# Understand tenths as fractions and decimals

## Starting point

Show the first circle in graphic **A** and explain that it is split into tenths. Ask:

- *What fraction of the circle is shaded?* [$\frac{1}{10}$] Explain that the proportion that is shaded can also be described as 'a decimal'.

Reveal the next two columns for the first circle to show $\frac{1}{10}$ and 0.1. Ask:

- *Does anyone know what this dot is called?* [a decimal point] Establish that the column to the right of the decimal point shows how many tenths there are. Explain that $\frac{1}{10}$ can also be shown as 0.1.

Show the second and third rows.

- *What fraction of the second circle is shaded?* [$\frac{2}{10}$] *How do we write this as a decimal?* [0.2]
- *What fraction of the third circle is shaded?* [$\frac{5}{10}$] *How do we write this as a decimal?* [0.5]
- *Which decimal is the same as $\frac{1}{2}$?* Encourage the pupils to see that $\frac{5}{10}$ is equal to 0.5 and that $\frac{5}{10}$ is equivalent to $\frac{1}{2}$.

Reveal the last row. Ask:

- *How could we write what fraction of these circles are shaded as a mixed number?* [$1\frac{4}{10}$]
- *How do you think we would write this as a decimal?* [1.4] Explain that the 1 stands for 1 whole or 1 one (in the ones column) and so comes before the decimal point. The 4 stands for 4 tenths and this goes in the column to the right of the decimal point.

Show graphic **B** and discuss the answers. [$\frac{7}{10}$, 2.9]

**Key point:** The column to the right of a decimal point is the tenths column. Decimals with a digit after the decimal point show how many wholes and how many tenths there are.

## Spot the mistake

Ask:

- The statement says *'3.2kg is $\frac{3}{10}$ of a kilogram more than 2 whole kilograms'.* Is this true? [no]
- *Why isn't it true?* [2 whole kilograms should be written with a 2 before the decimal point and $\frac{3}{10}$ of a kilogram should be written with a 3 in the tenths column (after the decimal point).]
- *What is the correct answer?* [2.3kg is $\frac{3}{10}$ of a kilogram more than 2 whole kilograms *or* 3.2kg is $\frac{2}{10}$ of a kilogram more than 3 whole kilograms.]

## Good to go?

**Answers: a)** 0.3 **b)** 0.9 **c)** 0.6 **d)** 3.8 **e)** 0.5 **f)** 6.1

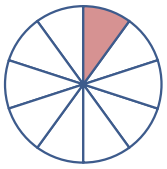
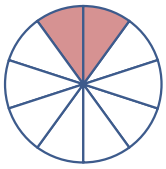
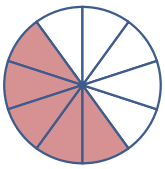
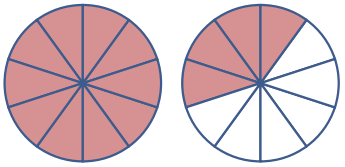
## Pupil book practice

**Pages 18 and 19**

In **Fractions 3** the pupils became familiar with tenths in relation to fractions. These questions consolidate this learning and extend it to include the decimal notation for tenths. The pupils may need to be reminded that, when a number is divided by 10, the result will be that number of tenths, for example, $4 \div 10 = \frac{4}{10}$. The **Now try these** and **Challenge** sections include some equivalence, encouraging the pupils to understand that $\frac{5}{10}$ or 0.5 is equivalent to $\frac{1}{2}$.

## Starting point

**A**

| tenths | fraction/mixed number | decimal (ones . tenths) |
|---|---|---|
|  | $\frac{1}{10}$ | 0 . 1 |
|  | $\frac{\square}{10}$ | 0 . $\square$ |
|  | $\frac{\square}{10}$ | 0 . $\square$ |
|  | $1\frac{\square}{10}$ | 1 . $\square$ |

**B** How do you write: 0.7 as a fraction?

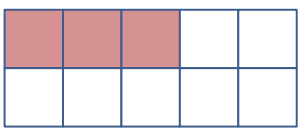
$2\frac{9}{10}$ as a decimal?

## Spot the mistake

3.2kg is $\frac{3}{10}$ of a kilogram more than 2 whole kilograms.

## Good to go?

Write each as a decimal.

**a)** 

**b)** $\frac{9}{10}$ **c)** six-tenths

**d)** $3\frac{8}{10}$ **e)** $\frac{1}{2}$ **f)** 6 ones and 1 tenth