Skills Progression Map: Maths -Number and place Value

	Y3	Y4	Y5	Y6
Counting	i. count from 0 in multiples of 4, 8, 50 and 100 ii. find 10 or 100 more or less than a given number	i. count backwards through zero to include negative numbers ii. count in multiples of 6, 7, 9, 25 and 1000 iii. find 1000 more or less than a given number	i. interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero ii. count forwards or backwards in steps of powers of 10 for any number up to 1000 000	i. use negative numbers in context, and calculate intervals across zero
Comparing, identifying, representing estimating numbers	iii. compare and order numbers up to 1000 iv. identify, represent and estimate numbers using different representations	iv. order and compare numbers beyond 1000 compare numbers with the same number of decimal places up to two decimal places v. identify, represent and estimate numbers using different representations	iii. read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit	ii. read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
Reading & writing numbers (incl. Roman Numerals)	v. read and write numbers up to 1000 in numerals and in words vi. tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks	vi. read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	iv. read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit v. read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	iii. read, write, order and compare numbers up to 10 000 000 and determine the value of each digit

Understanding place value	vii.	recognise the place value of each digit in a three-digit number (hundreds, tens, ones)	vii. viii.	recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths	vi. vii.	read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	iv. v.	read, write, order and compare numbers up to 10 000 000 and determine the value of each digit identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
Rounding			ix. x.	round any number to the nearest 10, 100 or 1 000 round decimals with one decimal place to the nearest whole number	viii. ix.	round any number up to 1 000 000 to the nearest 10, 100, 1 000, 10 000 and 100 000 round decimals with two decimal places to the nearest whole number and to one decimal place	vi. vii.	round any whole number to a required degree of accuracy solve problems which require answers to be rounded to specified degrees of accuracy
roblem solving	viii.	solve number problems and practical problems involving these ideas.	xi.	solve number and practical problems that involve all of the above and with increasingly large positive numbers	x.	solve number problems and practical problems that involve all of the above	viii.	solve number and practical problems that involve all of the above

Skills Progression Map: Maths -Addition and subtraction

	Y3	Y4	Y5	Y6
Mental calculation	i. add and subtract numbers mentally, including: ii. a three-digit number and ones iii. a three-digit number and tens iv. a three-digit number and hundreds		i. add and subtract numbers mentally with increasingly large numbers	i. perform mental calculations, including with mixed operations and large numbers ii. use their knowledge of the order of operations to carry out calculations involving the four operations
Written methods	v. add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	i. add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate	ii. add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)	iii. add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
Inverse op, estim. & checking ans	vi. estimate the answer to a calculation and use inverse operations to check answers	ii. estimate and use inverse operations to check answers to a calculation	iii. use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy	iv. use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy.
Problem solving	vii. solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	iii. solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	iv. solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why	v. solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why vi. Solve problems involving addition, subtraction, multiplication and division.

Skills Progression Map: Maths – Multiplication and division

	Y3	Y4	Y5	Y6
Multiplication & division facts	i. count from 0 in multiples of 4, 8, 50 and 100 ii. recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	i. count in multiples of 6, 7, 9, 25 and 1 000 ii. recall multiplication and division facts for multiplication tables up to 12 × 12	i. count forwards or backwards in steps of powers of 10 for any given number up to ii. 1 000 000	
Mental calculation	iii. 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	iii. use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers iv. recognise and use factor pairs and commutativity in mental calculations	iii. multiply and divide numbers mentally drawing upon known facts iv. multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	i. perform mental calculations, including with mixed operations and large numbers ii. associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$)
Written calculation	iv. 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	v. multiply two-digit and three-digit numbers by a one-digit number using formal written layout	v. 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 vi. 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	iii. multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication iv. divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context

				v. 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 *vi. use written division methods in cases where the answer has up to two decimal places*
Properties of numbers: Multiples, factors, prime, square and cube numbers		vi. recognise and use factor pairs and commutativity in mental calculations	vii. identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. viii. know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers ix. establish whether a number up to 100 is prime and recall prime numbers up to 19 x. recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	vii. identify common factors, common multiples and prime numbers viii. use common factors to simplify fractions; use common multiples to express fractions in the same denomination ix. calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3

