

Mathematics Progression at Porters Grange

<u>Years 1 – 6</u>

White R©se Maths	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Place Value Number	(Within 10)>Sorting objects>Counting objects>Counting objects>Representing objects>Recognise numbersas wordsCount on from any number>1 more>Count backwards within 10>1 less>Compare groups by matching>Fewer, more, same>Less than, greater than, equal to>Order objects and numbers>The number line (Within 20)>Count within 20>Understand 11, 12 and 13>Understand 14, 15 and 16>Understand 17, 18 and 19	 Numbers to 20 Count objects to 100 by making 10's Recognise tens and ones Use a place value chart Partition numbers to 100 Write numbers to 100 in words Flexibly partition numbers to 100 Write numbers to 100 in expanded form 10's on the number line to 100 10's and 1's on a number line to 100 Estimate numbers on a number line Compare objects Compare numbers Order objects and numbers Count in 2's, 5's and 10's Count in 3's 	 Represent numbers to 100 Partition numbers to 100 Number line to 100 Hundreds Represent numbers to 1,000 Partition numbers to 1,000 Flexible partitioning numbers to 1,000 Hundreds, tens and ones Find 1, 10 or 100 more or less Number line to 1,000 Estimate on a number line to 1,000 Compare numbers to 1,000 Order numbers to 1,000 Count in 50's 	 Represent numbers to 1,000 Partition numbers to 1,000 Number line to 1,000 Thousands Represent Numbers to 10,000 Partition numbers to 10,000 Flexible portioning of numbers to 10,000 Find 1, 10, 100 and 1,000 more or less Number line to 10,000 Estimate on a number line to 10,000 Compare numbers to 10,000 Compare numbers to 10,000 Order numbers to 10,000 Roman numerals Round to the nearest 10 	 Roman numerals to 1,000 Numbers to 10,000 Numbers to 100,000 Numbers to 1,000,000 Read and write numbers to 1,000,000 Rewars of 10 10/100/1,000/ 10,000/ 100,000 more or less Partition numbers to 1,000,000 Number line to 1,000,000 Compare and order numbers to 100,000 Compare and order numbers to 1,000,000 Round to the nearest 10, 100 or 1,000 Round within 100,000 Round within 100,000 Round within 1,000,000 	 Numbers to 1,000,000 Numbers to 10,000,000 Read and write numbers to 10,000,000 Powers of 10 Number line to 10,000,000 Compare and order any integers Round any integer Negative numbers

<u>г</u>	Understand 20			Bound to the		
				Round to the		
	1 more and 1 less			nearest 100		
	The number line to			Round to the		
	20			nearest 1,000		
	Estimate on a			Round to the		
	number line to 20			nearest 10, 100 or		
	Compare numbers to			1,000		
	20					
	Order numbers to 20					
	<u>(Within 50)</u>					
	Count from 20 to 50					
	20, 30, 40 and 50					
	Count by making					
	groups of tens					
	Groups of tens and					
	ones					
	Partition into tens					
	and ones					
	The number line to					
	50					
	Estimate on a					
	number line to 50					
	1 more, 1 less					
	<u>(Within 100)</u>					
	Count from 50 to 100					
	Tens to 100					
	Partition into tens					
	and ones					
	The number line to					
	100					
	1 more, 1 less					
	Compare numbers					
	with the same					
	number of tens					
	Compare any two					
	numbers					
Addition and	<u>(Within 10)</u>	Bonds to 10	Apply number	Add and subtract	Mental strategies	Add and
Subtraction	Introduce parts and	Fact families –	bonds within 10	1's, 10's, 100's	Add whole	subtract
	wholes	addition and	Add and subtract	and 1,000's	numbers with more	integers
	Part-whole model	subtraction bonds	1's	Add up to two 4-	than four digits	Solve multi-
Number	Write number	within 20	Add and subtract	digit numbers –	Subtract whole	step problems
	sentences	Related facts	10's	no exchange	numbers with more	Oder of
	Fact families –	Bonds to 100	Add and subtract	Add two 4-digit	than four digits	operations
	addition facts	(tens)	100's	numbers – one	Round to check	Mental
	Number bonds within	Add and subtract	Spot the pattern	exchange	answers	calculations
	10	1's	Add 1's across a	Add two 4-digit		and
		Add by making 10	10	numbers – more		estimation

