Progression of learning – Place Value

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number	Count in multiples of 6, 7, 9, 25 and 1,000	Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000	
Recognise the place value of each digit in a 3-digit number (100s, 10s, 1s)	Recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s)	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 up to 10,000,000 and determine the value of each digit
Compare and order numbers up to 1,000	Order and compare numbers beyond 1,000	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 up to 10,000,000 and determine the value of each digit
Identify, represent and estimate numbers using different representations	Identify, represent and estimate numbers using different representations		
Read and write numbers up to 1,000 in numerals and in words		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 up to 10,000,000 and determine the value of each digit
Solve number problems and practical problems involving these ideas	Solve number and practical problems that involve all of the above and with increasingly large positive numbers	Solve number problems and practical problems that involve all of the above	Solve number and practical problems that involve all of the above
	Find 1,000 more or less than a given number		
	Round any number to 10,000 to the nearest 10, 100 or 1,000	Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000	Round any whole number to a required degree of accuracy
	Count backwards through 0 to include negative numbers	Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0	Use negative numbers in context and calculate intervals across 0
	Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value	Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals	

Progression of learning – Addition and Subtraction

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective

Add and subtract numbers mentally, including:
     a three-digit number and 1s
     a three-digit number and 10s
     a three-digit number and 100s
		Add and subtract numbers mentally with increasingly large numbers	

Add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	
Estimate the answer to a calculation and use inverse operations to check answers	Estimate and use inverse operations to check answers to a calculation	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	
Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why

Progression of learning – Multiplication and Division

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	Recall multiplication and division facts for multiplication tables up to 12 × 12		
Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers	Multiply and divide numbers mentally, drawing upon known facts	Perform mental calculations including with mixed operations and large numbers
	Multiply two-digit and three-digit numbers by a one-digit number using formal written layout	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	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal method of long multiplication
		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	Divide numbers up to 4 digits by a 2-digit whole number using short division and the formal method of long division and interpret remainders as whole number remainders, fractions or by rounding as appropriate for the context
			Use written division methods in cases where the answer has up to two decimal places
		Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000	Multiply one-digit numbers with up to two decimal place by whole numbers
Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects	Solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m object	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign	Solve problems involving addition, subtraction, multiplication and division

			Use estimation to check answers to calculations and determine the context of a problem, an appropriate degree of accuracy
			Use their knowledge of the order of operations to carry out calculations involving the four operations
	Recognise and use factor pairs and commutativity in mental calculations	Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers	Identify common factors and common multiples
		Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers	Identify prime numbers
		Establish whether a number up to 100 is prime and recall prime numbers up to 19	
		Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	
		Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rate	

Progression of learning – Fractions

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	Count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10		Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers to 3 decimal places
Recognise and show, using diagrams, equivalent fractions with small denominators	Recognise and show, using diagrams, families of common equivalent fractions	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
Add and subtract fractions with the same denominator within one whole [for example, + =]	Add and subtract fractions with the same denominator	Add and subtract fractions with the same denominator, and denominators that are multiples of the same number	Add and subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions
Compare and order unit fractions, and fractions with the same denominators		Compare and order fractions whose denominators are all multiples of the same number	Compare and order fractions including fractions < 1
Solve problems that involve all of the above	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number		
Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators			
		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, 2/5 + 4/5 = 6/5 = 1 1/5]	
		Multiply proper fractions and mixed numbers by whole numbers	Multiply simple pairs of proper fractions, writing the answer in its simplest form ($\frac{1}{4} \times \frac{1}{2} = 1/8$)

		supported by materials and diagrams	
			Divide proper fractions by whole numbers (1/3 ÷ 2 = 1/6)
			Associate a fraction with division and calculate decimal fraction equivalents

