Maths skills overview and progression chart- Year 4

Y4	Number – number and place value	Number – addition and subtraction	Number – multiplication and division	Number – fractions	Measurement	Geometry – properties of shapes	Geometry – Position & direction	Statistics	Algebra
Focus/ Number size	up to 10,000	Up to 4 digits	3 digits by 1 digit	denominators up to 20	**Conversions-** length: m-cm -mm mass: kg-g capacity: l-ml money: p-£ time: seconds-hours-days Roman numerals to 12 **Perimeter** -cm **Time:** 12 & 24 hour	**2d:** polygons to 8 sides **3d:** polyhedra: cube, cuboid, tetrahedron, pyramids, prisms, sphere, semi-sphere, cylinder, cone	New strand 1 quadrant Equal scales on both axis	Scale: 1, 2, 5,10	
Key method	Partitioning	column addition column subtraction	Grid then column (expanded) Bus stop	Bar model: emphasise link to division (1/2 = 1 ÷ 2)	Number line for conversions			Bar and line graphs	
Representations	Partition Part whole models Bar model Number line Base Ten Place value counters Missing numbers			Part whole models Bar model Number line Cuisenaire rods Shapes Objects Pictures	Number line scales (horizontal/vertical and circular) Calendar Analogue clock faces Digital clock face Time number line	2d and 3d, Nets drawings	1 quadrant	bar graph, line graph tally chart, table, pictogram, Venn Carroll	
Mental maths	• Count from 0 in multiples of 6,7,9,25,1000 • 1000 more & less • Partition/regroup (non/ canonically) • Counting backwards through zero	Add 3 digit numbers Subtract 3 digit numbers Compensate with 9/11s (to 10 then -+1)	Doubling: Double x 2 for x 4 then x 8 Times table and division facts (x and ÷) 28 in 3 mins	Count in tenths Add/ subtract fractions	Add/ subtract 1 hour, ½ and ¼ hour, 10 and 5 minutes	Name and recall properties of 2D and 3D shapes			

Yr 4 Vocabulary

Number – number and place value	**Number – addition and subtraction**	**Number – multiplication and division**	**Number – fractions**	**Measurement**	**Geometry – properties of shapes**	**Geometry – Position & direction**	**Statistics**	**Algebra**
< > , partition place value, recombine, *cardinal/ordinal numbers, consecutive, rounding, thousands, tenths, hundredths, decimal, round to nearest .., negative integer, through zero, roman numeral (I to C)*	add, more, plus, make, sum, total, altogether, Column addition, exchange, commutative, addend subtract, minus, take away, fewer, difference, less, Column subtraction, *inverse, efficient*	product, times, multiple , multiply, repeated addition, lots, groups of, double, array, commutative share, group, divide, equal, repeated subtraction, remainder, left over, half *factor, quotient, efficient, inverse, derive, short division (bus stop)*	Numerator, denominator, Unit fraction, non-unit fraction, Compare, whole, half to twelfths, equivalent, equal *tenths, hundredths, decimal equivalent, common denominator, simplify*	capacity, length, am/pm, 12 hour/24 hour, morning, afternoon, midnight, noon, half past, quarter past, seconds ,o'clock, minutes, hours, day, months, Leap year, scales, weight, perimeter heavier/lighter, mm/cm/m, m/km, g/kg, ml/l, £/p, *Roman numerals (13-100); convert, area, width, estimate, decimal*	angle, side, corner, face, vertices, curved, straight, clockwise, anti-clockwise, full/ half/quarter turn, degrees, right angle, acute, obtuse,90°, horizontal, vertical, perpendicular, parallel *Classify, properties, regular, irregular, adjacent, bisect, diagonal, line of symmetry orientation, quadrilateral (tetragon): kite, parallelogram, perimeter, area, trapezium, rhombus, Triangles (trigons): scalene, equilateral, isosceles.*	*polygon, plot , coordinates, translation, quadrant, x-axis, y-axis, tessellation, origin, integer labels*	tally, vote, graph, title, label, common, popular, pictogram, represent, sort, chart, bar chart, frequency table, Axis, *continuous data , line graph, Carroll, Venn diagrams, x y axis*	

Year 4 NC objectives (linked to progression maps)

Number – number and place value	Number – addition and subtraction	Number – multiplication and division	Number – fractions	Measurement	Geometry – properties of shapes	Geometry – Position & direction	Statistics	Algebra
COUNTING • count backwards through zero to include negative numbers • count in multiples of 6, 7, 9, 25 and 1 000 • find 1 000 more or less than a given number COMPARING • order and compare numbers beyond 1000 • *compare numbers with the same number of decimal places up to two decimal places (copied from Fractions)* IDENTIFY, REPRESENT, ESTIMATE • identify, represent and estimate numbers using different representations • 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.	MENTAL CALCULATIONS - WRITTEN METHODS add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate INVERSE, ESTIMATE, CHECK estimate and use inverse operations to check answers to a calculation	MULTIPLICATION & DIVISION FACTS *count in multiples of 6, 7, 9, 25 and 1 000* (copied from Number and Place Value) recall multiplication and division facts for multiplication tables up to 12 × 12 MENTAL CALCULATIONS 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	COUNTING count up and down in hundredths RECOGNISE recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten COMPARE FRACTIONS - COMPARE DECIMALS compare numbers with the same number of decimal places up to two decimal places	COMPARE AND ESTIMATE estimate, compare and calculate different measures, including money in pounds and pence *(also included in Measuring)* MEASURE & CALCULATE estimate, compare and calculate **different measures,** including **money in pounds and pence** (appears also in Comparing) measure and calculate the **perimeter** of a rectilinear figure (including squares) in centimetres and metres	IDENTIFY SHAPES AND PROPERTIES identify lines of symmetry in 2-D shapes presented in different orientations DRAW & CONSTRUCT complete a simple symmetric figure with respect to a specific line of symmetry COMPARE & CLASSIFY compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes	POSITION & DIRECTION • describe positions on a • 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon	INTERPRET, CONSTRUCT & PRESENT interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs PROBLEM SOLVING solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs	EQUATIONS - FORMULAE *Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit. (Copied from NSG measurement)*