	 Systematic number bonds within 10 Number bonds to 10 Addition – Add together Addition problems Find a part Subtraction – Find a part Fact families – the eight facts Subtraction – take away/cross out – how many left? Subtraction – take away – how many left? Subtraction on a number line Add or subtract 1 or 2 (Within 20) Add by counting on within 20 Add ones using number bonds Find and make number bonds to 20 Doubles Near doubles Subtraction – finding the difference Related facts Missing number problems 	 Add three 1-digit numbers Add to the next 10 Add across a 10 Subtract across 10 Subtract from a 10 Subtract a 1-digit number from a 2- digit number (across a 10) 10 more, 10 less Add and subtract 10's Add 2-digit numbers (not across a ten) Add 2-digit numbers (across a ten) Subtract 2-digit numbers (not across a ten) Subtract 2-digit numbers (across a ten) Mixed addition and subtraction Compare number sentences Missing number problems 	 Add 10's across a 100 Make connections Add two numbers (no exchange) Subtract two numbers (no exchange) Add two numbers (across a 10) Add two numbers (across a 100) Subtract two numbers (across a 10) Subtract two numbers (across a 100) Subtract two numbers (across a 100) Add 2-digit and 3- digit numbers Subtract a 2-digit number from a 3- digit number Complements to 100 Estimate answers Inverse operations Make decisions 	than one exchange Subtract two 4- digit numbers – no exchange Subtract two 4- digit numbers – one exchange Subtract two 4- digit numbers – more than one exchange Efficient subtraction Estimate answers Checking strategies	 Inverse operations (addition and subtraction) Multi-step addition and subtraction problems Compare calculations Find missing numbers 	Reason for known facts
Multiplication and Division Number	 Count in 2s Count in 10s Count in 5s Recognise equal groups 	 Recognise equal groups Make equal groups Add equal groups 	 Multiplication – equal groups Use arrays Multiples of 2 Multiples of 5 and 	 Multiples of 3 Multiply and divide by 6 6 times-table and division facts Multiply and 	 Multiples Common multiples Factors Common factors Prime numbers Square numbers 	 Common factors Common multiples Rules of divisibility
	 Add equal groups Make arrays 		10	divide by 9	 Square numbers Cube numbers 	 Primes to 100

Make doubles	Introduce the	Sharing and	9 times-table and	Multiply by 10, 100	Square and
Make equal groups –	multiplication	grouping	division facts	and 1,000	cube numbers
grouping	symbol	Multiply by 3	The 3, 6 and 9	Divide by 10, 100	Multiply up to
Make equal groups -	Multiplication	Divide by 3	times tables	and 1,000	a 4-digit
sharing	sentences	The 3-times table	Multiply and	Multiples of 10,	number by a
	Use arrays	Multiply by 4	divide by 7	100 and 1,000	2-digit
	Make equal	Divide by 4	7 times-table and	Multiply up to a 4-	number
	groups – grouping	The 4-times table	division facts	digit number by a	> Solve
	Make equal	Multiply by 8	11 times-table	1-digit number	problems with
	groups – sharing	Divide by 8	and division facts	Multiply a 2-digit	multiplication
	The 2 times-table	The 8-times table	> 12 times-table	number by a 2-digit	Short division
	Divide by 2	The 2, 4 and 8	and division facts	number (area	Division using
	Doubling and	times-tables	Multiply by 1 and	model)	factors
	halving	Multiples of 10	0	Multiply a 2-digit	Introduction
	Odd and even	Related	Divide a number	number by a 2-digit	to long
	numbers	calculations	by 1 and itself	number	division
	The 10 times-table	Reasoning about	> Multiply three	Multiply a 3-digit	Long division
	Divide by 10	multiplication	numbers	number by a 2-digit	with
	The 5-times table	Multiplying a 2-	Factor pairs	number	remainders
	Divide by 5	digit number by a	 Use factor pairs 	Multiply a 4-digit	> Solve
	 The 5 and 10 	1-digit number –	 Multiply by 10 	number by a 2-digit	problems with
	times-tables	no exchange	 Multiply by 10 Multiply by 100 	number	division
		 Multiplying a 2- 	 Divide by 10 	 Solve problems 	Solve multi-
		digit number by a	 Divide by 10 Divide by 100 	with multiplication	step problems
		1-digit number –	 Related facts – 	Short division	 Oder of
		with exchange	multiplication and	 Divide a 4-digit 	operations
		 Link 	division	number by a 1-digit	 Mental
		multiplication and	 Informal written 	number	calculations
		division	methods for	Divide with	and
		 Divide a 2-digit 	multiplication	remainders	estimation
		number by a 1-	 Multiply a 2-digit 	 Efficient division 	 Reason for
		digit number – no	number by a 1-	 Solve problems 	known facts
			-	-	Known jucts
		exchange ➤ Divide a 2-digit	digit number ➤ Multiply a 3-digit	with multiplication and division	
		number by a 1-			
			number by a 1-		
		digit number –	digit number		
		flexible	Divide a 2-digit		
		partitioning	number by a 1-		
		Divide a 2-digit	digit number (1)		
		number by a 1-	Divide a 2-digit		
		digit number –	number by a 1-		
		with remainders	digit number (2)		
		Scaling	Divide a 3-digit		
		How many ways?	number by a 1-		
			digit number		
			Correspondence		
			problems		

