Year 5 and 6 — Fractions

KeyVocabulary

Numerator	The top number in a fraction, which shows how many parts we have.
Denominator	The bottom number of a fraction is the denominator and shows how many equal parts the item is divided into.
Proper fraction	A fraction that is less than one, with the numerator less than the denominator.
Improper fraction	A fraction that is more than on, with the numerator greater than the denominator.
Mixed number	A number consisting of an integer (whole number) and a proper fraction.
Integer	An integer is a whole number (not a fraction) that can be positive, negative, or zero.
Factor	A factor divides a number completely without leaving any remainder.
Lowest common multiple	The lowest common multiple of two numbers is the smallest whole number which is a multiple of both
Common denominator	A common denominator is a denominator that you can reach by both denominators. For example in the problem 3/4+ 5/6 a common denominator is 12 because it is the lowest number that both 4 and 6 can reach by multiplying with whole numbers
Equivalents	Two values, numbers or quantities which are the same
Simplify	To reduce a fraction to its lowest terms by cancelling to the lowest common factor for both numerator and denominator
Simplest form	The simplest form is the smallest possible equivalent fraction of the number

Equivalent fractions

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

$$\frac{1}{2} = \frac{5}{10} = \frac{50}{100}$$

$\times 5 \qquad \times 10$
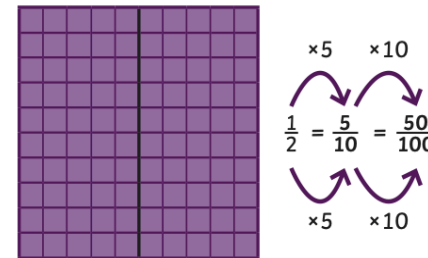
Simplifying fractions

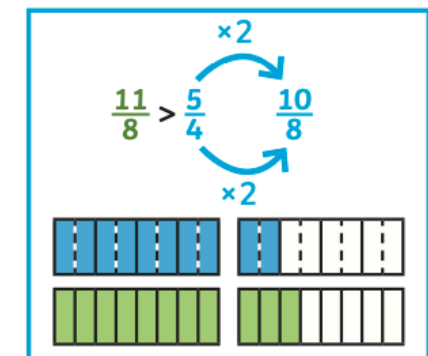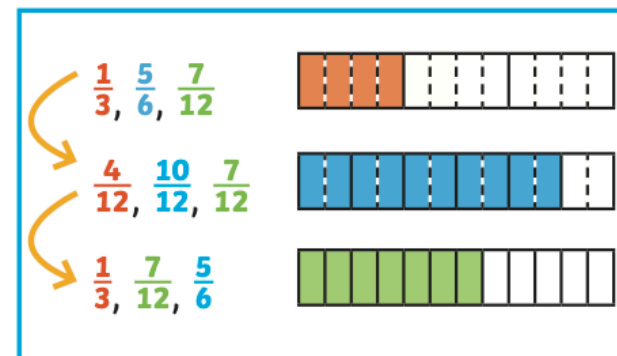$$\frac{9}{12}$$

$$\frac{9}{12} = \frac{3}{4}$$

Factors of 9: 1, 3 and 9
Factors of 12: 1, 2, 3, 4, 6 and 12

Compare and order fractions

We can compare and order fractions by using common denominators.

$\frac{1}{3}, \frac{5}{6}, \frac{7}{12}$

$\frac{4}{12}, \frac{10}{12}, \frac{7}{12}$

$\frac{1}{3}, \frac{7}{12}, \frac{5}{6}$

$\frac{11}{8} > \frac{5}{4} \qquad \frac{10}{8}$

$\times 2$

Converting improper fractions into mixed numbers and mixed numbers into improper fractions

$$\frac{9}{4}$$

$9 \div 4 = 2r1$ → $2\frac{1}{4}$

Divide the numerator by the denominator.

This shows you the whole number and the fraction.

Multiply the whole by the denominator to make an improper fraction.

$2\frac{5}{6} = \frac{12}{6} + \frac{5}{6} = \frac{17}{6}$

Add the fractions together.

Adding and subtracting proper fractions

Same Denominators

$$\frac{4}{7}+\frac{2}{7}=\frac{6}{7}$$

$$\frac{8}{11}-\frac{3}{11}=\frac{5}{11}$$

Different Denominators

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

Multiples of 7: 7, 14, 21, 28, **35**
Multiples of 5: 5, 10, 15, 20, 25, 30, **35**

$$\frac{2}{7}=\frac{10}{35},\ \frac{3}{5}=\frac{21}{35}$$

$$\frac{10}{35}+\frac{21}{35}=\frac{31}{35}$$

$$\frac{9}{10}-\frac{1}{4}$$

Multiples of 10: 10, **20**
Multiples of 4: 4, 8, 12, 16, **20**

$$\frac{9}{10}=\frac{18}{20},\ \frac{1}{4}=\frac{5}{20}$$

$$\frac{18}{20}-\frac{5}{20}=\frac{13}{20}$$

Adding and subtracting improper fractions and mixed numbers

Add or subtract the whole numbers and fractions separately.

$$2\frac{2}{5}+1\frac{3}{10}$$

$$2+1=3$$

$$\frac{2}{5}+\frac{3}{10}=\frac{4}{10}+\frac{3}{10}=\frac{7}{10}$$

$$3+\frac{7}{10}=3\frac{7}{10}$$

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

$$2-1=1$$

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

$$1+\frac{1}{4}=1\frac{1}{4}$$

Convert the mixed numbers to improper fractions.

$$2\frac{2}{5}+1\frac{3}{10}$$

$$2\frac{2}{5}=\frac{12}{5} \qquad 1\frac{3}{10}=\frac{13}{10}$$

$$\frac{12}{5}+\frac{13}{10}=\frac{24}{10}+\frac{13}{10}=\frac{37}{10}$$

$$\frac{37}{10}=3\frac{7}{10}$$

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

$$2\frac{1}{2}=\frac{5}{2} \qquad 1\frac{1}{4}=\frac{5}{4}$$

$$\frac{5}{2}-\frac{5}{4}=\frac{10}{4}-\frac{5}{4}=\frac{5}{4}$$
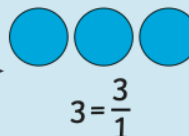
$$\frac{5}{4}=1\frac{1}{4}$$

Multiplying Fractions by Fractions

$$\frac{1}{2}\times\frac{1}{3}=\frac{1}{2}\times\frac{1}{3}=\frac{1}{6}$$

Multiplying Fractions by Whole Numbers

$$\frac{2}{5}\times3 \qquad 3=\frac{3}{1}$$

$$\frac{2}{5}\times\frac{3}{1}=\frac{6}{5}=1\frac{1}{5}$$

Convert to an improper fraction and multiply the numerator by the integer.

$$2\frac{1}{4}\times2 \;=\; \frac{9}{4}\times2 \;=\; \frac{18}{4} \;=\; 4\frac{2}{4} \;=\; 4\frac{1}{2}$$

Dividing fractions by integers

$$\frac{2}{5}\div2=\frac{1}{5}$$

Multiplication and division are the inverse of one another so:

÷ 2 is the same as × $\frac{1}{2}$

$$\frac{2}{5}\times\frac{1}{2}=\frac{2}{10}$$

Fractions of an amount
Use the QR code to take you to a YouTube video explaining how to find fractions of an amount