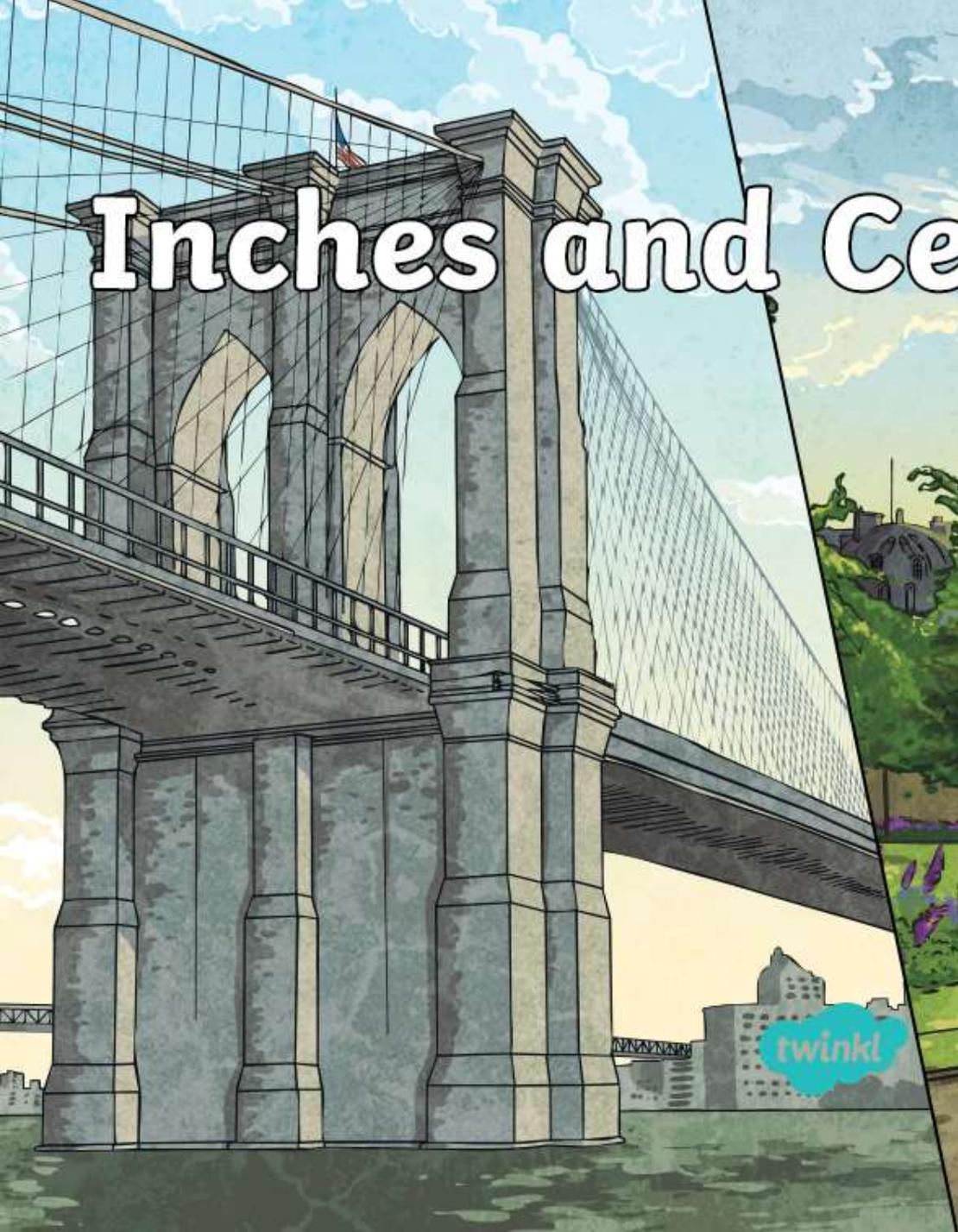


Inches and Centimetres



Aim

- I can understand and use common imperial units of length and convert between inches and centimetres.

Success Criteria

- I can identify common imperial units of length.
- I can convert between inches and centimetres.
- I can solve problems involving lengths given in imperial and metric units.

