

Fractions and Decimals: Key Skill 9

Find, create and write equivalent fractions



Equivalent fractions are fractions that are equal in value, but have different names e.g. $\frac{4}{8} = \frac{1}{2}$



It's important to remember that fractions represent equal parts of a whole. To help children to find equivalence between fractions use number lines or pictures.

This key idea focuses on the denominators:

- 2, 4 and 8, e.g. $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$
- 3 and 6, e.g. $\frac{1}{3} = \frac{2}{6}$ or $\frac{2}{3} = \frac{4}{6}$
- 5, 10 and 100, e.g. $\frac{1}{5} = \frac{2}{10} = \frac{20}{100}$ or $\frac{3}{5} = \frac{6}{10} = \frac{60}{100}$

Children find it easier to double to find equivalent fractions than to reduce.



To create equivalent fractions

Larger – multiply the numerator and denominator by the same number

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

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

Smaller – divide the numerator and denominator by the same number.

$$\frac{6}{12} \div \frac{3}{3} = \frac{2}{6}$$

$$\frac{25}{100} \div \frac{5}{5} = \frac{5}{20}$$



WEB LINKS go to:

[Video: Equivalent fractions on a number line](#)

[Game: Equivalent fractions easy](#)

[Game: Equivalent fractions](#)

[Game: Equivalent fractions baseball](#)

Fractions and Decimals: Key Skill 10

Write fractions in their simplest form



A fraction is in its **simplest form** when the denominator is the smallest it can possibly be (while still being a whole number). It is never an improper fraction but can be a mixed numeral.

Highest common factor (HCF) of 2 or more whole numbers is the largest number that will divide exactly into each of the numbers.



Reducing fractions to their simplest form makes fractions easier to work with especially when learning algebra in high school. Knowing your times tables helps children to find the highest common factors and simplify fractions easily.

Knowledge of factors and multiples, equivalent fractions and converting improper fractions to mixed numerals is essential for this skill. ([See video: HCF with factor tree](#))



When simplifying fractions:

- 1 Convert any improper fractions to mixed numerals.
- 2 What are the factors of the numerator?
- 3 Does the denominator share any of those factors? (If yes, then it can be reduced!)
- 4 Use the HCF and divide both the numerator and denominator by that number.

Here are some examples:

$$\frac{3}{9} \quad \text{Factors of 3 are 1, 3}$$

Factors of 9, 1, 3, 9 (3 is the HCF)

$$\frac{3}{9} \div \frac{3}{3} = \frac{1}{3}$$

$$\frac{3}{9} = \frac{1}{3}$$

$$\frac{5}{20} \quad \text{Factors of 5 are 1, 5}$$

Factors of 20 are 1, 20, 2, 10, 5, 4 (5 is the HCF)

$$\frac{5}{20} \div \frac{5}{5} = \frac{1}{4}$$

$$\frac{24}{18} = 1 \frac{6}{18}$$

Factors of 6 = 1, 6, 2, 3

Factors of 18 = 1, 18, 2, 9, 3, 6 (6 is the HCF)

$$\frac{6}{18} \div \frac{6}{6} = \frac{1}{3}$$

$$\frac{24}{18} = 1 \frac{1}{3}$$



WEB LINKS go to:

[Notes: Fractions](#)

[Notes: Converting fractions](#)

[Video: HCF with factor tree](#)

[Video: HCF](#)

[Video: Simplifying fractions](#)

[Video: Simplifying fractions song](#)

[Game: Simplifying fractions](#)