

Due to the need to complete the KS2 programme of study prior to statutory testing, it is expected that all children will take part in the 'Massive Maths' lessons on Mondays and four mathematics lessons based on the medium term plan - The Assertive Mentoring weekly skills test should take place outside of these lessons. The results of the skills tests may indicate that not all the objectives outlined below will need to be explicitly taught to all children in the year group.

Additionally, they should take part in 'Quick Maths' activities each afternoon. An extended problem solving lesson or investigation should be planned regularly.

Note: Problem solving and reasoning should continue to be evident in everyday lesson planning when applicable – see examples given below.

Autumn 1	Weeks – Guideline	
Year 5 Key Concepts	1	Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit
		Read, write, order and compare numbers with up to 3 decimal places
		Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000
		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, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$]
		Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
		Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context (Whole integer answers only)
		Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers
Number and Place Value	1	Use negative numbers in context, and calculate intervals across zero
Multiplication, Division, Addition and Subtraction	0.5	Identify common factors, common multiples and prime numbers
	0.5	Use their knowledge of the order of operations to carry out calculations involving the four operations
	Ongoing	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
	On-going	Multiplication tables to 12 x 12 including inverse and derived facts, for example multiplication of decimals.

Ratio and Proportion	1	Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison
Fractions	On-going	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
	2	Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$]
		Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
		Compare and order fractions, including fractions > 1
Measurement	1	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 up to 3 decimal places
		Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate

Geometry	Ongoing	Recognise, describe and <i>(but not build)</i> simple 3-D shapes, including making nets
Problem Solving		Solve number and practical problems that relate to all aspects of Number and Place Value

Autumn 2	Weeks - Guideline	Learning Outcomes
Number and Place Value	0.5	Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit
		Round any whole number to a required degree of accuracy
Addition, Subtraction Multiplication & Division	1	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
	1	Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to 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
On-going (M/O Starters)	Perform mental calculations, including with mixed operations and large numbers	

Fractions	1.5	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
		Divide proper fractions by whole numbers [for example, $1/3 \div 2 = 1/6$]
		Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$]
Algebra	1	Express missing number problems algebraically Use simple formulae
Measurement	As part of Algebra above	Recognise when it is possible to use formulae for area and volume of shapes

Geometry	1.5	Draw 2-D shapes using given dimensions and angles
		Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
		Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
Geometry – position and shape	0.5	Describe positions on the full coordinate grid (all 4 quadrants)
Problem Solving (Weekly)		Solve problems to secure understanding of fractions
		Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Spring 1		Learning Outcomes
Multiplication and Division	N/A	Revision of short/long multiplication and division leading to Fractions objective's below.
	On-going	Revision for proposed calculation paper.
Fractions	2	Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places
		Multiply one-digit numbers with up to 2 decimal places by whole numbers (fractions objective)
		Use written division methods in cases where the answer has up to 2 decimal places
	On-going	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
Measurement	1	Calculate the area of parallelograms and triangles
		Recognise that shapes with the same areas can have different perimeters and vice versa
	N/A	Convert between miles and kilometres

Ratio and Proportion	1.5	Solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts (Ratios!)
		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
Geometry	1	Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
		Interpret and construct pie charts and line graphs and use these to solve problems
Statistics	0.5	Calculate and interpret the mean as an average
Problem Solving (Weekly)		Enumerate possibilities of combinations of 2 variables (Algebra Obj.)

Spring 2	
Algebra	1
Geometry – position and direction	1
Measurement	1