Curriculum Growth Journey Maths



How is Maths taught at Trinity?

Curriculum Intent:

What do we want to achieve in our Maths curriculum?

Maths is necessary for all aspects of everyday life, and at Trinity All Saints Primary School we aim to support our children to grow their skills, enjoy mathematical concepts, and ignite their curiosity to become the best mathematicians they can be. We aim to build connections between the areas of learning and give them opportunities to apply their understanding in other areas of the curriculum and the wider world. To achieve this, we provide opportunities for pupils to:

- become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.
- be able to solve problems by applying their mathematics to a variety of problems with increasing sophistication, including in unfamiliar contexts and to model real-life scenarios.

At Trinity All Saints Primary School we believe that each individual child is very important. We are committed to offering an inclusive curriculum to ensure the best possible progress for all of our pupils, whatever their needs or abilities, so that they can reach their full potential and grow into the very best versions of themselves. We feel that their contribution to school life should be valued and we seek to build their self-esteem. Spiritual development in our school seeks to support every individual on their spiritual quest.

Implementation:

How will this be achieved?

Our whole curriculum is shaped by our school vision which aims to enable all children, regardless of background, ability, additional needs, to flourish to become the very best version of themselves. We teach the National Curriculum, supported by a clear skills progression throughout the school. This ensures that skills and knowledge are built on year by year and sequenced appropriately to maximise learning for all children. As a school, we follow a Mastery Approach ensuring pupils experience the Five Big Ideas when teaching for Mastery, which are:

- Coherence breaking concepts into small steps that build upon one another and provide access for all children.
- Representation and Structure a CPA Approach (Concrete, Pictorial, Abstract) is utilised to expose the mathematical structures to all students and support them to complete varied tasks.

- Mathematical Thinking this is grown through focussed thought, discussion and reasoning; independently and with others.
- Fluency develop the agility to recall facts and procedures and the flexibility to move between contexts and representations of mathematics
- Variation provide a wide range of opportunities to apply knowledge, spotting similarities and differences to make connections to deepen understanding.

We incorporate our Power of Three curriculum drivers (ACT) within our planning, ensuring children are Active in their learning, Contented in themselves and Thoughtful as a citizen.

Opportunities for Spiritual development:

We aim to:

- Develop positive relationships in the school community.
- Develop a spirit of enquiry and open-mindedness enhanced by the use of skilful questioning by the teacher.

Impact:

What will outcomes for learners be?

At the end of their Maths learning journey at Trinity All Saints Primary School we want all our pupils to:

- Enjoy maths
- Know more, remember more and understand more about Maths
- Fluently and flexibly use their skills and understanding
- Apply their understanding in a range of mathematical situations, including solving problems
- Understand mathematical concepts and make connections to real-life problems

Mathematics EYFS

Number

Children will:

- Have a deep understanding of numbers to 10, including the composition of each number.
- They will subitise (recognise quantities without counting) up to 5.
- They will automatically recall (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

Numerical Patterns

Children, will:

- Verbally count beyond 20, recognising the pattern of the counting system.
- They will compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- They will explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Pupils should be taught to: Y1 Y2 Y3 Y4 Y5 Y6

count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number	count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	count in multiples of 6, 7, 9, 25 and 1000	count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000	
count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens read and write numbers from 1 to 20 in numerals and words		read and write numbers up to 1000 in numerals and in words	count backwards through zero to include negative numbers	read, write, order and compare numbers to at least	read, write, order and compare numbers up to
	recognise the place value of each digit in a two-digit number (tens, ones)	recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)	1 000 000 and <i>determine</i> the value of each digit	10 000 000 and <i>determine</i> the value of each digit
identify one more and one less from a given number	compare and order numbers from 0 up to 100; use <, > and = signs	compare and order numbers up to 1000	order and compare numbers beyond 1000	interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	use negative numbers in context, and calculate intervals across zero
identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least	identify, represent and estimate numbers using different representations, including the number line	identify, represent and estimate numbers using different representations	find 1000 more or less than a given number identify, represent and estimate numbers using different representations		
	solve problems using place value and number facts	solve number problems and practical problems	solve number and practical problems that involve all of the above and with increasingly large positive numbers	solve number problems and practical problems that involve all of the above	solve number and practical problems that involve all of the above
			round any number to the nearest 10, 100 or 1000	round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	round any whole number to a required degree of accuracy

		read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
What skills will the children show to achieve these objectives?				

	Addition and Subtraction							
Pupils should be taught	Pupils should be taught to:							
YI	Y2	Y3	Y4	Y5	Y6			
read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs	solve problems with addition and subtraction by using concrete objects and pictorial representations, including those involving numbers, quantities and measures				read, write, order and compare numbers up to 10 000 000 and determine the value of each digit			
add and subtract one-digit and two-digit numbers to 20, including zero	add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones	add and subtract numbers mentally, including:	add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)				

	 a two-digit number and tens two two-digit numbers adding three one-digit numbers 	■ a three-digit number and hundreds			
represent and use number bonds and related subtraction facts within 20	recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100	add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction		add and subtract numbers mentally with increasingly large numbers	
	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems recognise and show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	estimate the answer to a calculation and use inverse operations to check answers	estimate and use inverse operations to check answers to a calculation		
				round to check answers to calculations and determine, in the context of a problem, levels of accuracy	round any whole number to a required degree of accuracy
solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = -9.	solve problems with addition and subtraction by applying their increasing knowledge of mental and written methods	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	solve number and practical problems that involve all of the above.
					use negative numbers in context, and calculate intervals across zero

What skills will the children show			
to achieve these objectives?			

