Knowledge Organiser

Year Group	Subject	Topic
4	Mathematics	Fractions

What does fractions consist of?

A fraction represents a part of a whole number or any number of equal parts. Pupils will be taught to make connections and notice patterns between fractions via pictorial representations. Fractions help pupils understand the nature of numbers and their interactions (e.g. the meaning of division.) Pupils will be taught to make connections/links to real life scenarios. Fractions are important because they tell you what portion of a whole you need, have, or want. Fractions are used in baking to tell how much of an ingredient to use. Fractions are used in telling time; each minute is a fraction of the hour.

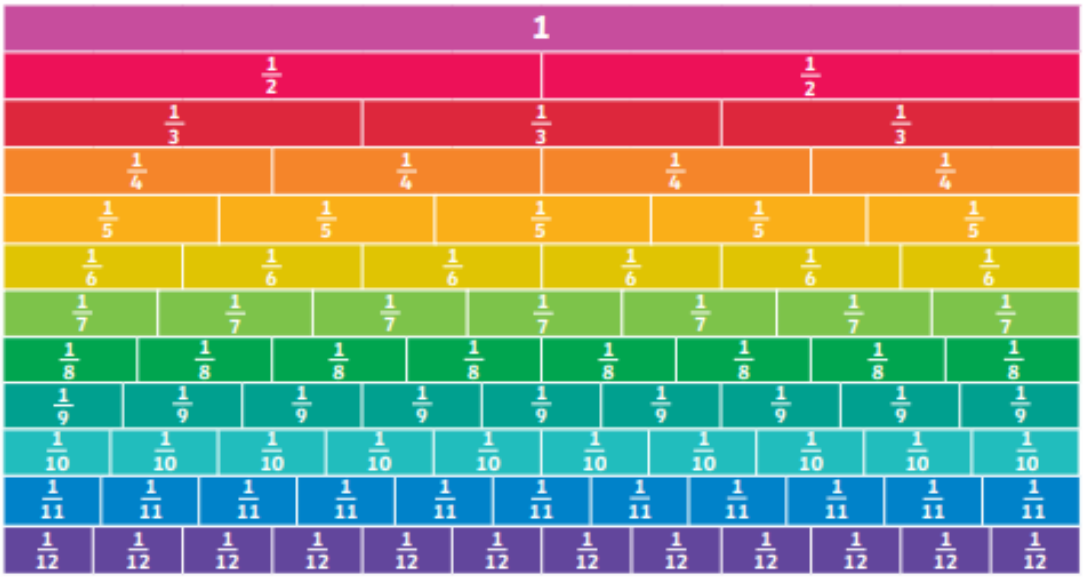
Outcomes

By using a variety of representations, including pictorial, pupils should be able to solve problems that are mentioned in the National Curriculum objectives that Year 4 pupils are required to meet:

- 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 [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]
- compare and order unit fractions, and fractions with the same denominators.

Key Vocabulary	
Fraction	A fraction is a part of a whole number.
Numerator	The top part of a fraction, above the line (vinculum). It shows how many equal parts of the denominator are represented.
Denominator	The bottom number in a fraction, under the line (vinculum). It shows how many equal parts the item is divided into.
Unit fraction	Each unit fraction is a part of the number 1. For example, 1/2 is a half of 1, 1/3 is a third of 1, 1/4 is a fourth of 1, and so on.
Non-unit fraction	A fraction where the numerator (the top number) is greater than 1. The denominator (the bottom number) can be any whole number.
Equivalent	Equal in number or value.
Quantities	An amount or number of something.
Whole	Made up of all its parts.
Halves	Splitting a whole thing into two equal parts.
Thirds	Splitting a whole thing into three equal parts.
Fourths	Splitting a whole thing into four equal parts.
Fifths	Splitting a whole thing into five equal parts.
Sixths	Splitting a whole thing into six equal parts.
Sevenths	Splitting a whole thing into seven equal parts.
Eighths	Splitting a whole thing into eight equal parts.
Ninths	Splitting a whole thing into nine equal parts.
Tenths	Splitting a whole thing into ten equal parts.
Elevenths	Splitting a whole thing into eleven equal parts.
Twelfths	Splitting a whole thing into twelve equal parts.

