Mount Charles School

Fractions

Objective. K-Knowledge. S-Skills

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
New Vocabulary	Whole Equal One half	**Halves** **Half** **Quarter, two quarters** **Equal parts, four equal parts** **Two halves**	whole equal equal parts 1 2 fraction denominator fraction bar numerator 1/4 third 1/3 unit fraction non-unit fraction equivalent, equivalence ¾	tenth interval mixed number equivalent fraction inequality statement numerator denominator unit fraction, non-unit fraction compare and order	hundredth simplest fraction simplify improper fraction decimal decimal point equivalent decimals and fractions	common denominator thousandth one decimal place two decimal places Per cent (%) percentage Proper fractions, improper fractions, mixed numbers Half, quarter, fifth, two fifths, four fifths Ratio, proportion	common factor highest common factor lowest common multiple (LCM) lowest common denominator decree of accuracy simplify
Counting in fractional steps			*Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non Statutory Guidance)* K – whole numbers can be split into smaller parts K- the name of those parts depends on how many there are K- how half and quarter are represented	**count up and down in tenths** K- each part of a whole number which has been split into ten is called a tenth K – how a tenth is represented S – counting up and down in tenths	**count up and down in hundredths** K – how a hundredth is represented S – counting up and down in hundredths		

			K – ½ is equivalent to 2/4 S – counting in quarters S -counting in halves S – counting in quarters or halves up to 10				
Recognising fractions	**Begins to conceptually subitise larger numbers by subitising smaller groups within the number, e.g. sees six raisins on a plate as three and three**	**recognise, find and name a half as one of two equal parts of an object, shape or quantity** K – half is one of two equal parts of an object, shape or quantity K -equal means the same S – recognise half of an object, shape or quantity. S – find half of an object, shape or quantity. S – Name half of an object, shape or quantity **recognise, find and name a quarter as one of four equal parts**	**recognise, find, name and write fractions $^{1}/_{3}$, $^{1}/_{4}$, $^{2}/_{4}$ and $^{3}/_{4}$ of a length, shape, set of objects or quantity** K – the denominator denotes how many pieces the set of objects or quantity has been split into K – 1/3 equals one third K - ¼ equals one quarter S – recognise 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity. S – find 1/3, ¼. 2/4 and ¾ of a length, shape, set of objects or quantity S – name 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity.	**recognise, find and write fractions of a discrete set of objects: unit fractions (1/a) and non-unit fractions (2/a etc) with small denominators** K – vocab – unit fraction, non-unit fraction K – vocab – numerator and denominator K – how to split a set of objects equally S – recognise fractions of a set of objects S – find fractions of a set of objects S - write fractions of a set of objects **recognise that tenths arise from dividing an object into 10 equal parts and in dividing**	**recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten** K – that dividing an object by one hundred and dividing tenths by ten both give hundredths K – fraction and decimal notation for tenths and hundredths K – know the value of the digits when writing ones, tenths and hundredths S -dividing by 100 and 10 S – writing tenths and hundredths as fractions and decimals	**recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents** (appears also in Equivalence) K -how to read decimals numbers to 3 decimal places K – the relationship between tenths, hundredths and thousandths K – how to divide by 1000 S – recognise thousandths S – use thousandths S – relate thousandths to tenths and hundredths.	

		of an object, shape or quantity K – a quarter is one of four equal parts of an object, shape or quantity K -equal means the same S – recognise quarter of an object, shape or quantity. S – find a quarter of an object, shape or quantity. S – Name a quarter of an object, shape or quantity		**one – digit numbers or quantities by 10.** K – how to divide an object into ten equal parts K – how to divide a one-digit number or quantity by 10 S -dividing an object into ten equal parts S – dividing a number or object by 10 **recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators** K – how to read and write fractions S – recognise and use fractions as numbers			
Comparing fractions				**compare and order unit fractions, and fractions with the same denominators** K – unit fractions S – compare unit fractions and fractions with the same denominator		**compare and order fractions whose denominators are all multiples of the same number** K – multiplication and division facts to 12x12 K – multiples of numbers	**compare and order fractions, including fractions >1** See year 5 K – value of fractions >1 S – compare fractions, including fractions >1

				S – order unit fractions and fractions with the same denominator		K – how to simplify fractions S – recognise multiples of the same number S – simplify fractions S – compare fractions whose denominators are all multiples of the same number S – order fractions whose denominators are all multiples of the same number	S- order fractions, including fractions >1

