Skill	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Counting	<ul> <li>count to and across</li> <li>100, forwards and</li> <li>backwards, beginning</li> <li>with 0 or 1, or from</li> <li>any given number</li> <li>count, read and write</li> <li>numbers to 100 in</li> <li>numerals</li> <li>count in multiples of</li> <li>twos, fives and tens</li> </ul>	• count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.	<ul> <li>count in multiples of</li> <li>6, 7, 9, 25 and 1000</li> <li>find 1000 more or</li> <li>less than a given number</li> <li>count backwards through zero to include negative numbers</li> </ul>	• count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero	• use negative numbers in context, and calculate intervals across zero
Place Value		<ul> <li>recognise the place value of each digit in a two-digit number</li> <li>compare and order numbers from 0 up to 100; use &lt;, &gt; and = signs</li> </ul>	<ul> <li>recognise the place value of each digit in a three-digit number</li> <li>compare and order numbers up to 1000</li> </ul>	<ul> <li>recognise the place value of each digit in a four-digit number</li> <li>order and compare numbers beyond 1000</li> <li>round any number to the nearest 10, 100 or 1000</li> </ul>	<ul> <li>read, write, order and compare numbers up to 1 000 000 and determine the value of each digit</li> <li>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000</li> </ul>	<ul> <li>read, write, order and compare numbers up to 10 000 000 and determine the value of each digit</li> <li>round any whole number to a required degree of accuracy</li> </ul>
Representing number	• identify and represent numbers using objects and pictorial representations including the number line, & use language of: equal to, more than, less than (fewer), most, least • read and write	identify, represent and estimate numbers using different representations, including the number line     read and write numbers to at least 100 in numerals and in words	<ul> <li>identify, represent and estimate numbers using different representations</li> <li>read and write numbers up to 1000 in numerals and in words</li> </ul>	<ul> <li>identify, represent and estimate numbers using different representations</li> <li>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</li> </ul>	<ul> <li>read Roman numerals to 1000 (M) and recognise years written in Roman numerals</li> <li>recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)</li> </ul>	

	numbers from 1 to 20 in numerals and words • read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs				
Number facts (+/-)	• given a number, identify one more and one less • represent and use number bonds and related subtraction facts within 20	• use place value and number facts to solve problems recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100			
Mental +/-	add and subtract one-digit and two-digit numbers to 20, including zero	<ul> <li>add and subtract numbers using concrete objects, pictorial representations, and mentally, including: TU+U, TU+T, TU+TU and U+U+U</li> <li>show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot</li> </ul>	• add and subtract numbers mentally, including: HTU+U, HTU+T and HTU+H	• add and subtract numbers mentally with increasingly large numbers	• perform mental calculations, including with mixed operations and large numbers

Written +/-			add and subtract numbers with up to three 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	
Problems +/-	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ −9.	• solve problems with addition and subtraction, using concrete, pictorial and abstract representations • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	estimate the answer to a calculation and use inverse operations to check answers     solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	<ul> <li>estimate and use inverse operations to check answers to a calculation</li> <li>solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why</li> </ul>	<ul> <li>use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy</li> <li>solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why</li> </ul>	
Number facts (x/÷)		• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	• 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	<ul> <li>identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers</li> <li>know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers</li> <li>establish whether a number up to 100 is</li> </ul>	• identify common factors, common multiples and prime numbers

				prime and recall prime numbers up to 19	
Mental (x/÷)	calculate     mathematical     statements for     multiplication and     division within the     multiplication tables     and write them using     the multiplication (×),     division (÷) and equals     (=) signs     • show that     multiplication of two     numbers can be done     in any order     (commutative) and     division of one     number by another     cannot	• 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 methods	• 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 • recognise and use factor pairs and commutativity in mental calculations	<ul> <li>multiply and divide numbers mentally drawing upon known facts</li> <li>multiply and divide whole numbers and those involving decimals by 10, 100 and 1000</li> </ul>	• perform mental calculations, including with mixed operations and large numbers