Progression of learning – Decimals and Percentages

Year 4 Objective	Year 5 Objective	Year 6 Objective
Recognise and write decimal equivalents of any number of tenths or hundreds	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.	Read and write decimal numbers as fractions [for example, 0.71 = 71/100]	
Round decimals with 1 decimal place to the nearest whole number	Round decimals with 2 decimal places to the nearest whole number and to 1 decimal place	Solve problems which require answers to be rounded to specified degrees of accuracy
Compare numbers with the same number of decimal places up to 2 decimal places	Read, write, order and compare numbers with up to 3 decimal places	
Solve simple measure and money problems involving fractions and decimals to 2 decimal place	Solve problems involving number up to 3 decimal places	
	Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction	Recall and use equivalences between simple fractions, decimals and percentages including in different contexts
	Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of • 10 or 25	Solve problems involving the calculation of percentages and the use of percentages for comparison

Progression of learning – Measurement

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)	Convert between different units of measure [for example, kilometre to metre; hour to minute]	Convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre]	Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit to a larger unit and vice versa, using decimal notation to up to 3 d.pl
		Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints	Convert between miles and kilometres
Measure the perimeter of simple 2-D shapes	Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres	Recognise that shapes with the same areas can have different perimeters and vice versa
	Find the area of rectilinear shapes by counting squares	Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes	Recognise when it is possible to use formulae for area and volume of shapes
			Calculate the area of parallelograms and triangles
		Estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water	Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic cm (cm^3) and cubic m (m^3) extending to other units (mm^3 and km^3)
Add and subtract amounts of money to give change, using both £ and p in practical contexts			

Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight		Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate
Know the number of seconds in a minute and the number of days in each month, year and leap year			
Compare durations of events [for example, to calculate the time taken by particular events or tasks]			
Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clock	Read, write and convert time between analogue and digital 12- and 24-hour clocks	Solve problems involving converting between units of time	
	Estimate, compare and calculate different measures, including money in pounds and pence		
	Solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to day		

Progression of learning – Geometry (Properties of shape)

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations	Draw 2D shapes using given dimensions and angle
			Recognise, describe and build simple 3D shapes, including making nets
	Complete a simple symmetric figure with respect to a specific line of symmetry		
Identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle	Identify acute and obtuse angles and compare and order angles up to 2 right angles by size	Identify: *angles at a point and 1 whole turn (total 360°) *angles at a point on a straight line and half a turn (total 180°) *other multiples of 90° *use the properties of rectangles to deduce related facts and find missing lengths and angles *distinguish between regular and irregular polygons based on reasoning about equal sides/angles	Recognise angles where: *they meet at a point *are on a straight line *vertically opposite • Find missing angles
		Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Draw given angles, and measure them in degrees (°)	Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons
Identify horizontal and vertical lines and pairs of perpendicular and parallel line	Identify lines of symmetry in 2-D shapes presented in different orientations		
			Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius

Progression of learning – Geometry (Position and Direction)

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Describe positions on a 2-D grid as coordinates in the first quadrant	Describe positions on a 2-D grid as coordinates in the first quadrant		Describe positions on the full co-ordinate grid (all four quadrants)
Describe movements between positions as translations of a given unit to the left/right and up/down	Describe movements between positions as translations of a given unit to the left/right and up/down	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed	Draw and translate simple shapes on the co-ordinate plane and reflect them in the axes
Plot specified points and draw sides to complete a given polygon	Plot specified points and draw sides to complete a given polygon		

Progression of learning – Statistics

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
Interpret and present data using bar charts, pictograms and tables	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs		Interpret and construct pie charts and line graphs and use these to solve problems
Solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	Solve comparison, sum and difference problems using information presented in a line graph	
		Complete, read and interpret information in tables, including timetables	
			Calculate and interpret the mean as an average

Progression of learning – Ratio and Proportion

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
			Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts
			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

Progression of learning – Algebra

Year 3 Objective	Year 4 Objective	Year 5 Objective	Year 6 Objective
			Use simple formulae
			Generate and describe linear number sequences
			Express missing number problems algebraically
			Find pairs of numbers that satisfy an equation with two unknowns
			Enumerate possibilities of combinations of two variables