Problem solving	v. 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	vii. solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects	xi. solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes xii. solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign xiii. solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates	x. solve problems involving addition, subtraction, multiplication and division xi. xii. solve problems involving similar shapes where the scale factor is known or can be found

Skills Progression Map: Maths – Fractions (including decimals and percentages)

	Y3	Y4	Y5	Y6
Recognising fractions	i. recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators ii. recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. iii. recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators	i. recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten	i. recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents	
Comparing fractions and decimals	iv. compare and order unit fractions, and fractions with the same denominators	ii. compare numbers with the same number of decimal places up to two decimal places	ii. compare and order fractions whose denominators are all multiples of the same number iii. read, write, order and compare numbers with up to three decimal places	i. compare and order fractions, including fractions >1 ii. identify the value of each digit in numbers given to three decimal places

Rounding (including decimals)		iii. round decimals with one decimal place to the nearest whole number	iv. round decimals with two decimal places to the nearest whole number and to one decimal place	iii. solve problems which require answers to be rounded to specified degrees of accuracy
Equivalence (including decimal, fractions and percentages)	v. recognise and show, using diagrams, equivalent fractions with small denominators	iv. recognise and show, using diagrams, families of common equivalent fractions v. recognise and write decimal equivalents of any number of tenths or hundredths vi. recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$	v. identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths vi. read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) vii. recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents viii. recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction	iv. use common factors to simplify fractions; use common multiples to express fractions in the same denomination v. associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$) vi. recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

Addiction and subtraction of fractions	vi. add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + ^1/_7 = ^6/_7$)	vii. add and subtract fractions with the same denominator	ix. add and subtract fractions with the same denominator and multiples of the same number x. recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^2/_5 + ^4/_5 = ^6/_5 = 1^1/_5$)	vii. add and subtract fractions with different denominators and mixed numbers, using the viii. concept of equivalent fractions
Multiplication and division of fractions			xi. multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	ix. multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times ^1/_2 = ^1/_8$) x. multiply one-digit numbers with up to two decimal places by whole numbers xi. divide proper fractions by whole numbers (e.g. $^1/_3 \div 2 = ^1/_6$)

Multiplication and division of decimals		viii. find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths		xii. multiply one-digit numbers with up to two decimal places by whole numbers xiii. multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places xiv. identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 xv. and 1000 where the answers are up to three decimal places xvi. associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$) xvii. use written division methods in cases where the answer has up to two decimal places

Problem solving	vii. solve problems that involve all of the above	ix. 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 x. solve simple measure and money problems involving fractions and decimals to two decimal places.	xii. solve problems involving numbers up to three decimal places xiii. solve problems which require knowing percentage and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a denominator of a multiple of 10 or 25.	

Skills Progression Map: Maths – Ratio and proportion.

Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division

	Y3	Y4	Y5	Y6
Recognising fractions				i. solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts ii. solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison iii. solve problems involving similar shapes where the scale factor is known or can be found iv. solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Skills Progression Map: Maths – Measurement

	Y3	Y4	Y5	Y6
Comparing and estimating	i. compare durations of events, for example to calculate the time taken by particular events or tasks ii. estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight (appears also in Telling the Time)	i. estimate, compare and calculate different measures, including money in pounds and pence	i. calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes (also included in measuring) ii. estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water)	i. calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm^3) and cubic metres (m^3), and extending to other units such as mm^3 and km^3.
Measuring and calculating	iii. measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml) iv. measure the **perimeter** of simple 2-D shapes	ii. estimate, compare and calculate **different measures,** including **money in pounds and pence** iii. measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres iv. find the area of rectilinear shapes by counting squares	iii. use all four operations to solve problems involving measure (e.g. **length, mass, volume, money**) using decimal notation including scaling. iv. measure and calculate the **perimeter** of composite rectilinear shapes in centimetres and metres v. calculate and compare the area of squares and rectangles including using standard units, square centimetres (cm^2) and	ii. solve problems involving the calculation and conversion of **units of measure**, using decimal notation up to three decimal places where appropriate iii. recognise that shapes with the same areas can have different **perimeters** and vice versa iv. calculate the area of parallelograms and triangles v. calculate, estimate and compare volume of cubes