				➢ Efficient		
Fractions <i>Number</i>	 Recognise half an object or shape Find a half of an object or shape Recognise a half of a quantity Find a half of a quantity Recognise a quarter of an object or shape Find a quarter of an object or shape Find a quarter of an object or shape Recognise a quarter of a quantity Find a quarter of an object or shape Find a quarter of an object or shape Find a quarter of a quarter of a quantity 	 Introduction to parts and whole Equal and unequal parts Recognise a half Find a half Find a half Recognise a quarter Find a quarter Recognise a third Find a third Find the whole Unit fractions Non-unit fractions Recognise the 	 Understand the denominators of unit fractions Compare and order unit fractions Understand the numerators of non-unit fractions Understand the whole Compare and order non-unit fractions Fractions Fractions and 	 Efficient multiplication Understand the whole Count beyond 1 Partition a mixed number Number lines with mixed numbers Compare and order mixed numbers Understand improper fractions Convert mixed numbers to 	 Find fractions equivalent to unit fractions Find fractions equivalent to non- unit fractions Recognise equivalent fractions Convert improper fractions to mixed numbers Convert mixed numbers to improper fractions Compare fractions 	 Equivalent fractions and simplifying Equivalent fractions on a number line Compare and order (denominator) Compare and order (numerator) Add and subtract simple
	quantity	 Recognise the equivalence of a half and two quarters Recognise three-quarters Find three-quarters Count in fractions 	 Fractions and scales Fractions on a number line Count in fractions on a number line Equivalent fractions on a number line 	improper fractions Convert improper fractions to mixed numbers Equivalent fractions on a number line	 Compare fractions less than 1 Order fractions less than 1 Compare and order fractions greater than 1 Add and subtract fractions with the 	 simple fractions Add and subtract any two fractions Add mixed numbers Subtract mixed
		up to a whole	 Equivalent fractions as bar models Add fractions Subtract fractions 	 Equivalent fraction families Add two or more fractions Add fractions and 	same denominator Add fractions within 1 Add fractions with a total greater than	numbers Multi-step problems Multiply fractions by
			 Partition the whole Unit fractions of a set of objects Non-unit fractions of a set of objects Reasoning with fractions of an amount 	 mixed numbers Subtract two fractions Subtract from whole amounts Subtract from mixed numbers 	 Add to a mixed number Add two mixed numbers Subtract fractions Subtract from a mixed number Subtract from a mixed number – breaking the whole Subtract two mixed numbers Multiply a unit fraction by an 	 integers Multiply fractions by fractions Divide a fraction by an integer Divide any fraction by an integer Mixed questions with fractions Fraction of an amount

