

Maths learning progression

EYFS (Taken from the Statutory framework for the early years foundation stage, March 2021)

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes.

Key Stage 1 – Year 1 and 2 (Taken from the National Curriculum Mathematics programme of study, July 2014)

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

Lower Key Stage 2 – Year 3 and 4 (Taken from the National Curriculum Mathematics programme of study, July 2014)

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

Upper Key stage 2 – Year 5 and 6 (Taken from the National Curriculum Mathematics programme of study, July 2014)

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

The table below demonstrates the learning and progression at Tudor Academy in each year group from Year 1 – Year 6 for different mathematical strands.

Tudor Academy – maths learning progression										
	Number					Algebra	Measurement	Geometry		Statistics
	Number and Place Value	Addition and Subtraction	Multiplication and division	Fractions, decimals and percentages	Ratio and Proportion			Properties of shapes	Position and direction	
1	<p>Count forwards, backwards and within 100.</p> <p>Find one more and one less than a number.</p> <p>Find 10 more and 10 less than a number.</p> <p>Use the language 'more than', 'less than' and 'equal to' when comparing numbers.</p>	<p>Articulate understanding of number bonds to twenty.</p> <p>Relate part-part whole model to addition and subtraction</p> <p>Use knowledge of inverse to solve missing number problems.</p>	<p>Skip count forwards in 2s, 5s and 10s from 0.</p> <p>Multiplication and division using concrete objects.</p>	<p>Identify $\frac{1}{2}$ and $\frac{1}{4}$ in various contexts.</p> <p>Recognise $\frac{2}{4}$ as $\frac{1}{2}$.</p>	<p>Describe and create a simple repeating pattern involving number or shape.</p>	<p>Know that an = sign signifies "is the same as".</p> <p>Know that a + symbol signifies addition.</p> <p>Know that a – symbol signifies subtraction.</p>	<p>Use comparative language to describe amounts.</p> <p>Use simple equipment to measure length, weight, and capacity.</p> <p>Tell the time to o'clock and half past.</p>	<p>Know common 2-D and 3-D shape names.</p> <p>Describe the properties (sides and angles) of 2D shapes.</p>	<p>Use positional language to describe position.</p> <p>Understand left and right.</p>	<p>Record simple frequency in a table</p>

2	<p>Reading and writing numbers to 100.</p> <p>Recognise the value of the tens and ones in a 2 digit number.</p> <p>Representing numbers in different ways.</p> <p>Use $<$, $>$, $=$ symbols to compare numbers.</p> <p>Ordering 2 digit numbers and estimation.</p>	<p>Add and subtract two digit numbers using appropriate methods.</p> <p>Demonstrate ability to regroup and exchange when numbers bridge 10.</p> <p>Count forwards and backwards in steps of 2, 3, 5 and 10 from any number.</p>	<p>Know 2, 5 and 10 times tables.</p> <p>Understand that multiplication and division are inverse.</p> <p>Use grouping and sharing to pictorially represent multiplication and division.</p>	<p>Identify unit and non-unit fractions</p> <p>Identify $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$ in shapes, pictures and amounts.</p> <p>Explain understanding of fractions as equal parts of a whole.</p>	<p>Articulate understanding of a simple ratio.</p>	<p>Articulate understanding of empty box problems.</p> <p>Know that a \times symbol signifies multiplication.</p> <p>Know that a \div symbol signifies division.</p>	<p>Articulate understanding of money.</p> <p>Tell the time to quarter past and quarter to the hour.</p> <p>Choose appropriate standard units of measurement.</p>	<p>Compare common 2-D and 3-D shapes.</p> <p>Identifying vertices, edges and faces on 3-D shapes.</p> <p>Identify right angles.</p>	<p>Identify $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ turns.</p>	<p>Read information from tables, tally charts, bar charts and pictograms.</p> <p>Interpret and create pictograms, tally charts, block charts and tables.</p> <p>Identify highest and lowest frequencies.</p>
3	<p>Reading and writing numbers to 1000.</p>	<p>Mentally add and subtract 1, 10 and 100.</p>	<p>Know 3, 4, 6 and 8 multiplication and division facts.</p>	<p>Counting in tenths (fractions and decimals).</p>	<p>Solve one-step ratio and proportion problems.</p>	<p>Articulate understanding that an unknown quantity can be</p>	<p>Calculate with units of measurement for capacity, length and weight.</p>	<p>Recognising and understanding horizontal, vertical,</p>	<p>Understand the relationship between right</p>	<p>Interpreting Venn and Carroll diagrams.</p> <p>Solving problems involving simple data</p>

