National Curriculum Links

Links to the National Curriculum in England

# Chapter 15: Fractions and ratios

Pupils should be taught to:

## Year 1

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

## Year 2

* recognize, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity
* write simple fractions, e.g. 1/2 of 6 = 3 and recognize the equivalence of 2/4 and 1/2

## Year 3

* recognize, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
* recognize and use fractions as numbers: unit fractions and non-unit fractions with small denominators
* recognize and show, using diagrams, equivalent fractions with small denominators
* add and subtract fractions with the same denominator within one whole [e.g., 5/7 + 1/7 = 6/7]
* compare and order unit fractions, and fractions with the same denominators
* solve problems that involve all of the above

## Year 4

* recognize and show, using diagrams, families of common equivalent fractions
* 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
* solve simple measure and money problems involving fractions

## Year 5

* 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
* recognize 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 = 11/5]
* add and subtract fractions with the same denominator and denominators that are multiples of the same number
* multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams

## Year 6

* use common factors to simplify fractions; use common multiples to express fractions in the same denomination
* compare and order fractions, including fractions >1
* interpret remainders (in division calculations) as … fractions, … as appropriate to the context
* 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., 1/4× 1/2 = 1/8]
* divide proper fractions by whole numbers [e.g., 1/3 ÷ 2 = 1/6 ]
* associate a fraction with division

Links to Curriculum for Excellence in Numeracy and Mathematics in Scotland

# Chapter 15: Fractions and ratios

## Early

***Experiences and outcomes:*** *I can share out a group of items by making smaller groups and can split a whole object into smaller parts.* ***MNU 0-07a***

***Benchmark:***

* splits a whole into smaller parts and explains that equal parts are the same size
* uses appropriate vocabulary to describe halves
* shares out a group of items equally into smaller groups

## First

***Experiences and outcomes:*** *Having explored fractions by taking part in practical activities, I can show my understanding of:*

* *how a single item can be shared equally*
* *the notation and vocabulary associated with fractions*
* *where simple fractions lie on the number line.* ***MNU 1-07a***

*Through exploring how groups of items can be shared equally, I can find a fraction of an amount by applying my knowledge of division.* ***MNU 1-07b***

*Through taking part in practical activities including use of pictorial representations, I can demonstrate my understanding of simple fractions which are equivalent.* ***MTH 1-07c***

***Benchmark:***

* explains what a fraction is using concrete materials, pictorial representations and appropriate mathematical vocabulary
* demonstrates understanding that the greater the number of equal parts, the smaller the size of each share
* uses the correct notation for common fractions to tenths, for example, 1/2, 2/3 and 5/8
* compares the size of fractions and places simple fractions in order on a number line
* uses pictorial representations and other models to demonstrate understanding of simple equivalent fractions, for example, 1/2 – 2/4 – 3/6
* explains the role of the numerator and denominator
* uses known multiplication and division facts and other strategies to find unit fractions of whole numbers, for example, 1/2 or 1/4

## Second

***Experiences and outcomes:*** *I have investigated the everyday contexts in which simple fractions … are used and can carry out the necessary calculations to solve related problems.* ***MNU 2-07a***

*I have investigated how a set of equivalent fractions can be created, understanding the meaning of simplest form, and can apply my knowledge to compare and order the most commonly used fractions.* ***MTH 2-07c***

***Benchmark:***

* calculates simple fractions of a quantity and uses this knowledge to solve problems, for example, find 3/5 of 60
* creates equivalent fractions and uses this knowledge to put a set of most commonly used fractions in order
* expresses fractions in their simplest form

Links to Curriculum for Wales: Programme of Study for Mathematics, Key Stages 2–4

# Chapter 15: Fractions and ratios

Learners should be taught to:

## Year 1

* find halves in practical situations
* recall halves up to 10

## Year 2

* find halves and quarters in practical situations

## Year 3

* use halves and quarters
* halve 2-digit numbers in the context of number, money and measures
* find fractional quantities linked to known multiplication facts, e.g. 1 ⁄ 3 of 18, 1 ⁄ 5 of 15
* recognize a quarter as a half of a half

## Year 4

* halve 3-digit numbers in the context of number, money and measures
* find fractional quantities using known table facts, e.g. 1 ⁄ 6 of 30 cm
* recognize fractions that are several parts of a whole, e.g. 2 ⁄ 3 , 3 ⁄ 10

## Year 5

* share objects in a given ratio, e.g. red blocks and blue blocks in a ratio of 1:2
* recognize connections between fractions, e.g. one-tenth is half of one-fifth
* add and subtract fractions with the same denominator
* add fractions with the same denominator to make a whole

## Year 6

* use simple ratio and proportion
* use ratio to express two or more quantities in words
* state the proportion of a whole that each share represents, e.g. recognize that in a ratio of 1:3, 1 part represents a quarter of the total
* find equivalent fractions and use these to add and subtract fractions
* simplify fractions

Australian Curriculum for Mathematics

This maps entries in the **Australian Mathematics Curriculum (from Foundation Stage to Year 7)** to the content of chapters of Haylock, *Mathematics Explained for Primary Teachers*, 6th edition.

# Chapter 15: Fractions and ratios

## Year 1

* Recognize and describe one-half as one of two equal parts of a whole

## Year 2

* Recognize and interpret common uses of halves, quarters and eighths of shapes and collections

## Year 3

* Model and represent unit fractions including 1/2, 1/4, 1/3, 1/5 and their multiples to a complete whole

## Year 4

* Investigate equivalent fractions used in contexts
* Count by quarters halves and thirds, including with mixed numerals
* Locate and represent these fractions on a number line
* Recognize that the place value system can be extended to tenths and hundredths

## Year 5

* Compare and order common unit fractions and locate and represent them on a number line
* Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator

## Year 6

* Compare fractions with related denominators and locate and represent them on a number line
* Solve problems involving addition and subtraction of fractions with the same or related denominators
* Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies

## Year 7

* Compare fractions using equivalence
* Locate and represent positive and negative fractions and mixed numbers on a number line
* Solve problems involving addition and subtraction of fractions, including those with unrelated denominators
* Multiply and divide fractions … using efficient written strategies and digital technologies
* Express one quantity as a fraction of another, with and without the use of digital technologies

Recognize and solve problems involving simple ratios