unit fraction and non-unit fraction by an integer -Multiply a mixed number by an integer -Calculate a fraction of a quantity -Fraction of a amount -Find the whole -Use fractions as operators <p>Decimals and Percentages</p> <ul style="list-style-type: none"> -Decimals up to 2 decimal places -Equivalent fractions and decimals (tenths and hundredths) -Thousandths as fractions and as decimals 	<p>Decimals and Percentages Continued</p> <ul style="list-style-type: none"> -Thousandths on a place value chart -Order and compare decimals (with the same number of decimal places) -Order and compare any decimals with up to 3 decimal places -Round to the nearest whole number and to 1 decimal place -Understand percentages -Explore percentages as fractions and as decimals -Equivalent fractions, decimals and percentages <p>Perimeter and Area</p> <ul style="list-style-type: none"> -Perimeter of rectangles, rectilinear shapes and polygons -Area of rectangles and compound shapes -Estimate area <p>Statistics</p> <ul style="list-style-type: none"> -To draw, read and interpret line graphs -To read and interpret tables and two-way tables 	<p>Shape</p> <ul style="list-style-type: none"> -To understand and use degrees -Classify and measure angles up to 180 degrees -Draw lines and angles accurately -Calculate angles around a point -Calculate angles on a straight line -Lengths and angles in shapes -Explore regular and irregular polygons -3D shapes <p>Position and Direction</p> <ul style="list-style-type: none"> -Read and plot coordinates -Solve problems with coordinates -Transition with coordinates -Lines of symmetry -Reflection in horizontal and vertical lines <p>Decimals</p> <ul style="list-style-type: none"> -Use known facts to add and subtract decimals within 1 -Complements to 1 -Add and subtract decimals across 1 -Add and subtract decimals with the same number of decimal places 	<p>Decimals</p> <ul style="list-style-type: none"> -Add and subtract decimals with different numbers of decimal places -Efficient strategies for adding and subtracting decimals -Decimal sequences -Multiply and divide by 10, 100 and 1000 -Multiply and divide decimals with missing values Negative Numbers -Understand negative numbers -Count through zero in 1s and multiples -Compare and order negative numbers -Find the difference <p>Converting Units</p> <ul style="list-style-type: none"> -Understanding kilograms and kilometres -Understanding millimetres and millilitres -Convert units of length -Convert between metric and imperial units -Convert units of time -Calculate with timetables <p>Volume</p> <ul style="list-style-type: none"> -Cubic centimetres

		-Subtract 2 mixed numbers		-To read and interpret timetables		-Compare and estimate volume -Estimate capacity
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 6	<p>Place Value</p> <ul style="list-style-type: none"> -Understand, read and write numbers to 10,000,000 -Powers to 10 -Use a number line to 10,000 -Compare and order any integers -Round any integer -Negative numbers <p>Multiplication and Division</p> <ul style="list-style-type: none"> -Add and Subtract integers -Common factors and multiples -Rules of divisibility -Primes to 100 -Square and cube numbers -Multiply up to a 4 digit number by a 2 digit number -Solve problems with multiplication -Short division -Division using factors -Use long division with and without remainders -Solve problems with division- -Solve muti step problems including with division -Order of operations 	<p>Fractions A</p> <ul style="list-style-type: none"> -Equivalent fractions and simplifying -Equivalent fractions on a number line -Compare and order denominators and numerators -Add and subtract simple fractions -Add and subtract any two fractions -Add and subtract mixed fractions -Multi step problems <p>Fractions B</p> <ul style="list-style-type: none"> -Multiply fractions by integers -Multiply fractions by fractions -Divide any fraction by an integer -Mixed questions with fractions -Fraction of an amount --Fraction of an amount – find the whole <p>Converting Units</p> <ul style="list-style-type: none"> -Metric measures - Convert metric measures -Calculate with metric measures -Miles and kilometres 	<p>Ratio</p> <ul style="list-style-type: none"> -Add or multiply? -Use ratio language -Introduction to the ratio symbol -Ratio and fractions -Scale drawing -Use scale factors -Similar shapes -Ratio problems -Proportion problems -Recipes <p>Algebra</p> <ul style="list-style-type: none"> -1 and 2 step function machines -Form expressions -Substitution -Formulae -Form equations -Solve 1 step and 2 step equations -Find pairs of unknown values -Solve problems with two unknowns <p>Decimals</p> <ul style="list-style-type: none"> -Place value within 1 -Place value – integers and decimals Round decimals -Add and subtract decimals -Multiply and divide by 10, 100 and 1,000 -Multiply decimals by integers -Divide decimals by integers -Multiply and divide decimals in context 	<p>Fractions, Decimals and Percentages</p> <ul style="list-style-type: none"> -Decimal and fraction equivalents -Fractions as division -Understand percentages --Fractions to percentages -- Equivalent fractions, decimals and percentages -Order fractions, decimals and percentages -Percentage of an amount (one step and multi-step) -Percentages-missing values <p>Area, Perimeter and Volume</p> <ul style="list-style-type: none"> -Shapes – same area -Area and perimeter -Area of a triangle – counting squares -Area of a right-angled triangle, any triangle and a parallelogram -Volume – counting cubes -Volume of a cuboid <p>Statistics</p> <ul style="list-style-type: none"> -Line graphs -Dual bar charts -Read and interpret pie charts 	<p>Shape</p> <ul style="list-style-type: none"> Measure and classify angles -Calculate angles -Vertically opposite angles -Angles in a triangle -Angles in a triangle – special cases -Angles in a triangle – missing angles -Angles in a quadrilateral -Angles in polygons -Circles -Draw shapes accurately -Nets of 3-D shapes <p>Position and Direction</p> <ul style="list-style-type: none"> -The first quadrant -Read and plot points in four quadrants -Solve problems with coordinates -Translations -Reflections 	<p>Themed Projects, Consolidation and Problem Solving</p>

