Maths skills overview and progression chart- Year 3

Y3	N**umber – number and place value**	**Number – addition and subtraction**	**Number – multiplication and division**	**Number – fractions**	**Measurement**	**Geometry – properties of shapes**	**Geometry – Position & direction**	**Statistics**
Focus/ Number size	up to 1000	Up to 3 digits	2 digits by 1 digit	denominators up to 12	**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:** polyhedral: cube, cuboid, tetrahedron, pyramids, prisms, sphere, semi-sphere, cylinder, cone		Scale: 1, 2, 5,10
Key method	Partitioning	column addition column subtraction	Array grid Empty grid	Bar model: emphasise link to division (1/2 = 1 ÷ 2)	Number line for conversions			Bar and pictograms How many more?
Representations	Partition Part whole models Bar model Number line Base Ten Place value counters Missing numbers			Partitioned 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		bar chart, tally chart, table, pictogram,

Mental maths	10/100 more & less Partition/ regroup non/canonically (2/3 digits) Counting from 0 in 4,8,50,100	Subitising (up to 20) Number bonds to 20 Add 2 and 3 digit number Subtract 2 and 3 digit numbers	Doubling Halving number to 100 Times facts (28 in 3 minutes)	Count in tenths Add/ subtract fractions	Add/ subtract time (1 hour, ½ and ¼ hour) Convert between 24 and 12 hour Recall basic conversions for length, mass, capacity, tim	Name 2D and 3D shapes and their properties.		

Yr 3 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**
even, odd, greater/less, < > , =, partition, place value, equal, recombine, digits, compare, numeral, figure	add, more, plus, make, sum, total, altogether, Column addition, exchange, commutative, addend subtract, minus, take away, fewer, difference, less, Column subtraction,	times, , multiply, repeated addition, lots, groups of, double, array, commutative, product, multiple share, group, divide, equal, repeated subtraction, half, remainder, left over,	Compare, order, whole, half, quarters, , equal equivalent, Numerator, denominator, Unit fraction, non-unit fraction, eighths	capacity, length, morning, afternoon, midnight, noon, half past, quarter past, seconds ,o'clock, minutes, hours, day, months, scales, weight, heavier/lighter, mm/cm/m, m/km, g/kg, ml/l, £/p, Roman numerals am/pm, 12 hour/24 hour, Leap year, perimeter	2D, 3D, angle, side, corner, face, vertices, curved, straight, Greater/less, symmetry perpendicular, parallel, horizontal, vertical, clockwise, anti-clockwise, full/ half/quarter turn, degrees, right angle, acute, obtuse,90°,	clockwise, anti-clockwise, full/ half/quarter turn, straight,	tally, pictogram, table vote, graph, title, label, common, popular, represent, sort, chart, bar chart, frequency table, Carroll Venn, Axis, diagram,

Year 3 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**
COUNTING count from 0 in multiples of 4, 8, 50 and 100 find 10 or 100 more or less than a given number COMPARING compare and order numbers up to 1000 IDENTIFY, REPRESENT, ESTIMATE identify, represent and estimate numbers using different representations READ & WRITE read and write numbers up to 1 000 in numerals and in words *tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks (copied from Measurement)*	MENTAL CALCULATIONS add and subtract numbers mentally, including: * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds WRITTEN METHODS add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction INVERSE, ESTIMATE, CHECK estimate the answer to a calculation and use inverse operations to check answers	MULTIPLICATION & DIVISION FACTS *count from 0 in multiples of 4, 8, 50 and 100* (copied from Number and Place Value) recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables MENTAL CALCULATIONS 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 (appears also in Written Methods) WRITTEN METHODS 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 *(also appears in Mental Methods)*	COUNTING count up and down in tenths RECOGNISE recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators recognise that tenths arise from dividing an object into 10 equal parts and in dividing one – digit numbers or quantities by 10. recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators COMPARE compare and order unit fractions, and fractions with the same denominators	COMPARE AND ESTIMATE compare durations of events, for example to calculate the time taken by particular events or tasks 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 (also appears in Telling the Time) MEASURE & CALCULATE measure, compare, add and subtract: **lengths** (m/cm/mm); **mass** (kg/g); **volume/capacity** (l/ml) measure the **perimeter** of simple 2-D shapes add and subtract amounts of **money** to give change, using both £ and p in practical contexts	IDENTIFY - DRAW & CONSTRUCT draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them COMPARE - ANGLES 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 turn and 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		INTERPRET, CONSTRUCT & PRESENT interpret and present data using bar charts, pictograms and tables 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.(also appears in Problem solving)

Number – number and place value	Number – addition and subtraction	Number – multiplication and division	Number – fractions	Measurement	Geometry – properties of shapes	Geometry – Position & direction	Statistics
<u>UNDERSTAND PLACE VALUE</u> recognise the place value of each digit in a three-digit number (hundreds, tens, ones)		<u>INVERSE, ESTIMATE, CHECK</u> *estimate the answer to a calculation and use inverse operations to check answers (copied from Addition and Subtraction)*	<u>EQUIVALENCE</u> recognise and show, using diagrams, equivalent fractions with small denominators <u>ADD & SUBTRACT FRACTIONS</u> add and subtract fractions with the same denominator within one whole (e.g. $^{5}/_{7} + {}^{1}/_{7} = {}^{6}/_{7}$)	<u>TELLING THE TIME</u> 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, hours and o'clock; use vocabulary such as a.m./p.m., morning, afternoon, noon and midnight *(also appears in Comparing and Estimating)* <u>CONVERTING</u> know the number of seconds in a minute and the number of days in each month, year and leap year			

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 problems and practical problems involving these ideas.	solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction	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 that involve all of the above				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.(also appears in Interpret)	
Missing numbers/ information Odd one out True/false Extra (not relevant) info.				How many more/less Use different representations Use less familiar vocabulary How do you know it is wrong? 2 step problems				

Yr 3 Problem solving

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	Algebra
Which Scripts? *	Buying a Balloon *	Music to My Ears *	Fraction Match *	Watch the Clock ***	A Puzzling Cube *		Real Statistics *	
Coded Hundred Sc	Super Shapes *	Ordering Cards *	Matching Fractions *	Wonky Watches **	Square Corners *		The Car That Pass	
Number Difference	Got It (I) **	Which Symbol? *		Oh! Harry! **	The Third Dimension ***		Class 5's Names *	
Magic Vs *	Make 37 **	A Square of Numbers (I) *		Olympic Starters *	Building Blocks *		The Domesday Pr	
Number Match *	A Mixed-up Clock *	What's in the Box? *		Car Journey *	Board Block Challenge (I)		If the World Were	
Take Three Numbe	Finding Fifteen **	What Do You Need? *		Oh! Harry! **	Overlapping Again **		Our Sports *	
	Strike it Out (G) *	How Do You Do It? *		Olympic Starters *	Arranging Cubes **		Going for Gold *	
	Three Neighbours **	Follow the Numbers *		Car Journey *	Stick Images *		Now and Then **	
	Dice in a Corner ***	Journeys in Numberland			Triple Cubes *			
	Play to 37 (G) *	This Pied Piper of Hameli			Inky Cube ***			
	Build it Up *				Move Those Halves **			
					Seeing Squares (I) *			
					National Flags *			

Other resources

White Rose maths RPS
Third space learning
Twinkl challenges
Testbase

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