

Key

- Vocabulary
- Cumulative Knowledge
- Prioritising the maths curriculum key objectives

Upper Key Stage 2 Maths Mastery Statements

Planning and support documents		Golden threads of mathematics at GTPS	
<p>Use the National Curriculum for key learning objectives when planning maths. Refer to the calculation guidance for support in sequencing learning journeys and ideas for practical and pictorial support. Use the maths guidance documents to support the key 'ready to progress' statements. Use the 'mind the gap' document to support small steps in calculation skills.</p>		<p>The golden threads of fluency, flexibility, problem solving and reasoning should be incorporated within each area of learning. Children must demonstrate these through other strands e.g. use of place value to support calculations, fluency of recall of facts to support calculations, which in turn should be demonstrated through problem solving (in measure for example). Children should be able to explain what they are going to do/have done, using appropriate mathematical vocabulary.</p>	
Mastery statement	Number and Place Value	Calculation	Measure, shape and statistics
Year 5	<p>Building on knowledge of place value from KS1 and Y3&4 a GTPS learner can: Say, read and write numbers accurately and with fluency – using vocabulary associated with place value and the number system Count using powers of 10 Know that 10 tenths and 100 hundredths are equivalent to 1 and that 10 hundredths are equivalent to 1 tenth Recognise the place value of each digit in numbers with up to 2 decimal places, compose and decompose these numbers using standard and non-standard partitioning Represent numbers in different ways and manipulate numbers (e.g. partition in different ways) to support problem solving and fluency when calculating Round to a required degree of accuracy Use negative numbers in context, counting fluently over zero Read and write Roman numerals to 1000, including years Explain term to term rules in linear number sequences, including those with fractions and decimals Reason about the location of any number with up to 2 decimal places in the linear number system, identifying previous and next multiples of 1 and 0.1 Divide 1 into 2, 4, 5 and 10 equal parts and read scales marked in these divisions Convert between units of measure</p>	<p>Building on knowledge of place value from KS1 and Y3&4 a GTPS learner can: Explain when to use a written or mental strategy Use place value knowledge to manipulate increasingly large numbers to aid fluency when adding and subtracting mentally with increasingly large numbers and scale number facts by 1 tenth or 1 hundredth by applying place value knowledge to known additive and multiplicative number facts Recall all times-tables multiplication and division facts fluently Multiply and divide numbers by 10 and 100 Use efficient/fluently written calculation methods Use and explain the equals sign to indicate equivalence Fluently identify multiples, factors, prime, prime factors, composite numbers, square and cube numbers Multiply (including long multiplication) and divide using formal written methods Find non-unit fractions of quantities Find equivalent fractions and recognise their position in the linear number system Recall decimal equivalents for common fractions Understand the value of fractions, decimals and percentages, the link between and the relationship to whole numbers, and develop fluency when solving calculations and problems related to these Fluently read and write decimal numbers as fractions Solve problems involving numbers up to 3 decimal places Solve problems involving percentages and decimal equivalents and those fractions with a denominator of 10 or 25</p>	<p>Building on knowledge of place value from KS1 and Y3&4 a GTPS learner can: Draw on knowledge of X/÷ 10,100,1000 to convert between metric units fluently Use knowledge of scaling to convert between metric and imperial measures to find equivalents Use all four operations to solve problems involving measure Solve measure problems involving fractions, decimals and percentages Use number skills fluently to calculate perimeter and area, including finding missing lengths extending to using simple algebraic expressions for calculations Estimate volume Use properties of shape drawing on knowledge from KS1 and Y3&4 to make conjectures about angles and length of sides Compare, draw and measure angles accurately, understanding angle as a measure of turn as well as a property of a shape Use angle sum facts and other properties to make deductions about missing angles and relate these to missing number problems. Apply knowledge of scales when reading intervals on line graphs building on Y4 knowledge and use this to solve problems Reflect and translate shapes Complete, read and interpret information in timetables</p>
Core Content	Number and Place Value	Calculation and Fractions, Decimals and Percentages	Measure, shape and statistics
Year 6	<p>Building on knowledge of place value from KS1 and Y3,4&5, a GTPS learner can: Understand the relationship between powers of 10 from 1 hundredth to 10 million Say, read and write numbers up to 10,000,000 accurately and with fluency – using vocabulary associated with place value and the number system Represent numbers in different ways, recognise the place value of each digit in numbers up to 10 million, including decimal fractions, compose and decompose numbers using standard and non-standard partitioning and manipulate numbers (e.g. partition in different ways) to support problem solving and calculating Explain the value of different digits and link to work with fractions and decimals Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system and round to required degree of accuracy and appropriately for the context Divide powers of 10, from 1 hundredth to 10 million into 2, 4, 5 and 10 equal parts and read scales Use negative numbers in context when solving problems, and calculate fluently with them.</p>	<p>Building on knowledge of place value from KS1 and Y3,4&5, a GTPS learner can: Use place value knowledge to manipulate increasingly large numbers to aid fluency when calculating mentally, including explaining when and how to simplify to aid calculation fluency Recall all times-tables facts fluently and apply related facts to aid mental calculation with larger numbers and decimal numbers Understand that 2 numbers can be related additively or multiplicatively and quantify additive and multiplicative relationships Derive related calculations using arithmetic properties, inverse relationships and place value understanding Fluently identify the order of operations Fluently identify factors (HCF), multiples (LCM) and primes and use to support calculations with fractions Calculate fluently with larger numbers using written methods (rounding to a required degree of accuracy when required) and use these methods to solve problems, including those with decimals Use pictures/diagrams to show understanding of calculations with fractions Recognise when fractions can be simplified, using common factors Express fractions in common denominations to compare Compare fractions with different denominations, including fractions greater than 1 Express statements about the relationships between fractions, decimals and percentages and solve problems requiring application of skills Recognise how to use the inverse to solve problems Solve problems involving ratio and proportion using number skills fluently and with reason Recognise linear sequences, expressions, formulae and enumerate possibilities showing good application of the golden threads Solve problems with two unknowns</p>	<p>Building on knowledge of place value from KS1 and Y3,4&5, a GTPS learner can: Use recall of conversion factors and place value to convert fluently between units of measure and apply when calculating and solving problems involving measure Make reasoned estimates Apply number knowledge to solve problems involving negative numbers in context (e.g. temperature) Use understanding of algebra to use formulae to calculate area and perimeter building on Y5 knowledge and extending to calculating area of triangles and parallelograms Recognise different shapes can have the same areas but different perimeters and vice versa Calculate volume Describe properties of, and draw, 2D and 3D shapes building on knowledge from KS1 and Y3,4&5 Find unknown angles and lengths, using algebraic formulae where appropriate and explaining mathematical reasoning Draw, compose and decompose shapes according to given properties and solve problems Connect work on angles and percentages when working with pie charts to solve problems Work with coordinates Draw graphs with two variables Use conversion charts and create their own Know when it is appropriate to use the mean to compare data sets</p>

Golden Thread

Fluency
 Flexibility/manipulation
 Problem Solving
 Reasoning/Explaining