	-Mental calculations and estimation -Reason from known facts	-Imperial measures		-Pie charts with percentages -Draw pie charts -The mean		
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3. Intent

At St Thomas we aim to provide pupils with the tools to fully understand Maths. These tools include fluency, reasoning, problem solving with the ability to think in abstract ways. Mathematics is integral to all aspects of life; with this in mind, St Thomas strives to ensure our children develop an inquisitive and enthusiastic attitude towards mathematics that will stay with them and support them in the next stage of their education and beyond. At each stage of learning, children are actively supported and encouraged to reach their full potential as mathematicians regardless of ability.

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.

4. Implementation

With the implementation of White Rose Maths, all staff follow a revised termly overview plan for the year, which include number, measurement, geometry, statistics, ratio/proportion (Yr6) and algebra (Yr6). Using a prescribed scheme of learning, staff design detailed lessons which incorporate an **I do, We do, You do** approach to ensure progressive and well-paced learning. Our lessons will include the following practices:

- **Connect**- consolidation of previous learning- prerequisites visited to ensure prior knowledge is embedded
- **Vocabulary**- Explicit teaching of mathematical. Sentence stems are shared and practised with pupils to allow mathematical explanations when working systematically.
- **Live Modelling of the new learning (I Do)**
- **Guided Practice of the new learning (We Do)** – Check for understanding
- **Independent Application of the new learning (You Do)**
- **Challenge**-opportunities for greater depth learners to develop conceptual understanding.

Our lessons are all supported through the use of Tom Sherrington WalkThrus:

Signal, Pause, Insist

Cold Calling

Live Modelling

Show-Me Boards

Think, Pair, Share

Concrete Examples

Call and Response

Key Instant Recall Facts-KIRFs

St Thomas are committed to building on prior learning and enabling our children to demonstrate a deep, conceptual understanding of each topic that they then develop over time. Through the explicit teaching of Key Instant Recall Facts (KIRFs) in addition to the numeracy hour, pupils develop and improve fluency. Using a comprehensive and progressive overview that details fluency prerequisites required, teachers can then explicitly teach these prerequisites that are needed in the application of reasoning and problem solving. This ensures a consistent and progressive approach and prepares our children for the next stage of the curriculum. Additional time is allocated to arithmetic to ensure key skills in calculation are retained. The teaching of multiplication facts continues to be a discrete focus, where the applications of these skills are essential for accessing other areas of mathematics. To make the learning relevant, cross-curricular links are made wherever possible (science, geography, computing, history) and children are encouraged to apply skills from all areas to complete real-life challenges and give learning a sense of purpose.

Annual Overview

	<u>Reception</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Autumn 1	-I can recognise, recite and order numbers to 10 -I can identify which number is more or less -I can write numbers up to 10.	-I can recognise and recite numbers to 50 using a number square. -I can order numbers to 20 -I can identify which number is more or less up to 20. -I can write and partition numbers up to 20.	-I can recognise and recite numbers up to 100. -I can recite number bonds to 20 (e.g. $12 + _ = 20$). -I can write and partition numbers up to 50.	-I know all number bonds to 50 ($43 + _ = 50$) -I can count in 50s and 100s along a number line. -I can write and partition numbers up to 100.	-I know number bonds to 100 ($61 + _ = 100$). -I can count in 25s and 1000s along a number line. -I can write and partition numbers up to 1000.	-I know all the multiplication and division facts up to 12×12 . -I can represent the inverse calculation up to 12×12 ($3 \times 9 = 27$ so $27 \div 9 = ?$). -I can write and partition numbers up to 10,000	-I know all the multiplication and division facts up to 12×12 . -I can represent the inverse calculation up to 12×12 ($3 \times 9 = 27$ so $27 \div 9 = ?$). -I can partition and write numbers up to 10,000,000.
Autumn 2	I can order and sequence numbers up to 10.	I can add 1 to a number (up to 50) I can identify three consecutive numbers up to 50 I can complete missing number sequences up to 50.	I know all doubles and halves to 20 (e.g. double 9 is 18, half of 18 is 9)	I can count in 3s. I know all the multiplication and division facts for the 3 times table (up to 12×3)	I can count in 6s. I know that the 6x table is double the 3x table. I know all the multiplication and division facts for the 6 times table (up to 12×6).	I can find factor pairs of a number. I can suggest multiples of numbers (List two multiples of 4?)	I can find the lowest common multiple and highest common factors of numbers.

