

Maths - Year 6

Calculating 11: Adding and subtracting with fractions

Key Vocabulary

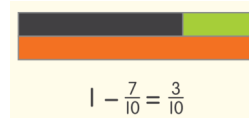
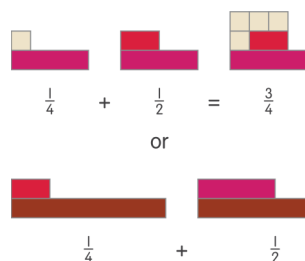
Numerator	Upper number of a fraction, shows how many of this kind of fraction.
Denominator	Lower number of a fraction, gives the fraction its name.
Proper fraction	A fraction where the numerator is smaller than the denominator.
Improper fraction	A fraction where the numerator is bigger than the denominator.
Mixed number	A number written as a whole number and a fraction e.g. $2\frac{1}{2}$.
Equivalent	The same or equal.
Lowest common multiple (LCM)	The lowest quantity that is a multiple of a given quantity/ quantities e.g. 12 is the lowest common multiple of 2, 3 and 4.
Simplest form	The smallest possible equivalent fraction.
Factor	A number that divides into another number exactly.
Proportion	Used to express a fraction of a whole, e.g. the proportion of grapes in a bag that are green could be expressed as $\frac{1}{2}$.

Mathematical Skills

- Recognise common fraction equivalents.
- Understand that fractions need to be in the same denomination before adding or subtracting.
- Explain fraction equivalences and calculating involving fractions, illustrating with structured apparatus or imagery.
- Convert, and explain equivalences, between improper fractions and mixed numbers.
- Use an array to support and illustrate adding fractions.
- Identify common factors in the numerator and denominator, and use these to express a fraction in its simplest form.
- Apply knowledge and understanding of fractions to solve problems.

Mathematical Methods

- Revising adding and subtracting fractions.



- Adding and subtracting fractions and mixed numbers whose denominators are multiples of the same number.

Item	Number eaten or drunk		Number taken on picnic
	Ben	Tia	
Cartons of juice	$\frac{5}{6}$	$\frac{2}{3}$	2
Cherry tomatoes	$4\frac{1}{2}$	$3\frac{1}{2}$	10
Quiches	$\frac{2}{9}$	$\frac{1}{3}$	2
Malt loaves	$\frac{1}{3}$	$\frac{5}{6}$	2
Sandwiches	$1\frac{1}{4}$	$2\frac{1}{2}$	5
Melons	$\frac{5}{12}$	$\frac{1}{3}$	1

Cherry tomatoes: $4\frac{1}{2} + 3\frac{1}{2} = 8$, $10 - 8 = 2$ (2 cherry tomatoes left)

Quiches: $\frac{2}{9} + \frac{1}{3} = \frac{2}{9} + \frac{3}{9} = \frac{5}{9}$, $2 - \frac{5}{9} = 1\frac{4}{9}$ ($1\frac{4}{9}$ quiches left)

Malt loaves: $\frac{1}{3} + \frac{5}{6} = \frac{2}{6} + \frac{5}{6} = \frac{7}{6} = 1\frac{1}{6}$, $2 - 1\frac{1}{6} = \frac{5}{6}$ ($\frac{5}{6}$ malt loaf left)

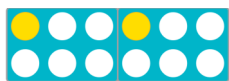
Sandwiches: $1\frac{1}{4} + 2\frac{1}{2} = 1\frac{1}{4} + 2\frac{2}{4} = 3\frac{3}{4}$, $5 - 3\frac{3}{4} = 1\frac{1}{4}$ ($1\frac{1}{4}$ sandwiches left)

Melons: $\frac{5}{12} + \frac{1}{3} = \frac{5}{12} + \frac{4}{12} = \frac{9}{12} = \frac{3}{4}$, $1 - \frac{3}{4} = \frac{1}{4}$ ($\frac{1}{4}$ melon left)

- Reasoning about fractions when solving problems e.g. using adding and subtracting only, can you reach a target number of $2\frac{5}{8}$ with the following numbers 4 , $\frac{3}{4}$, $\frac{5}{8}$, $\frac{1}{8}$, $\frac{7}{8}$, $\frac{1}{2}$.

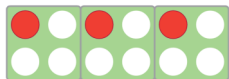
- Adding and subtracting fractions whose denominators are not multiples of the same number e.g. on a school trip, a class spends $\frac{1}{6}$ of the time spent at their destination on a tour, $\frac{1}{4}$ time having a meal and the rest playing games. What fraction of the trip do the children spend playing games?

$$\frac{1}{6} + \frac{1}{4} = \frac{5}{12}$$

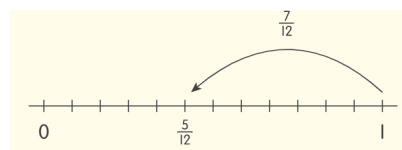


$$\frac{1}{6} = \frac{2}{12}$$

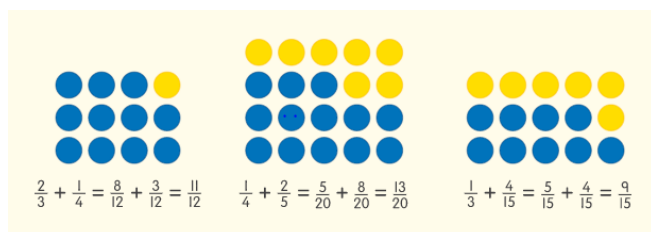
$$1 - \frac{5}{12} = \frac{7}{12}$$



$$\frac{1}{4} = \frac{3}{12}$$



- Using arrays to support calculating with fractions e.g. $\frac{2}{3} + \frac{1}{4}$, $\frac{1}{4} + \frac{2}{5}$, $\frac{1}{3} + \frac{4}{15}$



Can you..?

- Can you solve these?

$$1 \frac{7}{8} + \frac{1}{4} + \frac{27}{12}$$

$$\frac{7}{9} + \frac{11}{36}$$

- Can you explain how to solve this?

$$\frac{4}{6} - \frac{1}{4}$$