Mathematics End Points - Overview

Mathematics End Points			
EYFS	**F2** **Number** Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. To know how to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. **Numerical Patterns** To know how to verbally count beyond 20, recognising the pattern of the counting system. To be able to Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. To explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.			
	Disciplinary Concepts To subitise (recognise quantities without counting) up to 5. **Pre-requisite skills for Mathematics at KS1** To know how to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers.			

	Number and Place Value	Addition and Subtraction	Geometry	KS1 Disciplinary Concepts
Year 1	- To know how to count within 100, forwards and backwards, starting with any number. - To be able to reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.	- To know how to compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers. - To know how to read, write and interpret equations containing addition (+), subtraction (−) and equals (=) symbols, and relate additive expressions and equations to real-life contexts.	- To recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids and pyramids are not always similar to one another. - To compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.	Number Facts: - To be fluent with addition and subtraction facts within 10. - To be able to count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any mu count forwards and backwards through the odd numbers.

	Number and Place Value	Addition and Subtraction	Multiplication and division	Geometry	
Year 2	To know the place value of each digit in two-digit numbers, and compose and decompose two digit numbers using standard and non-standard partitioning.	- To know how to add and subtract across the 10 boundary. - To know the subtraction structure of 'difference' and answer questions of	To know repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	To use precise language to describe the properties of 2D and 3D shapes, and compare shapes by reasoning about similarities and	To be fluent addition and subtraction facts within 10, through continued practice.

		the form, "How many more…?". • To add and subtract two digit numbers within 100 using an efficient, formal written method.	• To know how to solve division problems through sharing and then grouping strategies.	differences in properties.	• To recall all facts for the 2, 5 and 10 times tables

Year 3	**Number and Place Value**	**Four Operations, emphasis on addition and subtraction**	**Fractions**	**Geometry**	**LKS2 Disciplinary Concepts**
	• To know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10. • To know the place value of each digit in three-digit numbers, and compose and decompose three-digit numbers using standard and non-standard partitioning. • To reason confidently about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. • To know how to apply strategies to divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	• To know how to calculate complements to 100. • To add and subtract up to three-digit numbers using columnar methods (extension of the formal written method introduced in Year 2) • To know how to apply the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. To know how to use the commutative property of addition, and understand the related property for subtraction. • To know how to apply known multiplication and division facts to solve contextual problems with different structures.	• To know how to interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. • To know how to find unit fractions of quantities using known division facts (linking to multiplication tables fluency). • To be able to reason about the location of any fraction within 1 in the linear number system. • To know how to add and subtract fractions with the same denominator, within 1.	• To be able to recognise right angles as a property of shape or a description of a turn, and identify right angles in 2D shapes presented in different orientations. • To be able to polygons by joining marked points, and identify parallel and perpendicular sides.	• To know multiplication facts, and corresponding division facts, in the 2 ,5, 10, 3, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.

Year 4	**Number and Place Value**	**Four Operations, emphasis on multiplication and division**	**Fractions**	**Geometry**	
	• To know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there	• To know how to add and subtract 4 digit numbers. • To know how to add decimal numbers in context.	• To be able to reason about the location of mixed numbers in the linear number system.	• To know how to draw polygons, specified by coordinates in the first quadrant, and translate	

	• are in other four-digit multiples of 100. • To know the place value of each digit in four-digit numbers, and compose and decompose four digit numbers using standard and non-standard partitioning. • To reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each. • To be able to divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts.	• To know how to solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context. • To be able to multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. • To be able to manipulate multiplication and division equations, understand and apply the commutative property of multiplication. • To know, understand and apply the distributive property of multiplication.	• To know how to convert mixed numbers to improper fractions and vice versa. • To know how to add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.	within the first quadrant. • To identify regular polygons, including equilateral triangles and squares, as those in which the side lengths are equal and the angles are equal. Find the perimeter of regular and irregular polygons. • To identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.	• To know multiplication and division facts up to 12 × 12, and recognise products in multiplication tables as multiples of the corresponding number. • To be able to apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100).
Year 5	**Number and Place Value**	**Four Operations, emphasis on Multiplication and division**	**Fractions/Decimals/ Percentages**	**Geometry**	**UKS2** **Disciplinary Concepts**
	• To know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01. • To know the place value of each digit in numbers with up to 2	• To be able to add and subtract 5-digit numbers using an efficient method • To know how to multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size. • To know how to find factors and multiples of positive whole numbers, including common factors and common multiples,	• • to use key voTo know how to find non-unit fractions of quantities. • To know how to find equivalent fractions and understand that they have the	• To know how to compare angles, estimate and measure angles in degrees (°) and draw angles of a given size. • To be able to compare areas and calculate the	• To know all multiplication table facts, and corresponding division facts, through continued practice. • To know how to apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).

decimal places, and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning. • To be able to reason about the location of any number with up to 2 decimals places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. • To know how to convert between units of measure, including using common decimals and fractions.	and express a given number as a product of 2 or 3 factors. • To know how to multiply any whole number with up to 4 digits by any one-digit number using a formal written method. • To know how to divide a number with up to 4 digits by a one-digit number using a formal written method, and interpret remainders appropriately for the context. • to use key vocabulary associated with mental multiplication; factor, prime, factor prime, multiple, LCM	same value and the same position in the linear number system. • To recall decimal equivalents for 1/2, 1/4, 1/5 and 1/10, and for multiples of these proper fractions.	area of rectangles (including squares) using standard units.	
Year 6	**Number and Place Value**	**Four Operations, emphasis on multiplication and division**	**Fractions**	**Geometry**
	• To understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000). • To be able to recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning. • To be able to reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts. • To know how to divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number	• To be able to add and subtract 6-digit numbers using an efficient method. • To know that 2 numbers can be related additively or multiplicatively, and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number). • To know a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding. • To know how to solve problems involving ratio relationships. • To know how to solve problems with 2 unknowns.	• To be able to recognise fractions can be simplified, and use common factors to simplify fractions. • To know how to express fractions in a common denomination and use this to compare fractions that are similar in value. • To know how to compare fractions with different denominators, including fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a	• To know how to draw, compose, and decompose shapes according to given properties, including dimensions, angles and area, and solve related problems.

	lines with labelled intervals divided into 2, 4, 5 and 10 equal parts.		comparison strategy.		