

MATHEMATICS PROGRESSION OF SKILLS 22-23



Unit	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PLACE VALUE - COUNT	 count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count numbers to 100 in numerals; count in multiples of twos, fives and tens 	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 orless than a given number	count in multiplesof 6, 7, 9, 25 and 1000 count backwards through zero to include negative numbers	 count forwards orbackwards in steps of powers of10 for any given number up to 1 000 000 count forwards and backwards with positive andnegative whole numbers, including throughzero 	
	Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1 Autumn 3	Autumn 1 Autumn 4	Autumn 1 Summer 4	
PLACE VALUE - REPRESENT	 identify and represent numbers using objects and pictorial representation s read and write numbers to 100 in numerals read and write numbers from 1 to 20 in numerals and words 	 read and write numbers to at least 100 in numerals and in words identify, represent and estimate numbers using different representations, including the number line 	identify, represent and estimate numbers using different representations read and write numbers up to 1000 in numerals and in words	identify, representand estimate numbers using different representations read Roman numerals to 100 (I to C) and know that over time, thenumeral system changed to include the concept of zero	 read, write, (order and compare) numbers to at least 1 000 000 and determine thevalue of each digit read Roman numerals to 1000 (M) and recogniseyears written in Roman numerals 	read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit

				and place value		
	Autumn 1 Spring 1 Spring 3 Summer 4	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1
			I	T		
PLACE VALUE – USE AND COMPARE	given a number, identify one more and one less	 recognise the place value of each digit in a two-digit number (tens, ones) compare and order numbers from 0 up to 100; use <, > and = signs 	 recognise the place value of each digit in a three-digit number (hundreds, tens, ones) compare and order numbers up to 1000 	 find 1000 more orless than a givennumber recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) order and compare numbersbeyond 1000 	(read, write) order and compare numbers to at least 1 000 000 and determine thevalue of each digit	(read, write), order and compare numbersup to 10 000 000 and determine thevalue of each digit
	Autumn 1 Spring 1 Spring 3	Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1
	Summer 4					
PLACE VALUE – PROBLEMS AND ROUNDING		use place value and number facts to solve problems	solve number problems and practical problems involving these ideas	 round any number to the nearest 10, 100 or 1000 solve number and practical problemsthat involve all of the above and with increasingly large positive numbers 	 interpret negative numbers in context round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 solve number 	 round any whole number to a required degree of accuracy use negative numbers in context, and calculate intervals across zero solve number and practical problems

					problems and practical problemsthat involve all of the above	that involve all of the above
		Autumn 1	Autumn 1	Autumn 1	Autumn 1	Autumn 1
ADDITION AND SUBTRACTION CALCULATIONS	add and subtract one-digit and two-digit numbers to 20, including zero	 add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones a two-digit number and tens two two-digit numbers adding three one-digit numbers 	 add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds 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 writtenmethods of columnar additionand subtraction where appropriate	add and subtractwhole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) add and subtract numbers mentallywith increasingly large numbers	perform mental calculations, including with mixed operations and large numbers use their knowledge of the order of operations to carry out calculations involving the four operations
	Autumn 2 Spring 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2	Autumn 2
ADDITION AND SUBTRACTION PROBLEMS	solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing	 solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving 	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	solve addition andsubtraction two- step problems in contexts, deciding which operations and methods to use and why	solve addition andsubtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems	solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why

	number problems such as 7 = ② − 9	numbers, quantities and measures applying their increasing knowledge of mental and written methods Autumn 2	Autumn 2	Autumn 2	involving addition, subtraction, multiplication anddivision and a combination of these, including understanding themeaning of the equals sign	Autumn 2
	Spring 2	Autullii 2	Autuilli 2	Autuilli 2	Autullili Z	Autullili 2
MULTIPLICATION AND DIVISION RECALL/USE		recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables	recall multiplication anddivision facts for multiplication tables up to 12 × 12 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	 identify multiplesand factors, including findingall factor pairs of a number, and common factors of two numbers know and use thevocabulary of prime numbers, prime factors andcomposite (non- prime) numbers establish whethera number up to 100 is prime and recall prime numbers up to 19 recognise and use square numbers and cube 	identify common factors, common multiples and prime numbers use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy

	Spring 2	Autumn 3 Spring 1	Autumn 4 Spring 1	numbers, and thenotation for squared (²) and cubed (³) Autumn 3	Autumn 2
MULTIPLICATION AND DIVISION CALCULATIONS	calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	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	multiply two- digitand three- digit numbers by a one-digit numberusing formal written layout	 multiply numbers up to 4 digits by a one- ortwo-digit number using a formal written method, including long multiplication for two- digit numbers multiply and divide numbers mentally drawing upon knownfacts divide numbers up to 4digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context multiply and divide whole numbers and those involving decimals by 10, 	 multiply multi-digit numbers up to 4 digitsby a two-digit whole number using the formal written methodof long multiplication divide numbers up to 4digits 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 divide numbers up to 4digits by a two-digit number using the formal written methodof short division where appropriate, interpreting remainders

		Spring 2	Autumn 3 Spring 1	Spring 1	Autumn 3 Spring 1	according to the context • perform mental calculations, including with mixed operations and large numbers Autumn 2
MULTIPLICATION AND DIVISION PROBLEMS	solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in whichn objects are connected to mobjects	solve problems involving multiplying and adding, including using the distributive law tomultiply two digitnumbers by one digit, integer scaling problems and harder correspondence problems such asn objects are connected to mobjects	solve problems involving multiplication anddivision including using their knowledge of factors and multiples, squaresand cubes solve problems involving multiplication anddivision, includingscaling by simple fractions and problems involving simple rates	solve problems involving addition, subtraction, multiplication and division
	Summer 1	Spring 2	Spring 1	Spring 1	Autumn 3 Spring 1	Autumn 2
MULTIPLICATION AND DIVISION COMBINED					solve problems involving addition, subtraction, multiplication anddivision and a	use their knowledge of the order of operations to carry out calculations

					combination of these, including understanding themeaning of the equals sign	involving the four operations Autumn 2
						Autum
FRACTIONS RECOGNISE AND WRITE	 recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity 	• recognise, find, name and write fractions 1 2 3 4 4 and 3 of a length, shape, set of objects or quantity	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 recognise, find and write fractions of a discrete set of objects: unit fractions and nonunit fractions with small denominators recognise and use fractions as numbers: unit fractions and nonunit fractions with small denominators	count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths byten.	 identify, name and write equivalent fractions of a given fraction, represented visually, includingtenths and hundredths recognise mixed numbers and improper fractions and convert from one form to the otherand write mathematical statements > 1 as a mixed number [for example, ² + ⁴ = ⁶ = 1 ¹] 5 	
	Summer 2	Summer 1	Spring 3	Spring 4 Summer 1	Autumn 4	
FRACTIONS COMPARE		 Recognise the equivalence of ² 4 and ¹ 	 recognise and show, using diagrams, 	 recognise and show, using diagrams, 	 compare and order fractions whose 	 use common factors to simplify fractions; use

	2	equivalent fractions with small denominators compare and order unit fractions, and fractions with the same denominators	familiesof common equivalent fractions	denominators areall multiples of thesame number	common multiples to express fractions in the same denomination compare and order fractions, including fractions >1
	Summer 1	Spring 3	Spring 3	Autumn 4	Autumn 3
FRACTIONS CALCULATIONS	 write simple fractions for example, ¹₂ of 6 = 3 	• add and subtract fractions with the same denominator within one whole [for example, 5 1 7 2 7 3 2 7	add and subtractfractions with thesame denominator	 add and subtract fractions with thesame denominator and denominators that are multiplesof the same number multiply proper fractions and mixed numbersby whole numbers, supported by materials and diagrams 	 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 [for example, \frac{1}{4} \frac{1}{2} \frac{1}{2} \right\]8 divide proper fractions by whole numbers [for example \frac{1}{3} 2 = \frac{1}{6}
	Summer 1	Summer 1	Spring 3	Autumn 4 Spring 2	Autumn 3 Autumn 4
FRACTIONS PROBLEMS		solve problems that involve all of the above	solve problems involving increasingly		