			vi. recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})	and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [e.g. mm^3 and km^3]. vi. recognise when it is possible to use formulae for area and volume of shapes
Telling the time	v. tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks vi. estimate and read vii. time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight	v. read, write and convert time between analogue and digital 12 and 24-hour clocks vi. solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	vii. solve problems involving converting between units of time	

Converting	viii.	know the number of seconds in a minute and the number of days in each month, year and leap year	vii. viii. ix.	convert between different units of measure (e.g. kilometre to metre; hour to minute) read, write and convert time between analogue and digital 12 and 24-hour clocks solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	viii. ix. x.	convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) solve problems involving converting between units of time understand and use equivalences between metric units and common imperial units such as inches, pounds and pints	vii. viii. ix.	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 to up to three decimal places solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate convert between miles and kilometres

Skills Progression Map: Maths – Geometry: Property of shapes

	Y3	Y4	Y5	Y6
Identifying shapes and their properties		i. identify lines of symmetry in 2-D shapes presented in different orientations	i. identify 3-D shapes, including cubes and other cuboids, from 2-D representations	i. recognise, describe and build simple 3-D shapes, including making nets ii. illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Drawing and constructing	i. draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them	ii. complete a simple symmetric figure with respect to a specific line of symmetry	ii. draw given angles, and measure them in degrees (^{o})	iii. draw 2-D shapes using given dimensions and angles iv. recognise, describe and build simple 3-D shapes, including making nets
Comparing and classifying		iii. compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	iii. use the properties of rectangles to deduce related facts and find missing lengths and angles iv. distinguish between regular and irregular polygons based on reasoning about equal sides and angles	v. compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons

Angles	ii. recognise angles as a property of shape or a description of a turn iii. identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle iv. identify horizontal and vertical lines and pairs of perpendicular and parallel lines	iv. identify acute and obtuse angles and compare and order angles up to two right angles by size	v. know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles Identify: vi. angles at a point and one whole turn (total 360^{o}) vii. angles at a point on a straight line and ½ a turn (total 180^{o}) viii. other multiples of 90^{o}	vi. recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Skills Progression Map: Maths – Geometry: Position and direction

	Y3	Y4	Y5	Y6
Identifying shapes and their properties		i. describe positions on a ii. 2-D grid as coordinates in the first quadrant iii. describe movements between positions as translations of a given unit to the left/right and up/down iv. plot specified points and draw sides to complete a given polygon	i. 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	i. describe positions on the full coordinate grid (all four quadrants) ii. draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

Skills Progression Map: Maths – Statistics

	Y3	Y4	Y5	Y6
Interpreting, constructing and presenting data	i. interpret and present data using bar charts, pictograms and tables	i. interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs	i. complete, read and interpret information in tables, including timetables	i. interpret and construct pie charts and line graphs and use these to solve problems
Problem solving	ii. solve one-step and two-step questions [e.g. 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	ii. solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	ii. solve comparison, sum and difference problems using information presented in a line graph	ii. calculate and interpret the mean as an average

Skills Progression Map: Maths – Algebra

	Y3	Y4	Y5	Y6
Interpreting, constructing and presenting data	i. solve problems, including **missing number** problems, using number facts, place value, and more complex addition and subtraction. ii. solve problems, including **missing number** problems, involving multiplication and division, including integer scaling		i. use the properties of rectangles to deduce related facts and find **missing lengths and angles**	i. express missing number problems algebraically ii. find pairs of numbers that satisfy number sentences involving two unknowns iii. enumerate all possibilities of combinations of two variables iv. use simple formulae v. recognise when it is possible to use **formulae** for area and volume of shapes vi. generate and describe linear number sequences