Comparing decimals					**compare numbers with the same number of decimal places up to two decimal places** K – place value of numbers with up to two decimal places K - size of decimal number depends on value of the digits not the number of digits after the decimal point K – hundredths are smaller than tenths K – how to compare numbers using <, > and = S – 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** K- place value of numbers with up to three decimal places K – how to group numbers to read them K – decimal numbers are read as singular digit rather than a group of numbers K - Thousandths are smaller than hundredths K - size of decimal number depends on value of the digits not the number of digits after the decimal point S – read and write numbers with up to three decimal places S- to order and compare numbers with up to three decimal places	**identify the value of each digit in numbers given to three decimal places** K – place value of numbers given to three decimal places S – identify the value of each digit in a number given to three decimal places

Rounding including decimals					**round decimals with one decimal place to the nearest whole number** K – how a whole number can be broken down into tenths S- place decimal numbers on number line S – 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** K – how tenths can be broken down into hundredths K – ordering decimals S – 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** K – real-life situations where rounding decimals is appropriate S – understanding the knowledge and skills required to solve the problem S – rounding any number to a specified degree of accuracy
Equivalence (including fractions, decimals and percentages)			**write simple fractions e.g. $^{1}/_{2}$ of 6 = 3 and recognise the equivalence of $^{2}/_{4}$ and $^{1}/_{2}$.** K – the denominator denotes how many groups the number/object is split into K – the numerator denotes how many of the groups there are	**recognise and show, using diagrams, equivalent fractions with small denominators** K – how to represent a fraction with a diagram K – to find equivalent fractions the diagrams drawn to show the fractions must be the same	**recognise and show, using diagrams, families of common equivalent fractions** K – there can be more than one equivalent fraction S - recognise families of common equivalent fractions S – show, using diagrams, families of common	**identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths** K – multiples of numbers K – how to find equivalent fractions using multiples K – how to read and represent tenths and hundredths	**use common factors to simplify fractions; use common multiples to express fractions in the same denomination** K – what a factor and common factor is K – how to find common factors of a number K – what a common multiple is K – how to find common multiples

			K – how to write fractions K – how to divide a group of objects or a number K – some fractions can be represented in more than one way S – write simple fractions of an amount S – split a number or group of objects into a given amount S – recognise the equivalence of 2/4 and ½	S – represent a fraction with a diagram S – recognise equivalent fractions with small denominators S – show equivalent fractions with small denominators	equivalent fractions **recognise and write decimal equivalents of any number of tenths or hundredths** K – how to read and write decimals up to two decimal places K – how to read tenths and hundredths when written as fractions K – understand the link between 1/10 and 0.1 and 1/100 and 0.01 S – recognise and write decimal equivalents of any number of tenths or hundredths **recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$** K – understand how to read ¼, ½ and ¾ K -understand value of decimals up to 2 decimal points	S – identify equivalent fractions represented visually S – name and write equivalent fractions of a given fraction including tenths and hundredths **read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$)** K – place value of decimals S – read decimal numbers as fractions S – write decimal numbers as fractions **recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents** K – place value of numbers to 3 decimal places K – how thousandths relate to tenths and hundredths	S – use common factors to simplify fractions (not just dividing by two) S – use common multiplies to express fractions in the same denomination **associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$)** K – how fractions relate to division K – how to use short division to a decimal answer S – associate a fraction with division S – calculate decimal fraction equivalents S – short division to a decimal answer **recall and use equivalences between simple fractions, decimals and percentages,**

					S – recongise decimal equivalents to ¼, ½ and ¾. S – write decimal equivalents to ¼, ½ and ¾.	K – decimal equivalents to tenths, hundredths and how they relate to thousandths S – recognise thousandths S – use thousandths and relate them to tenths, hundredths and decimal equivalents **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 as a decimal fraction** K – 100/100 = 100% K - % relates to 'number of parts per hundred' K 1/100 = 1 out of 100 S – write percentage as a fraction with the denominator 100.	**including in different contexts.** K – how to read and understand what fractions, decimals and percentages are representing. K – different contexts where fractions, decimals and percentages could be used and interchanged. K – understand how fractions, decimals and percentages can be equivalent. S – remembering equivalences between simple fractions, decimals and percentages. S – Use equivalences between simple fractions, decimals and percentages correctly. S- Apply this knowledge in context.

