Lower 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 Statements	Number and Place Value	Calculation	Measure, shape and statistics
Year 3	Building on key skills from KS1 a GTPS learner can: Count fluently in multiples of 4, 8, 50 and 100 (from 0) and in tenths Say, read and write numbers up to 1000 in numerals and words, explaining the place value of HTO using vocabulary associated with place value Use a range of representations and partition numbers in different ways to demonstrate flexibility with number and use this to identify and estimate numbers Compare and order numbers up to 1000 Solve number and practical problems Read Roman numerals to 12 – linked to time work Place numbers on a number line and say which is the nearest 10 or 100 (extending to simple decimals linked to measure and saying which is the nearest whole)	Building on knowledge from KS1 a GTPS learner can: Fluently recall number facts to aid mental and written calculations Use doubling to make connections between the 2, 4 and 8 times-tables Fluently recall multiplication and division facts for the 3, 4 and 8 multiplication tables Develop efficient mental methods (for example, using commutativity and associativity and multiplication and division to derive related facts) Use formal written methods for all four operations with numbers up to three digits Solve simple problems in context, explaining choice of operation Solve a wide range of problems, including missing number and positive scaling and correspondence problems. Explain that dividing a single digit by 10 results in tenths – link to place value Identify unit and non-unit fractions Use a range of practical resources and diagrams to show understanding of fractions of amounts and equivalence between fractions Add and subtract fractions with the same denominator within one whole Compare and order unit fractions and fractions with the same denominator Begin to recognise decimal numbers – link to measure Solve problems involving fractions	Building on knowledge from KS1 a GTPS learner can: Use mixed units and know simple equivalents of measure through practical work, and fluently calculate with units of measure to solve problems (inc. perimeter) Use scaling activities linked to measure Solve money problems involving adding and subtracting and given change, in both £ and p. Use time vocabulary and fluently recall key conversions Compare duration of events Tell and write the time from an analogue clock to the nearest minute, including using Roman numerals and 12 and 24 hour clocks Begin to tell the time from digital displays Draw 2D shapes, and build 3D shapes, using accurate vocabulary to describe properties Recognise right angles and know that two right angles make a half-turn, three make three quarters of a turn and four make a full turn – link to fractions Identify whether angles are greater than or less than a right angle Identify, draw and measure lines (including some which require rounding to the nearest whole) parallel, perpendicular Interpret and present data in bar charts, pictograms and tables and solve one and two step problems about the data presented.
Mastery Statements	**Number and Place Value**	**Calculation**	**Measure, shape and statistics**
Year 4	Building on key skills from KS1 and Y3 a GTPS learner can: Count fluently in multiples of 6,7,9,25 and 100 and in tenths and hundredths (fractions and decimals) Find 1000 more or less Use a range of representations to show understanding of place value and to order and compare numbers up to four digits (including decimals with the same number of decimal places up to 2dp, and fractions) – including number lines Say, read and write numbers up to four digits (and also include decimal numbers up to 2dp) in numerals and words using vocabulary associated with place value Make reasoned estimates and round to required degree of accuracy (including decimals with one decimal place to the nearest whole number) Partition numbers in different ways to show flexibility when working with number Recognise negative numbers – count fluently over zero Read and write Roman numerals up to 100 Read scales – linking to measure	Building on key skills from KS1 and Y3 a GTPS learner can: Recall and use number facts fluently when calculating mentally and in formal written operations Develop increasing range of mental strategies (for example: combine knowledge of number facts and rules of arithmetic to solve mental and written calculations; use place value, known and derived facts to multiply and divide mentally; recognise and use factor pairs and understand the commutativity in mental multiplication and division calculations (including missing number/inverse) ; use the distributive and associative laws to multiply two digit numbers by one digit numbers) Fluently recall multiplication and division facts for the times tables up to 12 X 12 Use formal written methods: with up to 4 digits to add and subtract, multiply two- and three-digit numbers by a one-digit number and short division (THTO ÷ O – no remainder) Explain that hundredths occur arise when dividing 1 by one hundred and tenths arise when dividing 1 by ten. Explain the effect of dividing a one or two-digit number by ten or one hundred - link to place value Know that fractions and decimals are different ways of expressing numbers and proportions Apply knowledge of factors and multiples when identifying equivalent fractions Use diagrams and practical resources to show understanding of relationships/connections between fractions of shapes, lengths and quantities and recognise equivalent fractions Calculate quantities involving non-unit fractions Add and subtract fractions with the same denominator (with answers extending beyond one whole) Recognise and write decimal equivalents of tenths, hundredths, ¼, ½, ¾ Solve integer scaling problems Solve correspondence problems	Building on key skills from KS1 and Y3 a GTPS learner can: Use previous skills (for example: order/compare, fractions of amounts, decimals) to solve problems involving measure, including time and money –demonstrating fluency of known facts Use multiplication/division to convert between different units of measure Measure and calculate perimeter extending to use of algebraic formulae e.g. 2(a+b) Find area by counting squares extending to relating arrays to area and multiplication for rectilinear shapes Read, write and convert time between analogue and digital 12- and 24-hour clocks and fluently use this knowledge when solving time duration problems Explain whether a shape is regular or irregular Compare and classify triangles and quadrilaterals equilateral, isosceles, scalene, right Identify, order and compare angles understanding that angles describe a turn as well as being a property of a shape obtuse/acute/right Identify lines of symmetry in shapes in different orientations Describe positions as coordinates in the first quadrant and plot new points –use with translations Interpret and present discrete and continuous data (including time graphs) and use to solve sum, difference and comparison problems involving statistics

Golden Thread
Fluency
Flexibility
Problem Solving
Reasoning/Explaining