

# Fractions and scales

## Notes and guidance

In this small step, children apply the learning from previous steps to explore real-life contexts of measure by interpreting scales.

Children use their understanding of numerators and denominators to determine how many equal parts a scale has been split into, and then what fraction is shown. This is covered in contexts such as mass, volume and length. A small range of fractions is explored, focusing on quarters, halves and thirds, and the whole is always 1, for example 1 metre, 1 litre, 1 kilogram. Children do not need to convert between units, and should record all amounts as fractions, for example  $\frac{1}{2}$  metre rather than 50 cm.

## Things to look out for

- Children may count the number of lines on a scale rather than thinking about the number of equal sections, resulting in incorrect denominators.
- The size of scales or a container can confuse children. For example, they may think that the capacity of a taller jug must be greater than that of a shorter jug.
- Children may only be familiar with seeing whole parts shaded, so may find some scales challenging, as they often involve an arrow pointing to a specific point on a scale.

## Key questions

- Where does the scale start/end?
- How many equal parts are there? What is the denominator of the fraction?
- How far along the scale is the arrow/water? What is the numerator of the fraction?
- What are you measuring? What unit is it measured in?
- Does the height of the container/scale matter?

## Possible sentence stems

- The scale has been split into \_\_\_\_\_ equal parts.
- The arrow is pointing to/water is at the \_\_\_\_\_ mark.
- The fraction shown is  $\frac{\square}{\square}$

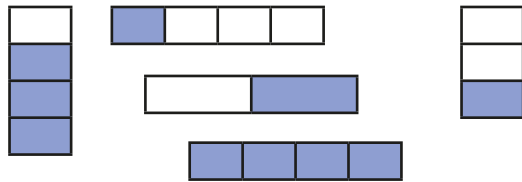
## National Curriculum links

- Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

# Fractions and scales

## Key learning

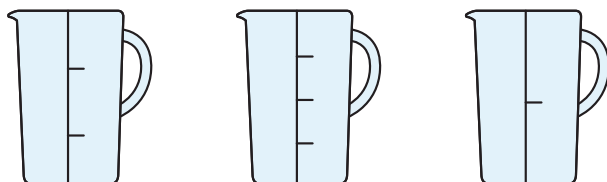
- What fraction of each shape is shaded?



- Whitney is using different metre sticks to measure the lengths of lines.  
What fraction of a metre is each line?

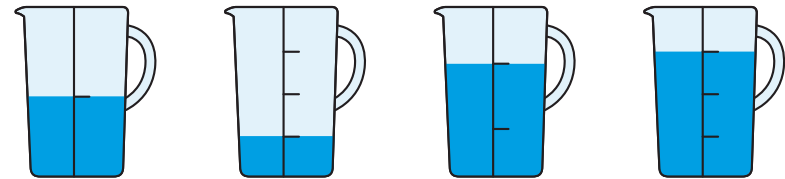


- How many equal parts has each jug's scale been split into?



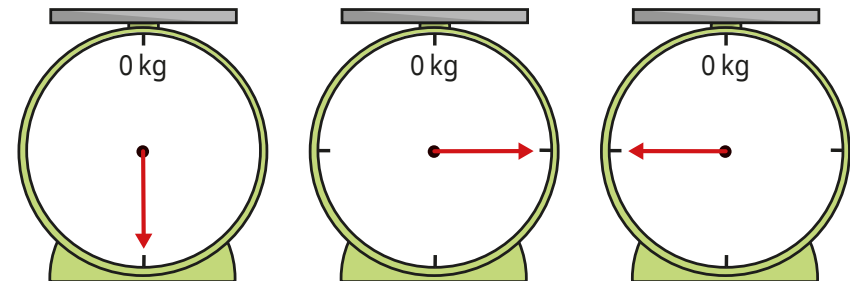
- Each jug has a capacity of 1 litre.

What fraction of a litre of water is in each jug?



- The weighing scales measure up to 1 kg.

What fraction of a kilogram is shown on each scale?



- Write the masses in order, starting with the greatest mass.



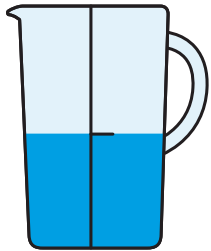
## Fractions and scales

### Reasoning and problem solving

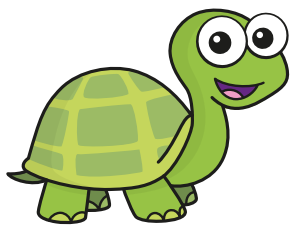
The capacity of each jug is 1 litre.



jug A



jug B



Jug A has more water.

Do you agree with Tiny?

Explain your answer.



No

Some children are measuring the mass of different objects.



Ron

The mass of a box is  $\frac{1}{2}$  kg.

The mass of a bag is  $\frac{1}{4}$  kg.



Jo



Mo

A bucket is heavier than the bag, but lighter than the box.

What could the mass of the bucket be?

multiple possible answers, e.g.  $\frac{1}{3}$  kg