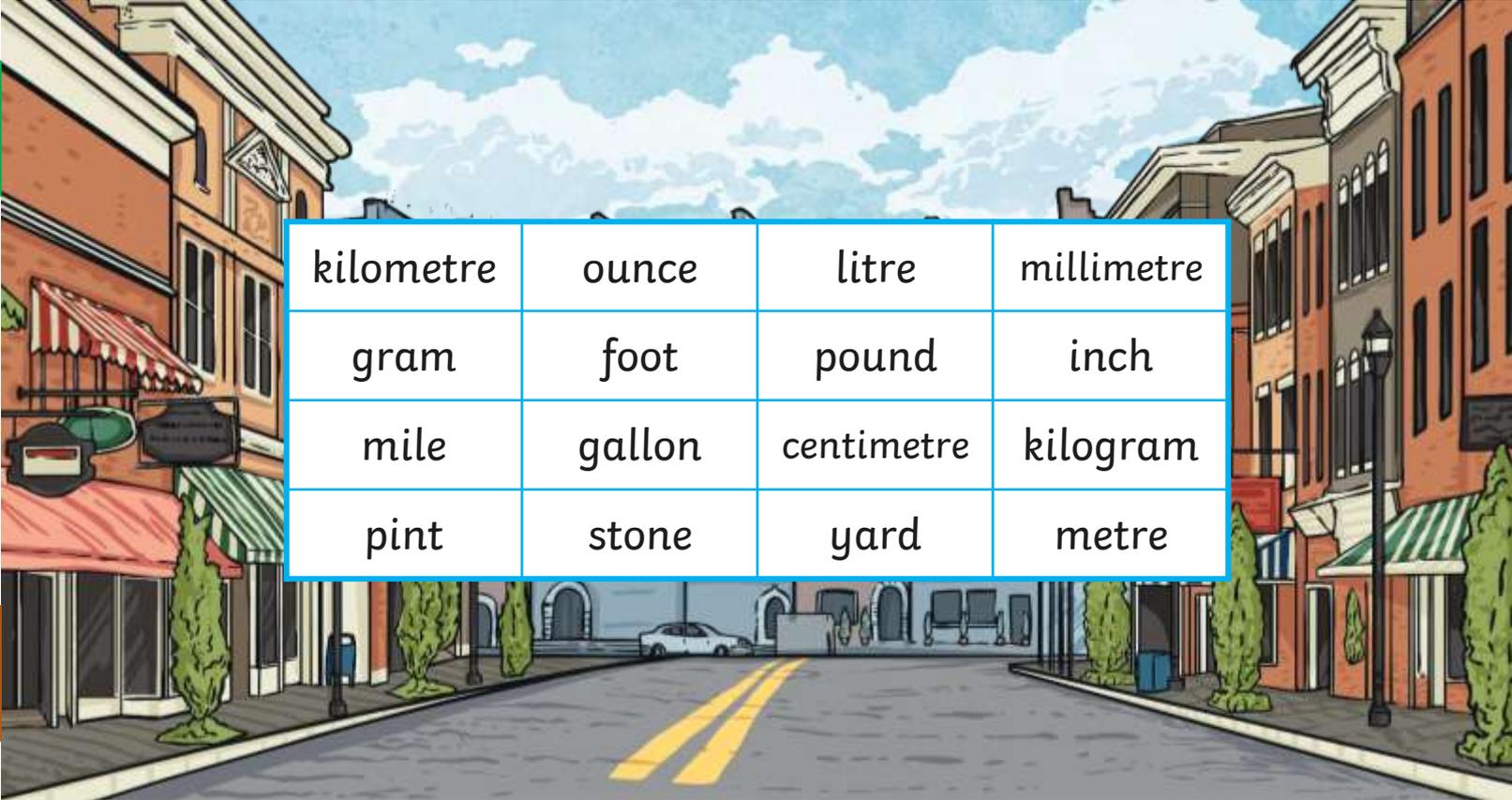
Measurements of Length

Here are some units of measurement.

Sort them into units that measure length and units that do not.

How do you think these units of length have been sorted?