Spring 1	I can say 1 more than a given number (up to 10)	I can recite number bonds to 10 I can recognise odd and even numbers to 20.	I can count in 2s to 24. I know all multiplication and division facts for the 2 times table.	I can count in 4s I know all the multiplication and division facts for the 4 times table (up to 12x4)	I can count in 9s. I know all the multiplication and division facts for the 9x table (up to 12x9).	I can identify prime numbers up to 20. I can identify and recall square numbers up to 144 and their square roots.	I can find prime factors of any number. I can identify and recall square numbers up to 144 and their square roots.
Spring 2	I can partition numbers to 10 using part-whole model.	I can count in 2s to 20. I can count in 10s to 100. I can count in 5s to 100.	I can count in 10s to 100. I know all the multiplication and division facts for the 10 times table.	I know that the 8x table is double the 4x table. I can count in 8s. I know all the multiplication and division facts for the 8x table (up to 12x8).	I can count in 7s. I know all the multiplication and division facts for the 7 times table (up to 12x7).	I can identify all the decimal and percentage equivalents of the fractions $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}, \frac{1}{3}, \frac{2}{3}$ I can use decimal number bonds to make whole numbers ($0.8+0.2=1$, $1.3+0.7=2$)	I know all the decimal and fraction equivalents for $\frac{1}{5}, \frac{1}{10}, \frac{1}{8}, \frac{1}{3}, \frac{1}{6}$
Summer 1	I can find the number in 2 groups by counting them (up to 10)	I can find the number in 2 groups by counting them (up to 20) I can use a part whole model to show 2 addition calculations (up to 20)	I can count in 5s to 60. I know all the multiplication and division facts for the 5 times table.	I know what is 1 more or 1 less for numbers up to 100. I improve mental strategies for addition up to 100 using near doubles (36+35)	I can count in 11s. I know all the multiplication and division facts for the 11 times table (up to 12x11).	I can mentally calculate 50%, 25%, 75%, 10% and 5% of any number up to 1000	In long division I can express the remainder as a fractions e.g. $45\frac{2}{5}=45.4$
Summer 2	I can count backwards and forwards to 20	I can find number bonds up to 20	I can find near doubles (up to 50)	To develop mental addition and subtraction strategies (counting on)	I can use inverses to find missing numbers	I can identify factors and multiples	I can recall decimal number bonds to 1000. ($345.6 + 654.4$)

5. Assessment

Summative Assessment- End of Block Assessments

At the end of every unit/block, pupils will consolidate their knowledge by completing an End of Unit Assessment. These assessments vary in question number depending on the length of the unit (bearing in mind some units are only 1 weeklong). Once the assessment has been marked, the raw scores are inputted by the class teacher onto an Excel spreadsheet. Teachers will identify those pupils who are working Below (0-20%), Working Towards(20-59%), Expected (60-84%) and Greater Depth (85-100%)

Summative Assessment-Phase Assessments

There are three assessment phases throughout the year (Autumn, Spring and Summer). Arithmetic and Reasoning assessments are completed by all pupils. Once marked by the class teacher the raw scores are inputted onto year group assessment tracker.

Teachers will identify those pupils who are working Below (0-20%), Working Towards(20-59%), Expected (60-84%) and Greater Depth (85-100%). Teachers will use this data to identify trends and gaps in learning. The gaps in learning will be noted and planned for accordingly going forward either through booster sessions and interventions.

Summative Assessment- Teacher Assessment

Using FFT, teacher will use both data from end of unit assessment and phase assessments to make a judgement for each mathematical area using scale 1-3 (1=WTS 2=EXS 3=GDS). Mathematical areas include: number and place value, addition and subtraction, multiplication and division, fractions, measurement and geometry.

7. CPD

-ECTs supported by learning mentors and maths lead

-Weaker teachers supported by Maths Lead

-INSET

- White Rose INSET – one INSET input every half-term.
- Autumn 1- Introduction to White Rose/ Planning
- Autumn 2 – Assessment/ Models/Differentiation
- Summer 1- Lesson Structure and challenge
- Summer 2- Manipulatives Audit

-Walkthrus (instructional coaching)

-Formal Observations

- Science week (practical maths linked to science)

