

# Upper Key Stage 2 Maths Mastery Statements

## Key

• Vocabulary

• Cumulative Knowledge

Planning and support documents		Golden threads of mathematics at GTPS	
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 'mind the gap' document to support small steps in calculation skills.		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.	
Mastery statement	Number and Place Value	Calculation	Measure, shape and statistics
<b>Year 5</b>	<p><b>Building on knowledge of place value from KS1 and Y3&amp;4 a GTPS learner can:</b> Say, read and write numbers accurately and with fluency – using vocabulary associated with place value and the number system 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 Count using powers of 10</p>	<p><b>Building on knowledge of place value from KS1 and Y3&amp;4 a GTPS learner can:</b> 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 Recall all times-tables facts fluently Fluently multiply and divide mentally using known facts, including <math>X/\div</math> by 10, 100, 1000 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 Solve problems (including scaling) by simple 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><b>Building on knowledge of place value from KS1 and Y3&amp;4 a GTPS learner can:</b> Draw on knowledge of <math>X/\div</math> 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&amp;4 to make conjectures about angles and length of sides 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
<b>Year 6</b>	<p><b>Building on knowledge of place value from KS1 and Y3,4&amp;5, a GTPS learner can:</b> 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 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 Round to required degree of accuracy and appropriately for the context Use negative numbers in context when solving problems, and calculate fluently with them.</p>	<p><b>Building on knowledge of place value from KS1 and Y3,4&amp;5, a GTPS learner can:</b> 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 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 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</p>	<p><b>Building on knowledge of place value from KS1 and Y3,4&amp;5, a GTPS learner can:</b> 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&amp;5 Find unknown angles and lengths, using algebraic formulae where appropriate and explaining mathematical reasoning 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