Number – number and place value	Number – addition and subtraction	Number – multiplication and division	Number – fractions	Measurement	Geometry – properties of shapes

READ & WRITE 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 UNDERSTAND PLACE VALUE 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* *(copied from Fractions)* ROUNDING • round any number to the nearest 10, 100 or 1 000 • *round decimals with one decimal place to the nearest whole number* *(copied from Fractions)*	INVERSE, ESTIMATE, CHECK *estimate and use inverse operations to check answers to a calculation* (copied from Addition and Subtraction)	recognise and use factor pairs and commutativity in mental calculations (appears also in Properties of Numbers) WRITTEN METHODS multiply two-digit and three-digit numbers by a one-digit number using formal written layout PROPERTIES OF NUMBERS *recognise and use factor pairs and commutativity in mental calculations (copied from mental calculation)* INVERSE, ESTIMATE, CHECK *estimate and use inverse operations to check answers to a calculation* (copied from Addition/Subtraction	ROUNDING round decimals with one decimal place to the nearest whole number EQUIVALENCE • recognise and show, using diagrams, families of common equivalent fractions • recognise and write decimal equivalents of any number of tenths or hundredths • recognise and write decimal equivalents to $^1/_4$; $^1/_2$; $^3/_4$ ADD & SUBTRACT FRACTIONS add and subtract fractions with the same denominator (YR5)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. $^2/_5 + ^4/_5 = ^6/_5 = 1^1/_5$) (YR5) MULTIPLY FRACTIONS multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams	find the area of rectilinear shapes by counting squares TELLING THE TIME read, write and convert time between analogue and digital 12 and 24-hour clocks *(appears also in Converting)* solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days *(appears also in Converting/ telling time)* CONVERTING 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 *(appears also in Converting)*	ANGLES identify acute and obtuse angles and compare and order angles up to two right angles by size

PROBLEM SOLVING OBJECTIVES

Number – number and place value	**Number – addition and subtraction**	**Number – multiplication and division**	**Number – fractions**	**Measurement**	**Geometry – properties of shapes**	**Geometry – Position & direction**	**Statistics**	**Algebra**
solve number and practical problems that involve all of the above and with increasingly large positive numbers	solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why	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	solve simple measure and money problems involving fractions and decimals to two decimal places.	solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days *(appears also in problem solving/ telling time)* solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days *(appears also in Converting/ telling time)*				
Missing numbers/ information Odd one out True/false Explain how (give a reason and an example) Prove it				How many more/less Use different representations Use less familiar vocabulary How do you know it is wrong? 2/3 step problems Extra (not relevant) info.				

NRICH Problems

Number – number and place value	Number – addition and subtraction	Number – multiplication and division	Number – fractions	Measurement	Geometry – properties of shapes	Geometry – Position & direction	Statistics
What Distance? **	Roll These Dice **	os and Zepts *		Discuss and Choose *	Let Us Reflect *	Coordinate Challenge *	Plants **
Ordering Journeys **	Amy's Dominoes **	emainders **	Fractional Triangles *	Torn Shapes *	Stringy Quads **	Eight Hidden Squares **	Venn Diagrams (I) *
Representing Numbers *	Money Bags **	arrying Cards *	Fractional Wall *	Twice as Big? (I) *	Counters in the Middle *	A Cartesian Puzzle *	More Carroll Diagrams *
he Deca Tree *	Sealed Solution **	ultiples Grid (I) **	Bryony's Triangle *		Symmetry Challenge ***		
he Thousands Game *	Fifteen Cards *	ultiplication Square Jigsaw (I) *			Reflector ! Rotcelfer ***		
our-digit Targets *		hape Times Shape *	Chocolate **		School Fair Necklaces **		
ice or Nasty (G) *		he Remainders Game (G)	Fractions in a Box **		Four Triangles Puzzle (I) *		
icey Operations (G) *		mes Tables Shifts (I) *	Andy's Marbles **		Cut it Out ***		
icey Operations in Line		able Patterns Go Wild! **			Shapes on the Playground **		
Reasoned Rounding *		ght the Lights Again (I) **			Nine-pin Triangles (I) *		
		et Us Divide! *			What Shape? *		
		atisfying Four Statements *			Quad Match **		
		our Go (G) **			Sorting Logic Blocks *		
		ultiply Multiples 1 *					
		ultiply Multiples 2 *					
		ultiply Multiples 3 *					

Other resources

White Rose maths RPS
Third space learning
Twinkl challenges
Testbase

(WODNB) WhIch One Does not Belong: https://wodb.ca/numbers.html