Can you order the units of measurement from smallest to largest?



kilometre	ounce	litre	millimetre
gram	foot	pound	inch
mile	gallon	centimetre	kilogram
pint	stone	yard	metre

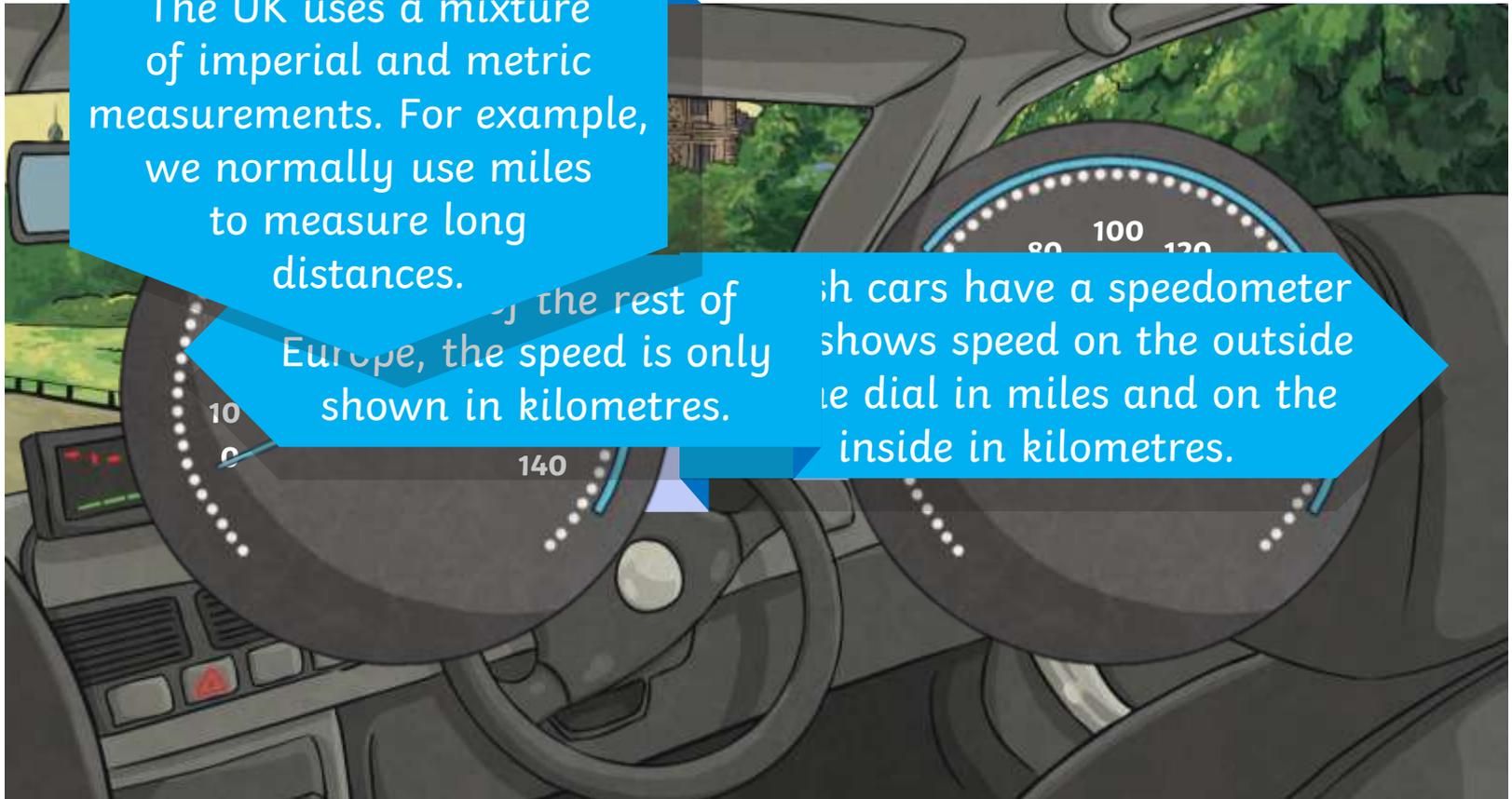
Introducing Imperial Measurements

There are two main systems of measurement in use
– the metric system and the imperial system.

The UK uses a mixture of imperial and metric measurements. For example, we normally use miles to measure long distances.

