

Fractions and decimal equivalents

Prior learning

- Can count up and down in tenths and hundredths.
- Can write tenths and hundredths in fraction form.

Learn

- Recap children's basic knowledge of fractions, comparing halves with quarters and so on, and considering how these represent less than one whole. Move

on to reviewing our number system and discussing the place value of 100s, 10s and 1s, and then introducing tenths and hundredths. Refer to the place-value table on page 36 of the textbook or draw a large one on the board.

- In presenting decimal equivalents to children, it may be beneficial to convert each fraction into fractional tenths and hundredths first. This can help the children to

see the connections more clearly. For example: $\frac{3}{4} = \frac{75}{100} = 0.75$. These tricky concepts should be visited repeatedly by spending short sessions on them.

- When appropriate, move on to converting decimals into fractions, as shown in the Tips on page 36 of the textbook.
- You are encouraged to work through *100 Maths Lessons Year 4, Spring 1, Week 6, Lessons 1, 2 and 3* to consolidate this work.

Talk maths

- The activity in the textbook can be easily extended by representing the decimals in the book as fractions (tenths and hundredths). Provide decimals and their equivalent fractions on cards and ask the children to use them to play 'Pelmanism' or 'Snap'.

Activities

- Children should find the questions in the textbook straightforward. The *Year 4 Practice Book* has activities that involve decimal numbers and quantities greater than 1, for example 1.5kg.

Problems

- The problems in the textbook can be used to assess children's conceptual knowledge. The children will also need practice in using decimals in practical contexts. The activities in the *Year 4 Practice Book* will provide ample opportunities for this.

Fraction and decimal equivalents

Learn

A fraction is a proportion of one whole.

$\frac{1}{100}$, $\frac{1}{10}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ are all fractions.

Numbers less than one can also be represented by decimals.

To show tenths and hundredths using our number system, we use a decimal point and two new columns.

- We write three tenths as 0.3 and five hundredths as 0.05.
- We can say that the number 0.47 has four tenths and seven hundredths.
- We read decimals aloud, using digits zero to nine.
- Any fraction can be written as a decimal.

Fraction	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{4}$	$\frac{1}{10}$	$\frac{4}{10}$	$\frac{61}{100}$	$\frac{73}{100}$
Decimal	0.5	0.25	0.75	0.1	0.4	0.61	0.73

We can also have whole numbers and decimals.

For 23.62 we would say twenty-three, six tenths and two hundredths.

100s	10s	1s	0.1s	0.01s

We say 0.5 is 'zero point five'.



We say 0.75 is 'zero point seven five'.



Or twenty-three point six two.

✓ Tips

- Decimals with one decimal place are equivalent to a fraction with a denominator of 10.
 $0.6 = \frac{6}{10}$
- Decimals with two decimal places are equivalent to a fraction with a denominator of 100.
 $0.37 = \frac{37}{100}$
- 0.1 is one tenth ($\frac{1}{10}$)
- 0.2 is two tenths ($\frac{2}{10}$)
- 0.3 is three tenths ($\frac{3}{10}$)

Any decimal can be written as a fraction!

Can you keep going?



Talk maths

Practise saying these decimals both ways.

0.3 0.17 0.4 0.08 0.85
0.75 0.1 0.2 0.02 0.31 0.11
0.05 0.43 3.14 0.66 0.99

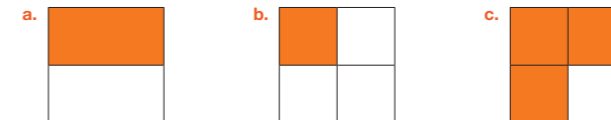
'Three tenths' or 'zero point three'.



'One tenth and seven hundredths' or 'zero point one seven'.

Activities

1. What is the shaded part of each whole as a decimal?



2. Change these fractions to their decimal equivalents.

- a. $\frac{1}{2}$ b. $\frac{3}{4}$ c. $\frac{1}{10}$
d. $\frac{27}{100}$ e. $\frac{1}{4}$ f. $\frac{8}{10}$

3. Change these decimals to their fraction equivalents.

- a. 0.25 b. 0.78 c. 0.4
d. 0.75 e. 0.5 f. 0.21

Problems

Brain-teaser

Tim says that zero point two is the same as $\frac{2}{10}$. Explain why he is right.

Brain-buster

Zoe says that seventy-five hundredths is the same as three-quarters. Explain if she is wrong or right.

Curriculum objectives

- To recognise and write decimal equivalents of any number of tenths or hundredths.
- To recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$.

Success criteria

- I can convert between fractions and decimals.

100 Maths Lessons Year 4 links:

- Spring 1, Week 6 (pages 118–123): recognise decimals and fraction equivalents; recognise the place value of digits in decimals
- Summer 1, Week 5 (pages 194–199): use the equivalence of decimals and fractions
- Summer 2, Week 2 (pages 219–224): use decimals and fractions in measurement

Year 4 Practice Book links:

- (page 79): Less than or more than $\frac{1}{2}$?
- (page 84): Fraction and decimal equivalents (1)
- (page 85): Fraction and decimal equivalents (2)