Whole-School Maths Progression: Fractions, Decimals and Percentages

Fractions, Decimals and Percentages	EYFS	Statutory Curriculum Guidance *Non-Statutory Curriculum Guidance* Teacher Assessment Framework		Statutory Curriculum Guidance *Non-Statutory Curriculum Guidance*			
Counting in Fractions	Three and Four-Year-Olds Reception Early Learning Goals	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
			To count in fractions up to 10, starting from any number and using the $\frac{11}{22}$ *and* $\frac{2}{4}\frac{2}{4}$ *equivalence on the number line.*	To 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 ten.	To count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	*To extend counting from year 4, using decimals and fractions including bridging zero, for example on a number line.* *To continue to practise counting forwards and backwards in simple fractions.*	
Recognising, finding and naming Fractions		To recognise, find and name a half as one of two equal parts of an object, shape or quantity *by solving problems*. To recognise, find and name a quarter as one of four equal parts of an object, shape or quantity *by solving problems*.	To recognise, find, name, identify and write fractions $\frac{13}{13}$, $\frac{1}{4}$ $\frac{1}{4}$, $\frac{22}{44}$, $\frac{11}{22}$ and $\frac{33}{44}$ of a length, number, shape, set of objects or quantity and know that all parts must be equal parts of the whole. *To connect unit fractions to equal*	*To understand the relation between unit fractions as operators (fractions of), and division by integers.* To recognise, *understand* and use fractions as numbers: unit fractions and non-unit fractions with small denominators *as numbers on the*	*To make connections between fractions of a length, of a shape and as a representation of one whole or set of quantities.* *To know that decimals and fractions are different ways of expressing*	To identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.	

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		To connect halves and quarters to the equal sharing and grouping of sets of objects and to measures, as well as recognising and combining halves and quarters as parts of a whole.	*sharing and grouping, to numbers when they can be calculated, and to measures, finding fractions of lengths, quantities, sets of objects or shapes. They meet* $\frac{33}{44}$ *as the first example of a non-unit fraction.*	*number line (going beyond 0 -1 and relating this to measure), and deduce relations between them, such as size and equivalence.* To recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.	*numbers and proportions. To understand the relation between non-unit fractions and multiplication and division of quantities, with particular emphasis on tenths and hundredths.*		
Comparing and ordering fractions				To compare and order unit fractions, and fractions with the same denominators.		To compare and order fractions whose denominators are all multiples of the same number.	To compare and order fractions, including fractions > 1.
Adding and Subtracting Fractions				To add and subtract fractions with the same denominator within one whole *through a variety of increasingly complex problems to improve fluency.*	To add and subtract fractions with the same denominator *to become fluent through a variety of increasingly complex problems beyond one whole.*	To add and subtract fractions with the same denominator and denominators that are multiples of the same number *to become fluent through a variety of increasingly complex problems*.	To add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *starting with fractions where the denominator of one fraction is a*

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						To recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number.	*multiple of the other and progress to varied and increasingly complex problems*.
Multiplying and Dividing Fractions						*To continue to develop their understanding of fractions as numbers, measures and operators by finding fractions of numbers and quantities.* To multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	To multiply simple pairs of proper fractions, writing the answer in its simplest form *using a variety of images to support their understanding of multiplication with fractions*. To divide proper fractions by whole numbers.
Equivalents			To write simple fractions for example, $\frac{11}{22}$ of 6 = 3 and recognise the equivalence $\frac{2}{4}$ $\frac{2}{4}$ and $\frac{11}{22}$.	To recognise and show, using diagrams, equivalent fractions with small denominators.	To use factors and multiples to recognise equivalent fractions and simplify where appropriate.	To read and write decimal numbers as fractions. To recognise and use thousandths and relate them to	To recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

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					To recognise and show, using diagrams, families of common equivalent fractions. To recognise and write decimal equivalents of any number of tenths or hundredths. To recognise and write decimal equivalents to $\frac{11}{44}$, $\frac{1}{2}$ $\frac{1}{2}$, $\frac{33}{44}$.	tenths, hundredths, decimal equivalents *and measures*. To 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.	To use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
Comparing and ordering Decimals					To learn decimal notation and the language associated with it, including in the context of measurements. To represent numbers with one or two decimal places in several ways, such as on number lines.	To read, *say,* write, order and compare numbers with up to three decimal places.	To identify the value of each digit in numbers given to three decimal places.

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					To compare numbers, amounts and quantities with the same number of decimal places up to two decimal places.		
Rounding Decimals					To round decimals with one decimal place to the nearest whole number.	To round decimals with two decimal places to the nearest whole number and to one decimal place.	
Solving Problems				To solve problems that involve all of the above.	To 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. To solve simple measure and money problems involving fractions and decimals to two decimal places.	To solve problems involving numbers up to three decimal places. To *make connections between percentages, fractions and decimals and relate this to finding 'fractions of' to solve* problems which require knowing percentage and decimal equivalents of $\frac{11}{22}$, $\frac{11}{44}$	To solve problems which require answers to be rounded to specified degrees of accuracy *and checking the reasonableness of their answers*.

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						$\frac{11}{55}$, $\frac{22}{55}$, $\frac{44}{55}$ and those fractions with a denominator of a multiple of 10 or 25.	
New Vocabulary Introduced		Fraction Half Equal parts One whole Object Shape Quantity Quarter	Simple fractions Equivalent Equivalence Count	Tenths Unit fractions Non - unit fractions Numerator Denominator Compare Order Add Subtract Solve problems	Hundredths Decimal Decimal place One decimal place Two decimal places Round decimals Whole number Common equivalent Fractions Decimal equivalents Dividing Ones Tenths Hundredths Simple measure Money problems	Thousandths Multiples Three decimal places Per cent Number of parts per hundred Percentages Decimal fraction Mixed numbers Improper fraction Proper fraction Convert Mathematical statements Multiply Percentage and decimal equivalents	Common factors Common multiples Decimal fraction equivalents Simplest form