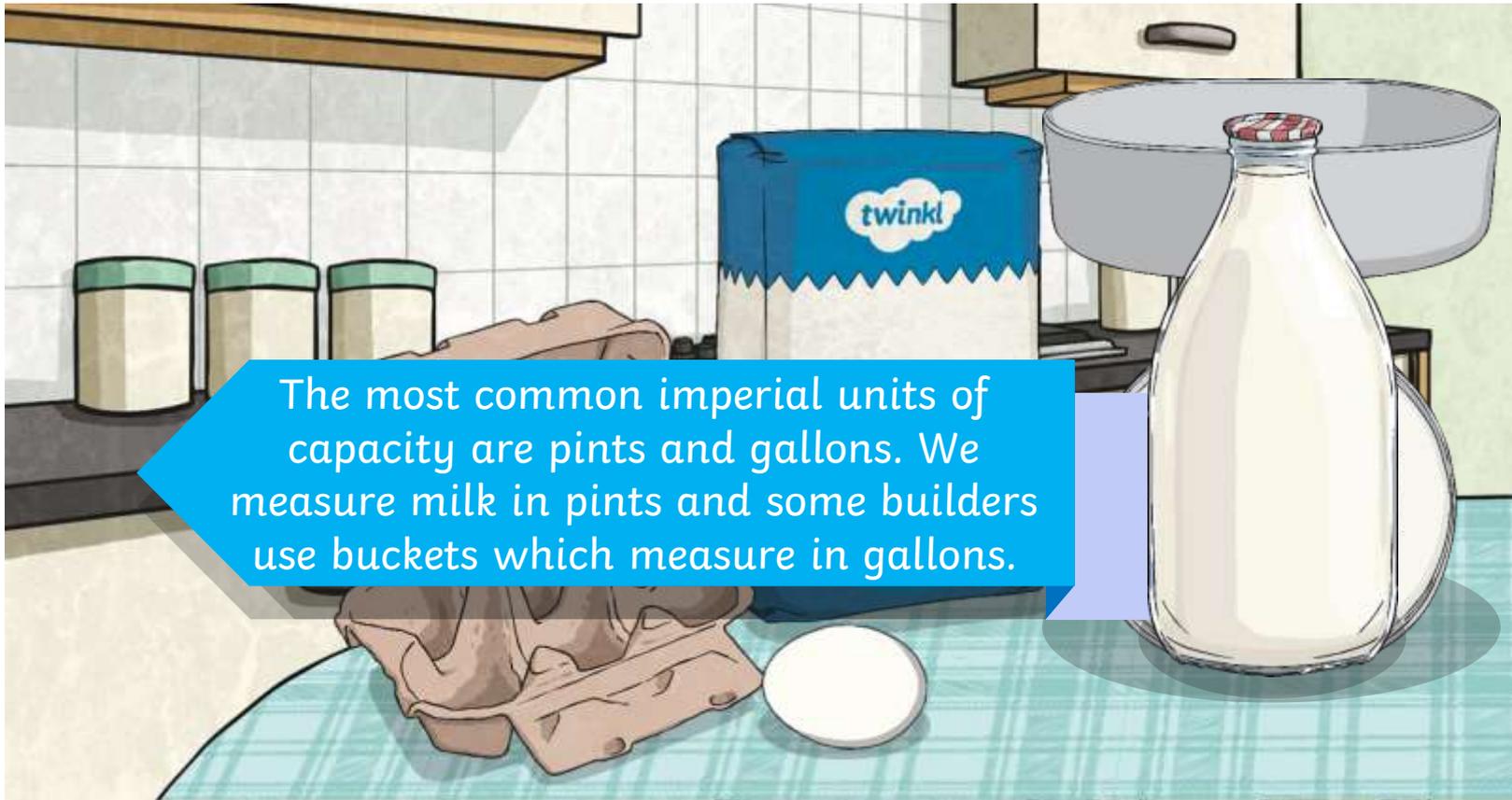
By the rest of Europe, the speed is only shown in kilometres.

British cars have a speedometer which shows speed on the outside dial in miles and on the inside in kilometres.



Introducing Imperial Measurements

What are the most common metric units of capacity?
Millilitres and litres.



The most common imperial units of capacity are pints and gallons. We measure milk in pints and some builders use buckets which measure in gallons.