		Multiplication	r and Division					
ıpils should be tau	pile should be taught to:							
ΥI	Y2	Y3	Y4	Y5	Y6			
	recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication and division facts for multiplication tables up to 12 × 12					
				identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers	multiply multi-digit numbers up t 4 digits by a two-digit whole number using the formal written method of long multiplication			
	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (*), division (*) and equals (=) signs	write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers					
				know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers establish whether a number up to 100 is prime and recall prime	identify common factors, common multiples			
	show that multiplication of two- numbers can be done in any order (commutative) and division of one number by another cannot		recognise and use factor pairs and commutativity in mental calculations	numbers up to 19				

			multiply two-digit and three-digit numbers by a one-digit number using formal written layout	multiply numbers up to 4 digits by a one- or two-digit number use a formal written method, including long multiplication for two-digit numbers	
solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	0	
				divide numbers up to 4 digits by a one-digit number use the formal written method of short division and interpret remainders appropriately for the context	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
				multiply and divide numbers mentally drawing upon known facts multiply and divide whole numbers and those involving	perform mental calculations, including with mixed operations and large numbers
What skills will the children show				decimals by 10, 100 and 1000	use knowledge of the order of operations to carry out calculations involving the four operations
to achieve these objectives?					

Fractions	
Pupils should be taught to:	

ΥI	Y2	Y3	Y4	Y5	Y6
recognise, find and name a half as one of two equal parts of an object, shape or quantity	recognise, find, name and write $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity	recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators			
		count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	compare and order fractions whose denominators are all multiples of the same number	use common factors to simplify fractions; use common multiples to express fractions in the same denomination
				identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	compare and order fractions, including fractions > 1
recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators recognise and show, using diagrams, equivalent fractions with small denominators	recognise and show, using diagrams, families of common equivalent fractions	recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5}$, $\frac{4}{5}$, $\frac{6}{5}$, $\frac{1}{5}$	
		compare and order unit fractions, and fractions with the same denominators			

	add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7}$, $\frac{1}{7}$, $\frac{6}{7}$]	add and subtract fractions with the same denominator	add and subtract fractions with the same denominator and denominators that are multiples of the same number	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
		recognise and write decimal equivalents of any number of tenths or hundredths		
		recognise and write decimal $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$	read and write decimal numbers as fractions (for example, 0.71 = 100 71]	
		round decimals with one decimal place to the nearest whole number	round decimals with two decimal places to the nearest whole number and to one decimal place	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
		compare numbers with the same number of decimal places up to two decimal places	read, write, order and compare numbers with up to three decimal places	
			recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
			multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	multiply simple pairs of proper fractions, writing the answer in its simplest form (for example, $\frac{1}{4}$ × $\frac{1}{2}$, $\frac{1}{8}$)
				divide proper fractions by whole numbers [for example, $\frac{1}{3}$ \div 2 = $\frac{1}{6}$]

		find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]
		solve simple measure and money problems involving fractions and decimals to two decimal places		
			recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal	
	solve problems that involve all of the above.	solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number	solve problems involving number up to three decimal places $ \begin{array}{c} \text{solve problems which require} \\ \text{knowing percentage and decimal} \\ \text{equivalents of } \begin{array}{c} \frac{1}{2}, \frac{1}{4}, \frac{1}{5}, \frac{2}{5}, \\ \frac{4}{5} \end{array} $ and those fractions with a denominator of a multiple of 10 or 25.	
What skills will the children show to achieve these objectives?				

Measurement							
Pupils should be taught	Pupils should be taught to:						
YI	Y2	Y3	Y4	Y5	Y6		

compare, describe and solve practical problems for: lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] mass/weight [for example, heavy/light, heavier than, lighter than] capacity and volume [for example, full/empty, more than, less than, half, half full, quarter] time [for example, quicker, slower,	choose and use appropriate standard units to estimate and measure 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 compare and order lengths, mass, volume/capacity and record the results using >, < and =	measure, compare, add and subtracts lengths (m/cm/mm); mass (kg/g); volume/capacity (Vml)			
measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds)		measure the perimeter of simple 2-D shapes	measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	
			find the area of rectilinear shapes by counting squares	calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes	recognise that shapes with the same areas can have different perimeters and vice versa calculate the area of parallelograms and triangles
				estimate volume (for example, using, I cm3 blocks to build cuboids (including cubes)] and	calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic