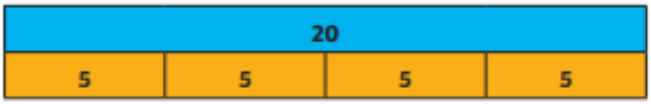
Fraction Families



Fractions of Quantities

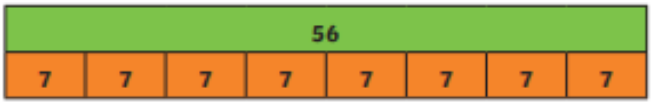
To find a fraction of a number, divide by the denominator and multiply by numerator.

To find quarters of 20:



$\frac{1}{4}$ of 20 = 5 $\frac{2}{4}$ of 20 = 10 $\frac{3}{4}$ of 20 = 15 $\frac{4}{4}$ of 20 = 20

To find eighths of 56:



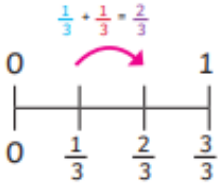
$\frac{1}{8}$ of 56 = 7 $\frac{2}{8}$ of 56 = 14 $\frac{3}{8}$ of 56 = 21 $\frac{4}{8}$ of 56 = 28

$\frac{5}{8}$ of 56 = 35 $\frac{6}{8}$ of 56 = 42 $\frac{7}{8}$ of 56 = 49 $\frac{8}{8}$ of 56 = 56

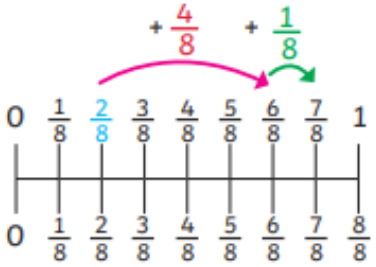
Adding Fractions

Fractions can be added when the denominators are the same.

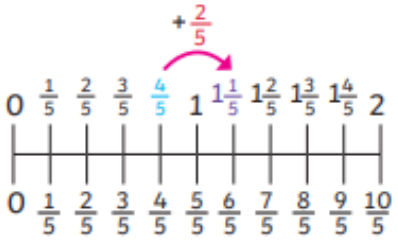
$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$



$\frac{2}{8} + \frac{4}{8} + \frac{1}{8} = \frac{7}{8}$



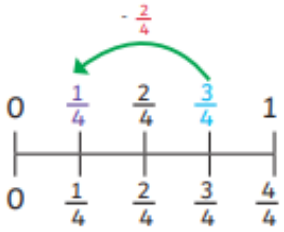
$\frac{4}{5} + \frac{2}{5} = \frac{6}{5}$ or $1\frac{1}{5}$



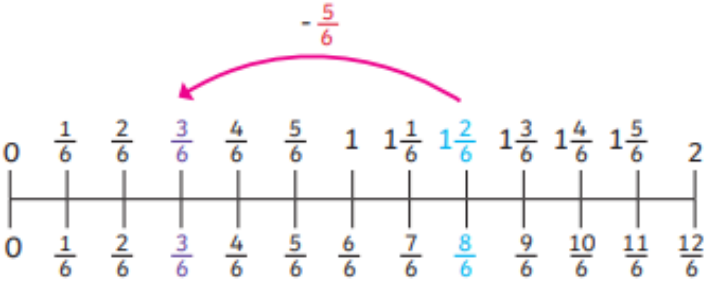
Subtracting fractions

Fractions can be subtracted when the denominators are the same.

$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$



$\frac{8}{6} - \frac{5}{6} = \frac{3}{6}$



Equivalent Fractions

To find equivalent fractions, we multiply or divide the numerator and denominator by the same number.