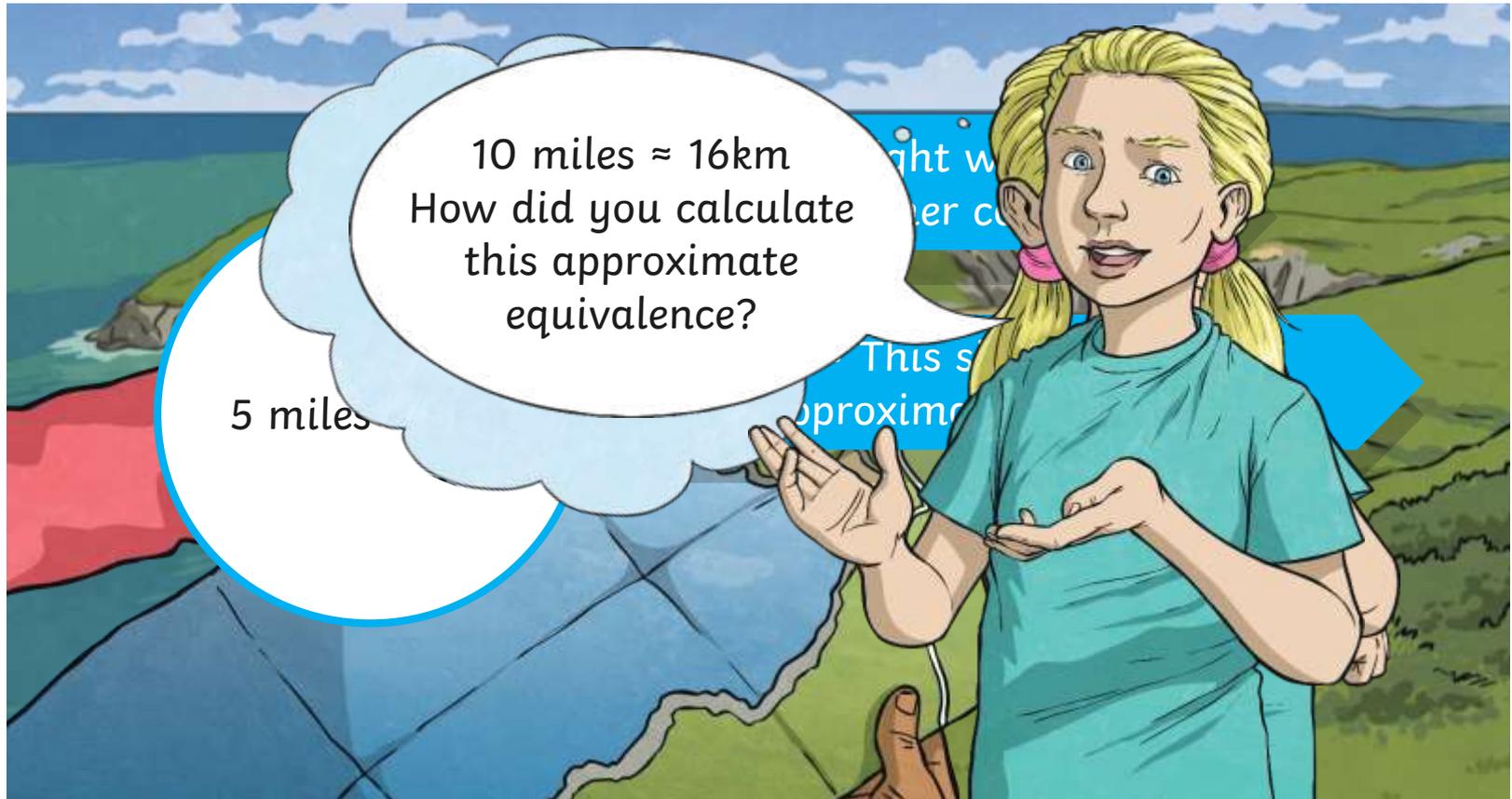
Introducing Imperial Measurements

Have you heard of any of these imperial units of length before?



Miles and Kilometres

Sometimes we need to convert miles to km or imperial and metric units.



Inches and Centimetres

Many rulers show measurements in both centimetres and inches.



Inches and Centimetres

Look at your ruler.

How many centimetres are approximately equal to one inch?

When you measure the same object using two different units of measurement, you should see that the measurement recorded in cm is two and a half times larger than the measurement written in inches.