	Spring 3 Summer 1	harder fractions to calculate quantities, and fractions to dividequantities, including non- unitfractions where the answer is a whole number Spring 3		
RECOGNISE WRITE COMPARE		 recognise and write decimal equivalents of anynumber of tenths or hundredths recognise andwrite decimal equivalents to 1 3 2 4 round decimals with one decimal place to the nearest whole number compare numberswith the same number of decimal places up to two decimal places 	 read and write decimal numbersas fractions [for example, 0.71 = 71, 100 recognise and use thousandths andrelate them to tenths, hundredths and decimal equivalents round decimals with two decimal places to the nearest whole number and to one decimal place read, write, orderand compare numbers with upto three 	identify the value of each digit in numbers given to three decimal places

			decimal places	
		Spring 4 Summer 1	Spring 3 Summer 3	Spring 3
FRACTIONS DECIMALS PERCENTAGES		solve simple measure and money problems involving fractionsand decimals to two decimal places	 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 which require knowing percentage anddecimal equivalents of 1 1 2 4 2' 4' 5' 5' 5 those fractions with a denominator of a multiple of 10 or 25 	 associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, ³/₈ recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
		Spring 3 Spring 4 Summer 1	Spring 3	Spring 3 Spring 4
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 the calculation/use of percentages for comparison • 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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					Spring 1
ALGEBRA	• solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problemssuch as 7 = 2 - 9	recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems	solve problems, including missing number problems		 use simple formulae generate and describe linear number sequences express missing number problems algebraically find pairs of numbers that satisfy an equation with twounknowns enumerate possibilities of

						combinations of two variables Spring 2
MEASUREMENT USING MEASURES	 compare, describe and solve practical problems for: lengths and heights mass/weight capacity and volume time measure and begin to record the following: lengths and heights mass/weight capacity and volume time (hours, minutes, seconds) 	 choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml)to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels compare and order lengths, mass, volume/capacity and record the results using >, < and = 	measure, compare, add andsubtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (I/mI)	Convert between different units ofmeasure [for example, kilometre to metre; hour to minute] estimate, compare and calculate different measures	convert between different units of metric measure understand and use approximate equivalences between metric units and common imperialunits such as inches, pounds and pints 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 d.p. where appropriate use, read, write and convert between standardunits, converting measurements of length, mass, volume and time from a smaller unit of measure toa larger unit, andvice versa, using decimal notation to up to 3 d.p. convert between miles and kilometres
	Spring 4 Spring 5 Summer 6	Spring 3 Spring 4	Spring 2 Spring 4	Spring 2 Summer 3	Spring 4 Summer 5 Summer 6	Autumn 5
MEASUREMENT	 recognise and know the value of different denominations of coins and notes 	 recognise and use symbols for pounds (£) and pence (p); combine amountsto make 	 add and subtract amounts of money to give change, using both £ and p in 	 estimate, compare and calculate different measures, 	use all four operations to solve problems involving measure[for	

		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	practical contexts	including money in pounds and pence	example, money]	
	Summer 5	Spring 1	Summer 2	Summer 2	Summer 3	
MEASUREMENT	sequence events	compare and	tell and write the	read, write and	solve problems	use, read, write and
TIME	in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] • 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	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	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 andhours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight	convert time between analogueand digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes;minutes to seconds; years tomonths; weeks todays	involving converting between units oftime	convert between standardunits, converting measurements of time from a smaller unit of measure to a larger unit, and vice versa

	the hands on a clock face to show these times	Summer 2	 know the number of seconds in a minuteand 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] Summer 3 	Summer 3	Summer 5	Autumn 5
MEASUREMENT PERIMETER AREA VOLUME			measure the perimeter of simple 2-D shapes	 measure and calculate the perimeter of a rectilinear figure(including squares) in centimetres andmetres find the area of rectilinear shapesby counting squares 	 measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres 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 estimate volume [for example, 	 recognise that shapes with the same areas can have different perimeters and vice versa recognise when it is possible to use formulae for area and volume of shapes calculate the area of parallelograms and triangles 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

