Progression of skills: Maths - Fractions, decimals, percentages

Curriculum intent:

At Shawclough, our intent for Mathematics is to teach a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding I n each area. Our curriculum allows children to better make sense of the world around them by making connections between Mathematics and everyday life. Our policies, resources and schemes of work support our vision and clearly outline where Maths can be incorporated across different curriculum areas. The structure of the Mathematics curriculum across school shows clear progression in line with age related expectations. Teaching curriculum content in blocks allows children to explore skills and knowledge in depth and gain a secure understanding of particular subject matter. Key knowledge and skills are also revisited regularly allowing repetition to embed learning. A concrete, pictorial, abstract approach provides children with a clear structure in which they can develop their depth of understanding of mathematical concepts. We aim to ensure that Mathematics is a high profile subject which children view positively and with a 'Can do' attitude.

For the youngest children developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationship between and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding- such as using manipulative, including small pebbles and tens frames for organising counting – children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes

Intended Experiences **Nursery**	**Intended Experiences** **Reception**	**Early Learning Goal** **Maths – Numerical pattern**
To spot patterns and talk about them e.g. stripes on a scarf. To react to changes in amounts e.g in hiding and returning rhymes (two little dicky birds) To notice and arrange things in patterns To begin to understand position through words alone e.g. in front behind To begin to use vocabulary to describe the time of day e.g. morning, afternoon, evening, yesterday, tomorrow To select shapes appropriately when building To extend a pattern that has been made and create my own simple patterns (ABAB) To start to talk about upcoming events e.g. Birthdays and then talk about what happened after the event To understand in front behind, on top, next to To talk about patterns and spot errors To continue and create patterns To sequence a pattern of events using time language e.g. first, next, then. To talk about 2D and 3D shapes (using informal vocab e.g. sides, straight, round, flat) To describe a familiar route using vocab e.g. in front, behind	To understand the 'one more than/one less than' relationship between consecutive numbers · To link the number symbol (numeral) with its cardinal number value. To count to 10 by rote. To compare manipulatives (e.g. saying when one tower is bigger/smaller) To find one more/ one less using resources To continue and copy patterns To create their own patterns To subitise, recall number bonds, estimate and compare quantities and have a deep understanding of number to 10. To count to 20, knowing the teen numbers · To compare two quantities saying when one is bigger/smaller/ same To say a number that is one more/ less without resources. To spot errors in the pattern and can name a pattern e.g. ABAB To star to identify odd and even numbers linked to sharing	Verbally count beyond 20, recognising the pattern of the counting system. · Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

COUNTING IN FRACTIONAL STEPS					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
	Pupils should count in fractions up to 10, starting from any number and using the ½ and 2/4 equivalence on the number line (Non Statutory Guidance).	Count up and down in tenths.	Count up and down in hundredths.		
RECOGNISING FRACTIONS					
Recognise, find and name a half as one of two equal parts of an object, shape or quantity.	Recognise, find, name and write fractions 1/3, ¼, 2/4, or ¾ of a length, shape, set of objects or quantity.	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 that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents (appears also in Equivalence).	

Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.		Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.			
COMPARING FRACTIONS					
		Compare and order unit fractions, and fractions with the same denominators.		Compare and order fractions whose denominators are all multiples of the same number.	Compare and order fractions, including fractions>1.
COMPARING DECIMALS					
			Compare numbers with the same number of decimal places up to two decimal places.	Read, write, order and compare numbers with up to three decimal places.	Identify the value of each digit in numbers given to three decimal places.
ROUNDING INCLUDING DECIMALS					
			Round decimals with one decimal place to the nearest whole number.	Round decimals with two decimal places to the nearest whole number and to one decimal place.	Solve problems which require answers to be rounded to specified degrees of accuracy.
EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)					
	Write simple fractions e.g. ½ of 6 = 3 and	Recognise and show, using diagrams, equivalent	Recognise and show, using diagrams,	Identify, name and write equivalent	Use common factors to simplify fractions; use

	recognise the equivalence of 2/4 and ½.	fractions with small denominators.	families of common equivalent fractions.	fractions of a given fraction, represented visually, including tenths and hundredths.	common multiples to express fractions in the same denomination.
			Recognise and write decimal equivalents of any number of tenths or hundredths.	Read and write decimal numbers as fractions (e.g. 0.71 – 71/100) Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.	Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)
			Recognise and write decimal equivalents to ¼, ½, ¾ .	Recognise the per cent symbol (%) and understand that percent relates to "number of parts per hundred" and write percentages as a fraction with denominator 100 as a decimal fraction.	Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
ADDITION AND SUBTRACTION OF FRACTIONS					
		Add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7).	Add and subtract fractions with the same denominator.	Add and subtract fractions with the same denominator and multiples of the same number. Recognise mixed numbers and improper fractions and convert from one form to the	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

				other and write mathematical statements > 1 as a mixed number (e.g. 2/5 + 4/5 = 6/5 = 1 1/5)	
MULTIPLICATION AND DIVISION OF FRACTIONS					
				Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. ¼ x ½ = 1/8) Multiply one-digit numbers with up to two decimal places by whole numbers.
					Divide proper fractions by whole numbers (e.g. 1/3 ÷ 2 = 1/6)
MULTIPLICATION AND DIVISION OF DECIMALS					
					Multiply one-digit numbers with up to two decimal places by whole numbers.
			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.		Multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.

					Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places.
					Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. 3/8)
					Use written division methods in cases where the answer has up to two decimal places.
PROBLEM SOLVING					
		Solve problems that involve all of the above.	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.	Solve problems involving numbers up to three decimal places.	
			Solve simple measure and money problems involving fractions and decimals to two decimal places.	Solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those with a	

				denominator of 10 or 25.	
VISUAL FRACTIONS, DECIMALS AND PERCENTAGES POLICY					

FC: Recognising Fractions – 28, 29 FE: Fraction of a Quantity – 42, 43 FK: Calculating with Fractions - 96	FA: Counting in Fractions – 16, 17 FB: Fractions as a Number – 24 FC: Recognising Fractions – 30, 31 FE: Fraction of a Quantity – 44 FF: Equivalent Fractions – 48-50 FI: Fractions to 1 – 77, 78 FJ: Greater than 1 – 92 FK: Calculating with Fractions - 97	FA: Counting in Fractions – 18, 19 FB: Fractions as a Number – 25 FC: Recognising and Naming Unit and Non-Unit Fractions – 32-35 FD: Ordering Fractions – 37, 38 FE: Finding and Naming a Fraction of a Quantity – 45 FF: Equivalent Fractions – 51-54 FG: Decimal/Fraction/Percentage Equivalences – 62 FI: Fractions to 1 – 79-83 FJ: Fractions Greater than 1 – 93 FK: Calculating with Fractions: Addition – 98 FK: Calculating with Fractions: Subtraction – 103 FL: Division as a Fraction - 117	FA: Counting in Fractions – 20, 21 FB: Fractions as a Number – 26 FC: Recognising and Naming Unit and Non-Unit Fractions – 36 FE: Finding and Naming a Fraction of a Quantity – 46 FF: Equivalent Fractions – 55-59 FG: Decimal/Fraction/ Percentage Equivalencies – 63 FH: Common FDP Equivalencies & FDP Walls – 66 FI: Fractions to 1 – 84-88 FJ: Fractions Greater than 1 – 94 FK: Calculating with Fractions: Addition – 99 FK: Calculating with Fractions: Subtraction – 104 FL: Division as a Fraction – 118, 119	FA: Counting in Fractions – 22, 23 FB: Fractions as a Number – 27 FD: Ordering Fractions – 39, 40 FE: Finding and Naming a Fraction of a Quantity – 47 FF: Equivalent Fractions – 60 FG: Decimal/Fraction/ Percentage Equivalencies – 64, 65 FH: Common FDP Equivalencies & FDP Walls – 67-70 FI: Fractions to 1 – 89, 90 FJ: Fractions Greater than 1 – 95 FK: Calculating with Fractions: Addition – 100 FK: Calculating with Fractions: Subtraction – 105 FK: Calculating with Fractions: Multiplication – 108, 109 FK: Calculating with Fractions: Division – 112, 113 FL: Division as a Fraction – 120, 121 FM: Jump! And Remainders - 124	FF: Equivalent Fractions – 61 FH: Common FDP Equivalencies and FDP Walls – 71-76 F1: Fractions to 1 – 91 FK: Calculating with Fractions: Addition – 101, 102 FK: Calculating with Fractions: Subtraction – 106, 107 FK: Calculating with Fractions: Multiplication – 110, 111 FK: Calculating with Fractions: Division – 114 – 116 FL: Division as a Fraction – 122, 123 FM: Jump! And Remainders – 125 General Fractions Slides Vocab, defining, Types, 1 whole, wall etc – 1-15

VOCABULARY					
Fraction, equal part, equal grouping, equal sharing, parts of a whole, half, one of two equal parts, quarter, one of four equal parts.	Fraction, equivalent fraction, mixed number, numerator, denominator, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts.	Fraction, equivalent fraction, mixed number, numerator, denominator, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts. Sixths, sevenths, eighths, tenths.	Fraction, equivalent fraction, mixed number, numerator, denominator, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts. Sixths, sevenths, eighths, tenths, Hundredths, decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion.	Fraction, proper/ improper fraction, equivalent fraction, mixed number, numerator, denominator, Equivalent, reduced to, cancel, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts. Sixths, sevenths, eighths, tenths, Hundredths, thousandths, decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion, in every, for every, percentage, per cent, %	Fraction, proper/ improper fraction, equivalent fraction, mixed number, numerator, denominator, Equivalent, reduced to, cancel, equal part, equal grouping, equal sharing, parts of a whole, half, two halves, one of two equal parts, quarter, two quarters, three quarters, one of four equal parts, one third, two thirds, one of three equal parts. Sixths, sevenths, eighths, tenths, Hundredths, thousandths, decimal, decimal fraction, decimal point, decimal place, decimal equivalent proportion, in every, for every, ratio, percentage, per cent, %