	<p>Identifying place value of digits.</p> <p>Ordering numbers.</p>	<p>Add and subtract 3-digit numbers using the formal method.</p> <p>Count in steps of 4, 8, 10, 50 and 100.</p>	<p>Use written method to multiply 2 digit x 1 digit numbers.</p>	<p>Adding and subtracting fractions within one whole (same denominator)</p> <p>Comparing fractions (same denominators).</p> <p>Recognising and representing equivalent fractions.</p>		<p>represented by a letter.</p>	<p>Measure metric length, capacity and weight accurately.</p> <p>Calculate with money.</p> <p>Tell the time to the nearest minute.</p> <p>Comparing duration of events.</p>	<p>perpendicular and parallel</p> <p>Drawing 2-D and 3-D shapes.</p> <p>Identifying right angles on 2-D shapes.</p>	<p>angles and turns.</p>	<p>in tables, pictograms and bar charts.</p>
4	<p>Count in steps of 25, 50, 100 and 1000.</p> <p>Demonstrate understanding of place value to 5 digits.</p> <p>Rounding numbers to</p>	<p>Add and subtract 4-digit numbers using the formal method.</p> <p>Use the inverse to check answers.</p>	<p>Know 7, 9, 11 and 12 multiplication and division facts.</p> <p>Demonstrate quick recall of times tables up to 12 x 12.</p> <p>Dividing one and two digit</p>	<p>Finding decimal and fraction equivalents.</p> <p>Comparing numbers to two decimal places.</p>	<p>Articulate understanding of the relationship between ratio and proportion.</p>	<p>Solve an addition equation with one unknown.</p>	<p>Convert between different units of metric measurement without decimal notation.</p>	<p>Know geometric shapes, including types of quadrilateral and triangle.</p> <p>Identify lines of symmetry.</p>	<p>Plot points using Cartesian coordinates in the first quadrant</p>	<p>Understanding graphs of discrete and continuous data.</p>

	nearest 10, 100 and 1000. Roman numerals.		numbers by 10 and 100.							
5	Comparing numbers to one million. Counting in steps of powers of 10.	Add and subtract numbers up to 1 million using the formal method. Solve multi-step addition and subtraction word problems.	Multiply and divide numbers up to 3 digits multiplied by 2 digits using long multiplication or grid method. Multiplying and dividing decimals by 10, 100 and 1000. Understanding multiples and factors. Estimating answers to multiplication and division problems.	Reading and writing decimals numbers as fractions. Understanding thousandths. Convert between mixed numbers and improper fractions. Solving problems using percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a	Relate ratio and proportion to fractions.	Apply algebraic knowledge to solve problems.	Articulate understanding and apply knowledge of perimeter. Articulate understanding and apply knowledge of area of rectangles. Convert between metric and imperial units.	Articulate understanding of angles to 360° . Distinguish regular and irregular polygons. Finding the perimeter of rectilinear shapes.	. Reflect shapes across a mirror line. Identify order of rotational symmetry	Working with information in tables (including timetables) Comparing and solving problems with data given from line graphs

			Understanding squares and cubes.	denominator of a multiple of 10 or 25						
6	<p>Demonstrate understanding of place value beyond six digits.</p> <p>Demonstrate understanding of negative numbers.</p>	<p>Understanding the order of operations (BIDMAS).</p> <p>Solve word problems using all four operations.</p> <p>Add and subtract negative numbers.</p>	<p>Multiply and divide numbers up to 4 digits multiplied by 2 digits.</p> <p>Multiply whole numbers by decimals.</p> <p>Understanding the order of operations (BIDMAS).</p> <p>Solve word problems using all four operations.</p>	<p>Convert between fractions, decimals and percentages.</p> <p>Represent remainders as numbers, decimals and fractions.</p> <p>Adding and subtracting fractions (different denominator s and mixed numbers) using equivalent fractions.</p>	<p>Articulate understanding of ratio and proportion</p>	<p>Use and apply simple formulae.</p>	<p>Convert between different units of measurement with decimal notation.</p>	<p>Find unknown angles in triangles, quadrilaterals and regular polygons.</p> <p>Use π to calculate the circumference, radius and diameter of a circle.</p> <p>Finding the perimeter, area and volume.</p>	<p>Transform shapes in all four quadrants</p>	<p>Interpret and construct pie charts and line graphs.</p> <p>Identify median, mode and range.</p>