## solve problems • use their involving knowledge of the multiplication and order of operations division including to carry out using their knowledge calculations involving of factors and the four operations multiples, squares and solve addition and • solve problems cubes • solve problems • solve problems, subtraction multi- solve problems solve one-step involving multiplying involving including missing step problems in problems involving and adding, including involving addition, number problems, contexts, deciding multiplication and using the distributive multiplication and subtraction, involving multiplication which operations and division, using division, by calculating law to multiply two multiplication and materials, arrays, and division, including methods to use and **Problems** the answer using digit numbers by one division and a repeated addition, positive integer scaling why digit, integer scaling concrete objects, combination of these. (x/÷) mental methods, and problems and solve problems problems and harder pictorial including multiplication and correspondence involving addition. understanding the representations and correspondence problems in which n division facts, subtraction, arrays with the support problems such as n meaning of the equals including problems in objects are connected multiplication and of the teacher. objects are connected sign to m objects. contexts division solve problems to m objects use estimation to involving check answers to multiplication and calculations and division, including determine, in the scaling by simple context of a problem, fractions and an appropriate problems involving degree of accuracy simple rates • recognise, find and name a half as one of • count up and down count up and down recognise mixed numbers and two equal parts of an recognise, find, in tenths; in hundredths; • recognise that tenths improper fractions object, shape or name and write recognise that Recognising arise from dividing an hundredths arise and convert from one quantity fractions 1/3, 1/4, • recognise, find and form to the other and 2/4 and 3/4 of a object into 10 equal when dividing an fractions parts and in dividing name a quarter as one length, shape, set of object by one write mathematical one-digit numbers or of four equal parts of objects or quantity hundred and dividing statements > 1 as a an object, shape or quantities by 10 tenths by ten. mixed number quantity.

Comparing fractions		• compare and order unit fractions, and fractions with the same denominators • recognise and show, using diagrams, equivalent fractions with small denominators	• recognise and show, using diagrams, families of common equivalent fractions	• compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths	<ul> <li>use common factors to simplify fractions</li> <li>use common multiples to express fractions in the same denomination</li> <li>compare and order fractions, including fractions &gt; 1</li> </ul>
Finding fractions of quantities		<ul> <li>recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators</li> <li>recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators</li> </ul>	• 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		
Calculating with fractions	• write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.	• add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7]	• add and subtract fractions with the same denominator	<ul> <li>add and subtract fractions with the same denominator and denominators that are multiples of the same number</li> <li>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</li> </ul>	add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions     multiply simple pairs of proper fractions, writing the answer in its simplest form     divide proper

				fractions by whole numbers
Decimals as fractional amounts		• recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to ¼, ½ and ¾ • 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	• read and write decimal numbers as fractions	<ul> <li>associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction</li> <li>identify the value of each digit in numbers given to three decimal places</li> </ul>
Ordering decimals		<ul> <li>round decimals with one decimal place to the nearest whole number</li> <li>compare numbers with the same number of decimal places up to two decimal places</li> </ul>	<ul> <li>recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents</li> <li>round decimals with two decimal places to the nearest whole number and to one decimal place</li> <li>read, write, order and compare numbers</li> </ul>	

			with up to three decimal places	
Calculating with decimals				multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places     multiply one-digit number with up to two decimal places by whole numbers     use written division methods in cases where the answer has up to two decimal places
Percentages			• 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, and as a decimal	• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison

Fraction problems		• solve problems using all fraction knowledge	• solve simple measure and money problems involving fractions and decimals to two decimal places	• solve problems involving number up to three decimal places • solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25	• solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Ratio & Proportion					• 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.

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						• use simple
						formulae
						generate and
						describe linear
						number sequences
						<ul> <li>express missing</li> </ul>
						number problems
Algobro						algebraically
Algebra						• find pairs of
						numbers that satisfy
						an equation with two
						unknowns
						• enumerate
						possibilities of
						combinations of two
						variables.
						• solve problems
		choose and use				involving the
		appropriate standard				calculation and
		units to estimate and				conversion of units of
		measure			<ul> <li>convert between</li> </ul>	measure, using
	• compare, describe	length/height			different units of	decimal notation up
	and solve practical	(m/cm); mass (kg/g);		<ul> <li>Convert between</li> </ul>	metric measure	to three decimal
	problems for:	temperature (°C);	• measure, compare,	different units of	<ul> <li>understand and use</li> </ul>	places where
	length/height,	capacity (litres/ml) to	add and subtract:	measure	approximate	appropriate
Measures	weight/mass,	the nearest	lengths (m/cm/mm);	<ul><li>estimate, compare</li></ul>	equivalences between	• use, read, write and
ivicasures	capacity/volume & time	appropriate unit,	mass (kg/g);	and calculate	metric units and	convert between
	<ul> <li>measure and begin to</li> </ul>	using rulers, scales,	volume/capacity (I/ml)	different measures,	common imperial	standard units,
	record length/height,	thermometers and	volume/capacity (I/IIII)	including money in	units such as inches,	converting
	weight/mass,	measuring vessels		pounds and pence	pounds and pints	measurements of
	capacity/volume & time	compare and order			• estimate volume	length, mass, volume
		lengths, mass,			and capacity	and time from a
		volume/capacity and				smaller unit of
		record the results				measure to a larger
		using >, < and =				unit, and vice versa,
						using decimal

					notation to up to three decimal places • convert between miles and kilometres
Mensuration		• measure the perimeter of simple 2-D shapes	<ul> <li>measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres</li> <li>find the area of rectilinear shapes by counting squares</li> </ul>	<ul> <li>measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres</li> <li>calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm²) and square metres (m²) and estimate the area of irregular shapes</li> </ul>	<ul> <li>recognise that shapes with the same areas can have different perimeters and vice versa</li> <li>recognise when it is possible to use formulae for area and volume of shapes</li> <li>calculate the area of parallelograms and triangles</li> <li>calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units.</li> </ul>