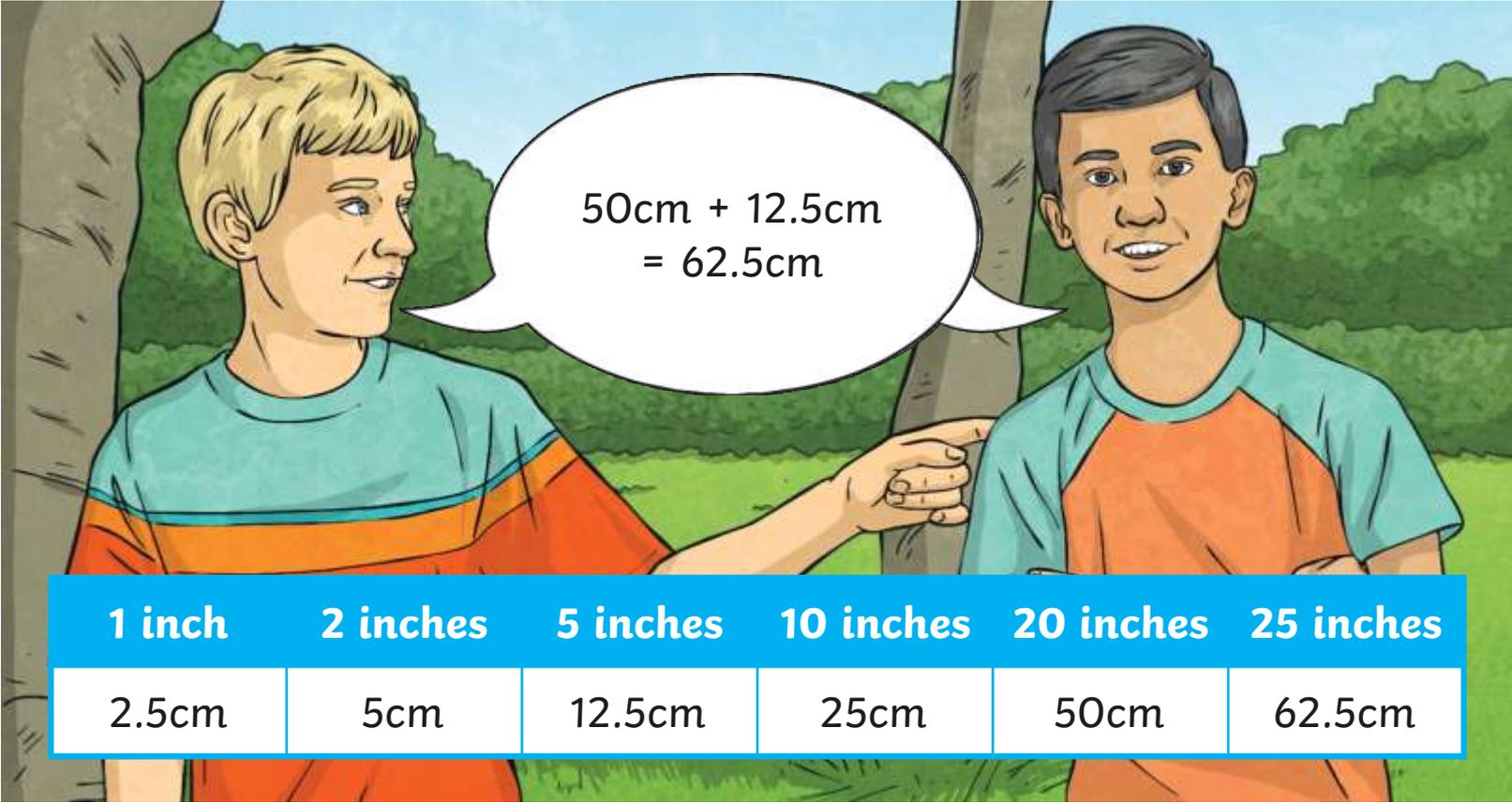
$2\frac{1}{2}$ centimetres (or 2.5cm) are approximately equal to one inch.