			Multiply a non-unit fraction by an integer Multiply a mixed number by an integer Calculate a fraction of a quantity Find the whole Use fractions as operators		Fraction of an amount – find the whole Fractions as division Fractions to percentages Equivalent fractions, decimals and percentages Order fractions, decimals and percentages
Decimals Number		 Tenths as a fraction Tenths as decimals Tenths on a place value chart Tenths on a number line Divide a 1-digit number by 10 Divide a 2-digit number by 10 Hundredths as fractions Hundredths as decimals Hundredths on a place value chart Divide a 1 or 2-digit number by 100 Make a whole and tenths Make a whole with hundredths Flexibly partition decimals Compare decimals Order decimals 	Decimals up to 2 decimal places Equivalent fractions and decimals (tenths) Equivalent fractions and decimals (hundredths) Equivalent fractions and decimals Thousandths as fractions Thousandths as decimals Thousandths on a place value chart Order and compare decimals (same number of decimal places) Order and compare any decimals with up to 3 decimal places Round to the nearest whole number Round to 1 decimal place	A A A A A A A A A A A A A A A A A A A	Place value within 1 Place value – integers and decimals Round decimals Add and subtract decimals Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply decimals by integers Divide decimals by integers Multiply and divide decimals in context Decimals and fraction equivalents Order fractions, decimals and percentages

		 Round to the nearest whole number Halves and quarters as decimals 	 Use known facts to add and subtract decimals within 1 Complements to 1 Add and subtract decimals across 1 Add decimals with the same number 	
			of decimal places Subtract decimals with the same number of decimal places Add decimals with different numbers of decimal places Subtract decimals	
			 with different numbers of decimal places Efficient strategies for adding and subtracting decimals Decimal sequences 	
Percentages			 Multiply by 10, 100 and 1,000 Divide by 10, 100 and 1,000 Multiply and divide decimals – missing values Understand percentages 	Understand percentages
Number			 Percentages as fractions Percentages as decimals Equivalent fractions, decimals and percentages 	 Percentage of amount – one step Percentage of amount – multi step Percentages – missing values
				Equivalent fractions, decimals and percentages

					Order fractions, decimals and percentages
Negative numbers			 Understand negative numbers Count through zero in 1s 		
Number			 Count through zero in multiples Compare and order negative numbers Find the difference 		
Ratio Number				A A A A A A A A	Add or multiply? Use ratio language Introduction to the ratio symbol Ratio and fractions Scale drawing Use scale factors Similar shapes Ratio problems Proportion problems
Algebra Number				A A A A A A A A	Recipes 1-step function machines 2-step function machines Form expressions Substitution Formulae Form equations Solve 1-step equations Solve 2-step equations

Length and Height (Year 1 and 2) Volume (Year 1) Length and Perimeter (Year 3 and 4) Area	 Compare lengths and heights Measure length using objects Measure length in centimetres Full and empty Compare volume 	 Measure in centimetres Measure in metres Compare heights and lengths Order lengths and heights Four operations with lengths and heights Four operations with volume and capacity 	 Measure in metres and centimetres Measure in millimetres Measure in centimetres and millimetres Metres, centimetres and millimetres Equivalent lengths (metres and centimetres) Compare lengths Add lengths 	 Measure in kilometres and metres Equivalent lengths (kilometres and metres) Perimeter on a grid Perimeter of a rectangle Perimeter of rectilinear shapes Find missing lengths in rectilinear shapes 	 Perimeter of rectangles Perimeter of rectilinear shapes Perimeter of polygons Area of rectangles Area of compound shapes Estimate area Cubic centimetres Compare volume Estimate volume Estimate capacity 	 Find pairs of values Solve problems with two unknowns Shapes – same area Area and perimeter Area of a triangle – counting squares Area of a right-angled triangle Area of any triangle Area of a parallelogram Volume –
(Year 4) Perimeter and Area (Year 5) Volume (Year 5)			 Subtract lengths What is perimeter? Measure perimeter Calculate perimeter 	 Calculate the perimeter of rectilinear shapes Perimeter of regular polygons Perimeter of polygons What is area? Count squares Make shapes Compare areas 		counting cubes ➤ Volume of a cuboid
Area, Perimeter and Volume (Year 6) Measurement						
Mass, Capacity	 Heavier and lighter Measure mass Compare mass Measure capacity 	 Compare mass Measure in grams Measure in kilograms 	 Use scales Measure mass in grams 			