			Spring 2	Autumn 3 Spring 2	usingblocks to build cuboids] and capacity [for example, using water] Spring 4 Summer 6	Spring 5	
GEOMETRY 2D SHAPES	recognise and name common 2-D shapes [for example, rectangles (including squares), circles and triangles]	identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder anda triangle on a pyramid] compare and sort common 2-D shapes and everyday objects	draw 2-D shapes	compare and classify geometric shapes, including quadrilaterals andtriangles, based on their propertiesand sizes identify lines of symmetry in 2-D shapes presentedin different orientations	 distinguish between regular and irregular polygons based on reasoning about equal sidesand angles. use the propertiesof rectangles to deduce related facts and find missing lengths and angles 	 draw 2-D shapes using given dimensions and angles compare and classify geometric shapes based on their properties and sizes illustrate and name parts of circles, including radius, diameter and circumferenceand know that the diameter is twice the radius 	
	Autumn 3	Autumn 3	Summer 4	Summer 4	Summer 1	Summer 1	
GEOMETRY 3D SHAPES	 recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and 	 recognise and name common 3- D shapes [for example, cuboids (including cubes), pyramids and 	make 3-D shapes using modelling materials; recognise 3-D shapes in different		 identify 3-D shapes, including cubes and other cuboids, from 2- D representations 	 recognise, describe and buildsimple 3- D shapes, including making nets 	

	spheres] Autumn 3	spheres] • compare and sort common 3-D shapes and everyday objects Autumn 3	orientations and describe them Summer 4		Summer 1	Summer 1
GEOMETRY ANGLES AND LINES			 recognise angles as a property of shape or a description of a turn identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turnand four a complete turn; identify whether angles are greater than or less than a right angle identify horizontal and vertical lines and pairs of perpendicular and parallel lines 	 identify acute andobtuse angles andcompare and order angles up to two right angles by size identify lines of symmetry in 2-D shapes presentedin different orientations complete a simplesymmetric figure with respect to a specific line of symmetry 	 know angles are measured in degrees: estimateand compare acute, obtuse andreflex angles draw given angles, and measure them indegrees identify: angles at a pointand one whole turn (total 360°) angles at a pointon a straight line and 1/2 a turn (total 180°) other multiples of 90° 	 find unknown angles in any triangles, quadrilaterals, and regular polygons recognise angles where they meet at a point, are ona straight line, orare vertically opposite, and findmissing angles
			Summer 4	Summer 4	Summer 2	Summer 1
GEOMETRY POSITION AND DIRECTION	 describe position, direction and movement, including whole, 	 order and arrange combinations of mathematical objects in patterns 		 describe positionson a 2-D grid as coordinates in 	 identify, describe and represent theposition of a shape following 	describe positions on the full coordinate grid (all four

	half, quarter and three-quarter turns	and sequences 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 three-quarter turns (clockwise and anticlockwise)		thefirst quadrant describe movements between positionsas translations ofa given unit to the left/right and up/down plot specified points and draw sides to completea given polygon	areflection or translation, usingthe appropriate language, and know that the shape has not changed	quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes
	Summer 3	Summer 4		Summer 6	Summer 2	Summer 2
PRESENT AND INTERPRET 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 discreteand continuous data using appropriate graphical methods, including bar charts and timegraphs	 complete, read and interpret information in tables, including timetables 	interpret and construct pie charts and line graphs and use these to solve problems
		Summer 3	Summer 5	Summer 5	Spring 5	Spring 6
SOLVING STATISTICAL PROBLEMS		ask and answer simple questions	solve one-step and two-step questions	solve comparison, sum and	 solve comparison, sum and 	calculate and interpret the

by counting the number of objects in each category and sorting the categories by quantity • ask and answer questions about totaling and comparing categorical data	[for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	difference problems using information presented in bar charts, pictograms, tablesand other graphs	difference problems using information presented in a linegraph	mean as an average
Summer 3	Summer 5	Summer 5	Spring 5	Spring 6