Can you prove that an inch is two and a half times larger than a centimetre?

pen
rubber

Converting between Inches and Centimetres

1 inch \approx 2.5cm



$50\text{cm} + 12.5\text{cm}$
 $= 62.5\text{cm}$

1 inch

2 inches

5 inches

10 inches

20 inches

25 inches

2.5cm

5cm

12.5cm

25cm

50cm

62.5cm

Converting between Inches and Centimetres

Convert from centimetres to inches to complete this table.

Click each box in the table to reveal the answer underneath.

1cm	2cm	4cm	5cm
0.4 inches			
10cm	12cm	20cm	31cm

Solving Seedling Problems

Class 5B grew seedlings as part of their science topic.

1 inch \approx 2.5cm 1cm \approx 0.4 inches

Halfway through the term, Mr Leonard asked half the class to measure the height of their seedlings and half to measure the height of their seedlings in centimeters.

First, convert the measurements to the same unit.

Now you can put the original measurements in order.

He challenged the class to order the measurements of some of the seedlings from shortest to tallest.

3.2 inches	2 inches	2.87 inches
Shortest ←		→ Tallest

Solving Seedling Problems

At the end of the term, the seedlings had grown taller. Mr Leonard challenged the class to order the measurements of four more seedlings.

1 inch \approx 2.5cm
1cm \approx 0.4 inches

Which measurements will you convert?

10cm	2 inches	17.5cm	6 inches
4 inches	5cm	7 inches	15cm
Shortest			Tallest

Solving Seedling Problems

As part of their science topic, Class 5B measured how much their seedlings grew throughout the term.

1 inch \approx 2.5cm
1cm \approx 0.4 inches

Convert the measurements so they are all in the same units.
4 inches \approx 10cm

Haydar is right.
His seedling grew the most.

Sophia's seedling grew from 3cm to 12cm tall.

Haydar's seedling grew from 2 inches to 6 inches tall.

Haydar thinks that his seedling grew more than Sophia's.

Is he right?



$$1 \text{ inch} \approx 2.5 \text{ cm}$$

- 1) For each measurement, choose the method you will use to convert it from inches to centimetres.

double

halve

$\times 10$

add
previous
answers
together

repeated
addition

1 inch	2 inches	4 inches	5 inches	10 inches
2.5cm	cm	cm	cm	cm

$$1 \text{ cm} \approx 0.4 \text{ inches}$$

- 2) For each measurement, choose the method you will use to convert it from centimetres to inches.

double

halve

$\times 10$

add
previous
answers
together

repeated
addition

1cm	2cm	5cm	10cm	15cm
0.4 inches	inches	inches	inches	inches

Class 5B grew seedlings as part of their science topic. Some of the children measured the height of their seedlings in inches and some children measured theirs in centimetres.

- 3) Order the heights of these seedlings from shortest to tallest.
Remember to change the measurements to the same unit to help you find the answer.

4 inches

8cm

7cm

Shortest	←————→	Tallest

- 4) Haroon's seedling measured 4cm when he first measured it. It grew 2 inches. What was its final measurement? Give your answer in centimetres. Show how you worked out your answer.



1 inch \approx 2.5cm

- 1) For each measurement, choose the method you will use to convert it from inches to centimetres.

double

halve

$\times 10$

add
previous
answers
together

repeated
addition

1 inch	2 inches	5 inches	10 inches	15 inches
2.5cm	cm	cm	cm	cm

1 cm \approx 0.4 inches

- 2) For each measurement, choose the method you will use to convert it from centimetres to inches.

double

halve

$\times 10$

add
previous
answers
together

repeated
addition

1cm	4cm	9cm	10cm	25cm
0.4 inches	inches	inches	inches	inches

Class 5B grew seedlings as part of their science topic. Some of the children measured the height of their seedlings in inches and some children measured theirs in centimetres.

- 3) Order the heights of these seedlings from shortest to tallest.
Remember to change the measurements to the same unit to help you find the answer.

3 inches

6.5cm

9cm

4 inches

Shortest		Tallest	

- 4) A seedling measured 3.5cm when it was first measured. By the end of the term, it had grown 4 inches. Amal thinks the seedling now measures 14cm in total and Lucas thinks it measures 12cm. Whose answer is closer to the actual measurement?
Show how you worked out the answer.



$$1 \text{ inch} \approx 2.5 \text{ cm}$$

1) Convert these measurements from inches to centimetres.

