

NUMBER - Fractions

Pupils should be taught to:

Year 1 programme of study:

recognise, find and name a half as one of two equal parts of an object, shape or quantity recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Year 2 programme of study:

recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity write simple fractions e.g. $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Year 3 programme of study:

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 10

recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators

recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators

recognise and show, using diagrams, equivalent fractions with small denominators

add and subtract fractions with the same denominator within one whole (e.g. $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$)

compare and order unit fractions, and fractions with the same denominators

solve problems that involve all of the above.

Year 4 programme of study:

recognise and show, using diagrams, families of common equivalent fractions

count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.

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

add and subtract fractions with the same denominator

recognise and write decimal equivalents of any number of tenths or hundredths

recognise and write decimal equivalents to $\frac{1}{4}$; $\frac{1}{2}$; $\frac{3}{4}$ 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 units, tenths and hundredths

round decimals with one decimal place to the nearest whole number

compare numbers with the same number of decimal places up to two decimal places

solve simple measure and money problems involving fractions and decimals to two decimal places.

Year 5 programme of study:

compare and order fractions whose denominators are all multiples of the same number

identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths

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. $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$)

add and subtract fractions with the same denominator and multiples of the same number

multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$)

recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

round decimals with two decimal places to the nearest whole number and to one decimal place

read, write, order and compare numbers with up to three decimal places

solve problems involving number up to three decimal places

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 hundred, and as a decimal fraction

solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those with a denominator of a multiple of 10 or 25.

Year 6 programme of study:

use common factors to simplify fractions; use common multiples to express fractions in the same denomination
compare and order fractions, including fractions >1

add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions

multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)

associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$)

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

multiply one-digit numbers with up to two decimal places by whole numbers

use written division methods in cases where the answer has up to two decimal places

solve problems which require answers to be rounded to specified degrees of accuracy

recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

RATIO AND PROPORTION

solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison

solve problems involving similar shapes where the scale factor is known or can be found

solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.