Addition and subtraction of fractions				**add and subtract fractions with the same denominator within one whole (e.g. $^5/_7 + ^1/_7 = ^6/_7$)** K – adding and subtracting mentally K – understand the denominator shows how many the whole is split into. K – when adding and subtracting fractions why the denominator does not change S- add and subtract fractions with the same denominator within one whole	**add and subtract fractions with the same denominator** K – the numerator can add to more than the denominator K – that if the numerator is bigger than the denominator you have more than a whole. S – add and subtract fractions with the same denominator.	**add and subtract fractions with the same denominator and multiples of the same number** K – recognise equivalent fractions K - simplify fractions. S – add and subtract fractions with multiples of the same number. **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. $^2/_5 + ^4/_5 = ^6/_5 = 1^1/_5$)** K – mixed number fractions involves a whole number and fraction K – improper fraction is where the numerator is larger than the denominator. K - how mixed number and	**add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions** K – how to find equivalent fractions S- – add fractions with different denominators and mixed numbers using the concept of equivalent fractions. S –and subtract fractions with different denominators and mixed numbers using the concept of equivalent fractions. S – add and subtract fractions with mixed numbers S -recognising when finding equivalent fractions is appropriate in order to add and subtract fractions

						improper fractions can be represented in a diagram. S- recognise mixed number and improper fractions. S- convert from one form to another S – write mathematical statements > 1 as a mixed number.	
Multiplication and division of fractions						**multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams** K – multiplication facts to 12 x12 K – multiply = lots of K – why the denominator does not change K – the X symbol can be read as 'of' when multiplying fractions by a whole number S –explain and show how multiplying proper fractions by a whole number is the	**multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $^1/_4 \times {}^1/_2 = {}^1/_8$)** K – how to simplify fractions K – ¼ x ½ = 1/8 is the same as ¼ of ½ and explain using diagrams S – multiplying simple pairs of fractions **multiply one-digit numbers with up to two decimal places by whole numbers** K – partitioning numbers

						same as finding a fraction of an amount S- multiply mixed number fractions by a whole number S – use materials and diagrams to explain how to multiply proper and mixed number fractions by whole numbers is the same as saying 'lots of' and that the denominator does not change. Eg 2 lots of 1/2	K – place value up to 2 decimal places S - multiplying one-digit numbers with up to two decimal places by whole numbers. **divide proper fractions by whole numbers (e.g. $^{1}/_{3} \div 2 = {}^{1}/_{6}$)** K – how to represent dividing fractions in a diagram S – dividing proper fractions by whole numbers
Multiplication and division of decimals					**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** K – place value up to 2 decimal places K – why 10 lots of 10 = 100		**multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places** K – place value up to 3 decimal places K – how to use a place value grid to represent multiplying and dividing by 10,100 and 1000

					S – dividing a 1 or 2 digit number by 10 and 100 S – identifying the value of the digits in the answer		K – why adding a 0 doesn't work when multiplying a decimal number S – multiplying and dividing numbers by 10,100 and 1000 **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** As above **associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $^{3}/_{8}$)** K – 1/2 can be expressed as 1 divided by 2 = 0.5 K – common fraction and decimal equivalents

							S – calculating decimal fraction equivalents. **use written division methods in cases where the answer has up to two decimal places** K – how to use short division accurately when dividing into decimals S - use written division where the answer has up to two decimal places
Problem Solving				**solve problems that involve all of the above** K – all the above S – all the above S – use pictorial or abstract representations to show each step required S – to understand the steps required to solve a problem	**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** K – how to calculate fractions of quantities K- how to use fractions to divide quantities.	**solve problems involving numbers up to three decimal places** See Year 5 **solve problems which require knowing percentage and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a**	

				S – choose the appropriate method to solve a problem.	S -divide a number into a given number S – multiply a number by another S- recognize the multiplication sign is the same as 'of' eg 1/3 of 12 which means 12 divided by 3 **solve simple measure and money problems involving fractions and decimals to two decimal places.** K – understanding of different unit of measure K – understanding of money K – place value to 2 decimal places S – solve simple measure and money problems involving fractions and decimals	**denominator of a multiple of 10 or 25.** K – percentage and decimal equivalents of common fractions S – solve problems involving percentage and decimal equivalents.	