1 inch	4 inches	9 inches	10 inches	24 inches
2.5cm	cm	cm	cm	cm

$$1 \text{ cm} \approx 0.4 \text{ inches}$$

2) Sort each measurement into the correct column in the table:

11cm

5cm

16cm

3cm

8cm

7cm

Less Than 2 Inches	2-4 Inches	More Than 4 Inches

Class 5B grew seedlings as part of their science topic. Some of the children measured the height of their seedlings in inches and some children measured theirs in centimetres.

3) Order the heights of these seedlings from shortest to tallest.

Remember to change the measurements to the same unit to help you find the answer.

5 inches

7.8cm

13cm

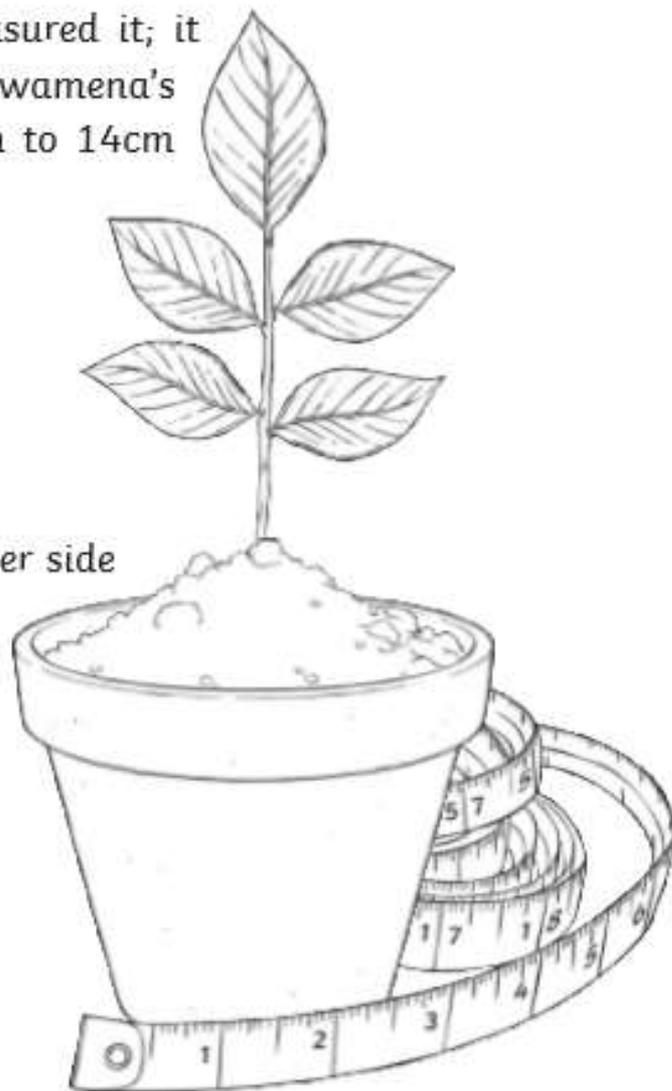
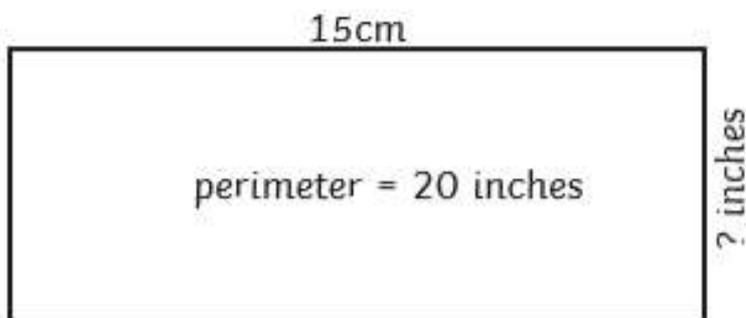
3 inches

Shortest				Tallest

4) Olivia's seedling was 5cm when she first measured it; it was 5 inches tall by the end of the term. Kwamena's seedling measured 3 inches at first; it had grown to 14cm by the end of the term.

Kwamena thinks his seedling grew the most throughout the term. Is he right? Show how you worked out the answer.

5) The perimeter of a rectangle is 20 inches. The longer side measures 15cm. What is the length of the shorter side? Give your answer in inches.



Aim



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