Money	• recognise and know the value of different denominations of coins and notes	recognise and use symbols for pounds     (£) and pence (p); combine amounts to make a particular value     find different combinations of coins that equal the same amounts of money     solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	add and subtract amounts of money to give change, using both £ and p in practical contexts		• use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling	
Time	• sequence events in chronological order using language • recognise and use language relating to dates, including days of the week, weeks, months and years • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times	compare and sequence intervals of time     tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times     know the number of minutes in an hour and the number of hours in a day	• tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • 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, a.m./p.m., morning, afternoon, noon and midnight • know the number of	<ul> <li>Convert between different units of measure (e.g. Hours to minutes)</li> <li>read, write and convert time between analogue and digital 12- and 24-hour clocks</li> <li>solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days</li> </ul>	• solve problems involving converting between units of time	

			seconds in a minute and the number of days in each month, year and leap year compare durations of events			
Shape vocabulary	<ul> <li>recognise and name common 2-D shapes</li> <li>(e.g. Square, circle, triangle)</li> <li>recognise and name common 3-D shapes</li> <li>(e.g. Cubes, cuboids, pyramids &amp; spheres)</li> </ul>	(vertices, edges, faces, symmetry)	• identify horizontal and vertical lines and pairs of perpendicular and parallel lines			• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Properties of 2-d shape		<ul> <li>identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.</li> <li>compare and sort common 2-D and 3-D shapes and everyday objects.</li> </ul>	• draw 2-D shapes	<ul> <li>compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and sizes</li> <li>identify lines of symmetry in 2-D shapes presented in different orientations</li> <li>complete a simple symmetric figure with</li> </ul>	<ul> <li>use the properties of rectangles to deduce related facts and find missing lengths and angles</li> <li>distinguish between regular and irregular polygons based on reasoning about equal sides and angles.</li> </ul>	• draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes

			respect to a specific line of symmetry.		
Properties of 3-d shape	• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes. compare and sort common 2-D and 3-D shapes and everyday objects.	<ul> <li>make 3-D shapes using modelling materials</li> <li>recognise 3-D shapes in different orientations and describe them</li> </ul>		• identify 3-D shapes, including cubes and other cuboids, from 2-D representations	<ul> <li>recognise, describe and build simple 3-D shapes, including making nets</li> <li>find unknown angles in any triangles, quadrilaterals, and regular polygons</li> </ul>
Angles		<ul> <li>recognise angles as a property of shape or a description of a turn</li> <li>identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn</li> <li>identify whether angles are greater or less than right angle</li> </ul>	• identify acute and obtuse angles and compare and order angles up to two right angles by size	<ul> <li>know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles</li> <li>draw given angles, and measure them in degrees (°)</li> <li>identify angles at a point and one whole turn (total 360°); at a point on a straight line and ½ a turn</li> </ul>	• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

					(total 180°) • identify other multiples of 90°	
Position & Direction	• describe position, direction and movement, including whole, half, quarter and three-quarter turns.	<ul> <li>order and arrange combinations of mathematical objects in patterns and sequences.</li> <li>use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and ¾ turns</li> </ul>		<ul> <li>describe positions         on a 2-D grid as         coordinates in the first         quadrant</li> <li>describe movements         between positions as         translations of a given         unit to the left/right         and up/down</li> <li>plot specified points         and draw sides to         complete a given         polygon</li> </ul>	• 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	<ul> <li>describe positions on the full coordinate grid (all four quadrants)</li> <li>draw and translate simple shapes on the coordinate plane, and reflect them in the axes.</li> </ul>
Interpreting data		• interpret and construct simple pictograms, tally charts, block diagrams and simple tables	• 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	• complete, read and interpret information in tables, including timetables	• interpret and construct pie charts and line graphs calculate and interpret the mean as an average

	• ask and answer simple questions by				
Extract info from data	counting the number of objects in each category and sorting the categories by quantity  • ask and answer questions about totalling and comparing categorical data	• 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	• use pie charts and line graphs to solve problems