and Temperature Measurement	➢ Compare capacity	 Four operations with mass Compare volume and capacity Measure in millilitres Measure in litres Four operations with volume and capacity Temperature 	 Measure mass in kilograms and grams Equivalent masses (kilograms and grams) Compare mass Add and subtract mass Add and subtract mass Measure capacity and volume in millilitres Measure capacity and volume in litres and millilitres Equivalent capacities and volumes (litres and millilitres) Compare capacity and volume Add and subtract capacities and volumes (litres and millilitres) Compare capacity and volume Add and subtract capacity and volume 			
Converting Units					 Kilograms and kilometres Millimetres and millilitres 	 Metric measures Convert metric
Measurement					 Convert unit of length Convert between metric and imperial units Convert units of time Calculate with timetables 	measures ➤ Calculate with metric measures ➤ Miles and kilometres Imperial measures
Time Measurement	 Before and after Days of the week Months of the year Hours, minutes and seconds Tell the time to the hour 	 O'Clock and half past Quarter past and quarter to Tell time past the hour Tell time to the hour 	 Roman numerals to 12 Tell the time to 5 minutes Tell the time to the minute Read time on a digital clock 	 Years, months, weeks and days Hours, minutes and seconds Convert between analogue and digital times 		

	Tell the time to the half hour	 Tell the time to five minutes Minutes in an hour Hours in a day 	 Use a.m and p.m Years, months and days Days and hours Hours and minutes – use start and end times Hours and minutes – use durations Minutes and seconds Units of time Solve problems with time 	 Convert to the 24 hour clock Convert from the 24 hour clock 		
Money Measurement	 Unitising Recognise coins Recognise notes Count in coins 	 Count money – pence Count money – pounds (notes and coins) Count money – pounds and pence Choose notes and coins Make the same amount Compare amounts of money Calculate with money Making a pound Find change Two-step problems 	 Pounds and pence Convert pounds and pence Add money Subtract money Find change 	 Write money using decimals Convert between pounds and pence Compare amounts of money Estimate with money Calculate with money Solve problems with money 		
Shape Geometry	 Recognise and name 3-D shapes Sort 3-D shapes Recognise and name 2-D shapes Sort 2-D shapes Patterns with 2-D and 3-D shapes 	 Recognise 2-D and 3-D shapes Count sides on 2-D shapes Count vertices on 2-D shapes Draw 2-D shapes Lines of symmetry on shapes Use lines of symmetry to complete shapes Sort 2-D shapes 	 Turns and angles Right angles Compare angles Measure and draw accurately Horizontal and vertical Parallel and perpendicular Recognise and describe 2-D shapes Draw polygons 	 Understand angles as turns Identify angles Compare and order angles Triangles Quadrilaterals Polygons Lines of symmetry Complete a symmetric figure 	 Understand and use degrees Classify agles Estimate angles Measure angles up to 180 Draw lines and angles accurately Calculate angles around a point Calculate angles on a straight line 	 Measure and classify angles Calculate angles Vertically opposite angles Angles in a triangle Angles in a triangle – special cases

		 Count faces on 3-D shapes Count edges on 3- D shapes Count vertices on 3-D shapes Sort 3-D shapes Make patterns with 2-D and 3-D shapes 	 Recognise and describe 3-D shapes Make 3-D shapes 		 Lengths and angles in shapes Regular and irregular polygons 3-D shapes 	 Angles in a triangle – missing angles Angles in quadrilaterals Angles in polygons Circles Draw shapes accurately Nets of 3-D shapes
Position and Direction Geometry	 Describe turns Describe position – left and right Describe position – forwards and 	 Language of position Describe movement Describe turns 		 Describe position using coordinates Plot coordinates Draw 2-D shapes on a grid 	 Read and plot coordinates Problem solving with coordinates Translation 	 The first quadrant Read and plot points in four quadrants
	 backwards Describe position – above and below Ordinal numbers 	 Describe movement and turns Shape patterns with turns 		 Translate on a grid Describe translation on a grid 	 Translation with coordinates Lines of symmetry Reflection in horizontal and vertical lines 	 Solve problems with coordinates Translations Reflections
Statistics		 Make tally charts Tables Block diagrams Draw pictograms (1-1) Interpret pictograms (1-1) Draw pictograms (2, 5 and 10) Interpret pictograms (2, 5 and 10) 	 Interpret pictograms Draw pictograms Interpret bar charts Draw bar charts Collect and represent data Two-way tables 	 Interpret charts Comparison, sum and difference Interpret line graphs Draw line graphs 	 Draw line graphs Read and interpret line graphs Read and interpret tables Two-way tables Read and interpret timetables 	 Line graphs Dual bar charts Read and interpret pie charts Pie charts with percentages Draw pie charts The mean