

Knowledge Organiser

Year Group	Subject	Topic
6	Mathematics	Fractions Part 1

The Big Picture

During this four-week unit, children will develop their confidence with the fractions. Pupils should use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (e.g. if $\frac{1}{4}$ of a length is 36cm, then the whole length is $36 \times 4 = 144\text{cm}$).

They should practise with simple fractions and decimal fraction equivalents to aid fluency, including listing equivalent fractions to identify fractions with common denominators. Denominators of given fractions should not exceed 12, apart from 100 and 1000.

Pupils can explore and make conjectures about converting a simple fraction to a decimal fraction (e.g. $3 \div 8 = 0.375$). For simple fractions with recurring decimal equivalents, pupils should learn about rounding the decimal to three decimal places.

Pupils should practise, use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They should start with fractions where the denominator of one fraction is a multiple of the other (e.g. $\frac{1}{2} + \frac{1}{8} = \frac{5}{8}$) and progress to varied and increasingly complex problems.

Pupils should use a variety of images to support their understanding of multiplication with fractions. This follows earlier work about fractions as operators, as numbers, and as equal parts of objects, for example as parts of a rectangle.

Enquiry Question

Can you make a list of the factors for each number?

Which numbers appear in both lists? What do we call these? (common factors)? What is the highest common factor of the numerator and denominator?

Is a simplified fraction always equivalent to original fraction? Why?

If the HCF of the numerator and denominator is 1, can it be simplified?

Which numbers do I say when I count in eighths and when I count in quarters?

Can you estimate where the fractions will be on the number line?

Can you divide the numberline into more intervals to place the fractions more accurately?

How can you find the difference between the fractions?

Key Vocabulary

Numerator	Non-unit fraction
Denominator	Equivalent
Unit fraction	Halves
thirds	Quarters
fifths	Sixths
eighths	tenths
Decimal tenths	

Recognising Fractions



$\frac{3}{8}$

Numerator
How many equal parts of the whole are needed?

Denominator
How many equal parts are in the whole?

Comparing Fractions

$\frac{1}{3}$ *Less than* $\frac{2}{3}$

$\frac{4}{5}$ *Greater than* $\frac{3}{5}$

Proper Fractions

A fraction is a part of a whole.



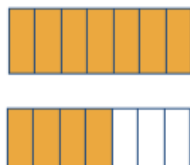
$\frac{3}{5}$ — numerator = number of parts referred to
— fractions bar = divided by / out of
— denominator = number of parts in whole

Fractions are divisions yet to be done...

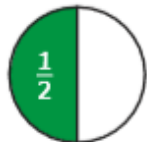
$$\frac{1}{8} = 1 \div 8 = 0.125$$

Improper Fractions and Mixed Numbers

Improper fractions and mixed numbers show fractions more than a whole.

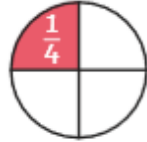
$$\frac{11}{7} = 1 \frac{4}{7} =$$


Equivalent Fraction



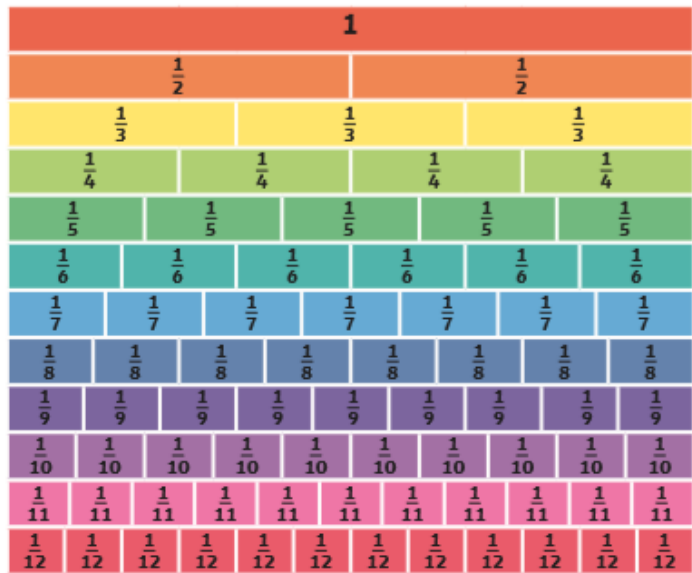
is equal to...

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12}$$



is equal to...

$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20}$$



Add and Subtract Fractions

$$\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$$



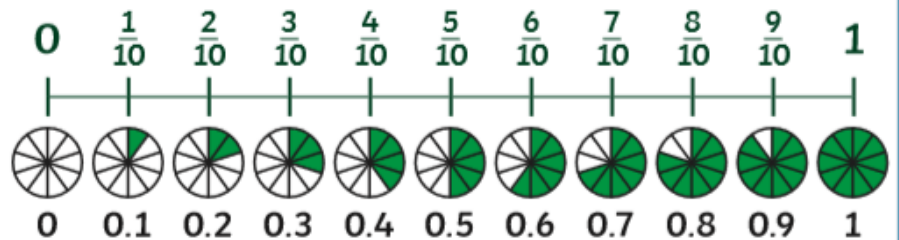
$$\frac{3}{7} + \frac{2}{7} = \frac{5}{7}$$



$$\frac{5}{6} - \frac{2}{6} = \frac{3}{6}$$



Tenths



Fractions of Amounts

$$\frac{1}{4} \text{ of } 24 = 6$$



$$\frac{1}{3} \text{ of } 72 = 24$$



$$\frac{2}{5} \text{ of } 40 = 16$$



What can my child do at home?

- ✓ Have a look through the Knowledge Organiser and study the key terminology, ensuring that they understand what they mean.
- ✓ Use the useful links above, particularly if there is a unit that you find more difficult to grasp
- ✓ Learn weekly times tables and number facts. These will be tested on the same day as spellings.
- ✓ Login to Mathletics to revise topics taught.