				capacity [for example, using water]	metres (m3), and extending to other units [for example, mm3 and km3]. recognise when it is possible to use formulae for area and volume of shapes
			Convert between different units of measure [for example, kilometre to metre; hour to minute]	convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	convert between miles and kilometres
				understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	use, read, write and convert between standard units, converting measurements 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
recognise and know the value of different denominations of coins and notes	recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value	add and subtract amounts of money to give change, using both £ and p in practical contexts	estimate, compare and calculate different measures, including money in pounds and pence		
sequence events in chronological order using language (for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening)	find different combinations of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks			
recognise and use language relating to dates, including days of the week, weeks, months and years	compare and sequence intervals of time	estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and	read, write and convert time between analogue and digital 12- and 24-hour clocks	solve problems involving converting between units of time	

tell the time to the hour and half	tell and write the time to five	hours; use vocabulary such as	solve problems involving		
past the hour and <i>draw</i> the hands	minutes, including quarter past/to	o'clock, a.m./p.m., morning,	converting from hours to minutes;		
on a clock face to show these	the hour and draw the hands on a	afternoon, noon and midnight	minutes to seconds; years to		
times.	clock face to show these times		months; weeks to days.		
	know the number of minutes in an	know the number of seconds in a			
	hour and the number of hours in a	minute and the number of days in			
	day.	each month, year and leap year			
		compare durations of events [for			
		example to calculate the time			
		taken by particular events or			
		tasks].			
				use all four operations to solve	solve problems involving the
				problems involving measure [for	calculation and conversion of
				example, length, mass, volume,	units of measure, using decimal
				money] using decimal notation,	notation up to three decimal
				including scaling.	places where appropriate
What skills will the children show					
to achieve these objectives?					

	Geometry - Property of shapes								
Pupils should be taught	Pupils should be taught to:								
ΥI	Y2	Y3	Y4	Y5	Y6				
recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles]	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line	draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	identify 3-D shapes, including cubes and other cuboids, from 2-D representations	draw 2-D shapes using given dimensions and angles				
recognise and name common 2-D and 3-D shapes, including: 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].	identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces	recognise angles as a property of shape or a description of a turn identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are	identify acute and obtuse angles and compare and order angles up to two right angles by size	know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles	recognise, describe and build simple 3-D shapes, including making nets				

	identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]	greater than or less than a right angle	identify lines of symmetry in 2-D shapes presented in different orientations	draw given angles, and measure them in degrees (°)	compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
	compare and sort common 2-D and 3-D shapes and everyday objects.	identify horizontal and vertical lines and pairs of perpendicular and parallel lines	complete a simple symmetric figure with respect to a specific line of symmetry	 identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and 2 I a turn (total 180°) other multiples of 90° 	illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
				use the properties of rectangles to deduce related facts and find missing lengths and angles	recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
				distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	
What skills will the children show to achieve these objectives?					

	Geometry — position and direction								
Pupils should be taught	Pupils should be taught to:								
YI	YI Y2 Y3 Y4 Y5 Y6								
	order and arrange combinations of mathematical objects in pattems and sequences								

describe position, direction and	use mathematical vocabulary to		describe positions on a 2-D grid	identify, describe and represent	describe positions on the full
movement, including whole, half,	describe position, direction and		as coordinates in the first	the position of a shape following	coordinate grid (all four
quarter and three-quarter turns movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise).		quadrant a reflection or translation, using quadrent the appropriate language, and know that the shape has not	quadrants)		
	positions as translations of a given unit to the left/right and up/down				
			plot specified points and draw sides to complete a given polygon		
					draw and translate simple shapes on the coordinate plane, and reflect them in the axes
What skills will the children show to achieve these objectives?					

	Statistics									
Pupils should be taught	Pupils should be taught to:									
ΥI	Y2	Y3	Y4	Y5	Y6					
	interpret and construct simple pictograms, tally charts, block diagrams and simple tables	interpret and present data using bar charts, pictograms and tables	interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	complete, read and interpret information in tables, including timetables	interpret and construct pie charts and line graphs and use these to solve problems					
	ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ask and answer questions about totalling and comparing categorical data	solve 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.	solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	solve comparison, sum and difference problems using information presented in a line graph						

			calculate and interpret the mean as an average
What skills will the children show			us air average
to achieve these objectives?			

	Algebra							
Pupils should be taught	to:							
ΥI	Y2	Y3	Y4	Y5	Y6			
					use simple formulae			
					generate and describe linear number sequences			
					express missing number problems algebraically			
					find pairs of numbers that satisfy an equation with two unknowns			
					enumerate possibilities of combinations of two variables			
What skills will the children show to achieve these objectives?								

	Ratio and Proportion									
Pupils should be taught	Pupils should be taught to:									
YI	Y2	Y3	Y4	Y5	Y6					
					solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts					

			solve problems involving the calculation of percentages (for example, of measures, and such as 15% of 360) and the use of percentages for comparison
			solve problems involving similar shapes where the scale factor is known or can be found
			solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
What skills will the children show to achieve these objectives?			