

Equivalent lengths (centimetres and millimetres)

Notes and guidance

In this small step, children use the fact that 1 cm is equivalent to 10 mm. They use this to convert millimetres into centimetres and centimetres into millimetres. Recapping previous knowledge of multiples of 10 from Spring Block 1 may be useful prior to teaching this new content.

As children have not yet formally explored multiplying and dividing by 10, they should be encouraged to partition measurements into centimetres and millimetres when converting lengths that are not multiples of 10, for example $34 \text{ mm} = 30 \text{ mm} + 4 \text{ mm} = 3 \text{ cm and } 4 \text{ mm}$.

As in previous steps, children do not need to use decimal notation in this step. Bar models, part-whole models and double number lines are also useful representations to explore the connection between units of measurement.

Things to look out for

- Once a length has been partitioned, children may convert the incorrect part, for example $52 \text{ mm} = 2 \text{ cm and } 5 \text{ mm}$.
- Children may convert centimetres to millimetres, but then forget to add on the remaining millimetres, for example $6 \text{ cm } 7 \text{ mm} = 60 \text{ mm}$.

Key questions

- How many millimetres are there in 1 cm?
- How can you work out how many millimetres there are in 4 cm?
- How many millimetres are there in ____ cm and ____ mm?
- How do you know ____ mm and ____ cm are equivalent?
- How can you partition 47 mm to help you convert into centimetres and millimetres?
- How many millimetres are there in $\frac{1}{2}$ cm?

Possible sentence stems

- 1 cm = 10 mm, so ____ mm = ____ cm
- 1 cm = 10 mm, so ____ cm = ____ mm
- ____ mm = ____ mm + ____ mm = ____ cm and ____ mm
- ____ cm and ____ mm = ____ mm + ____ mm = ____ mm

National Curriculum links

- Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)

Equivalent lengths (centimetres and millimetres)

Key learning

- Use the bar models to complete the sentences.

1 cm	1 cm	1 cm	1 cm	1 cm	1 cm
10 mm					

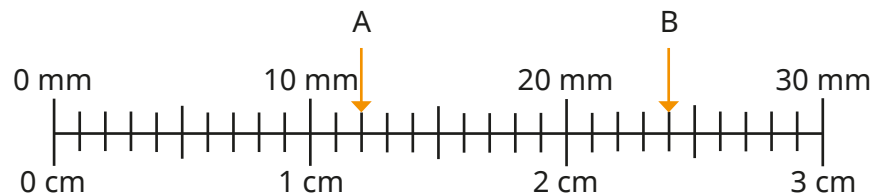
6 cm = _____ cm

10 mm	10 mm	10 mm

30 mm = _____ cm

- What measurements are the arrows pointing to?

Complete the sentences.



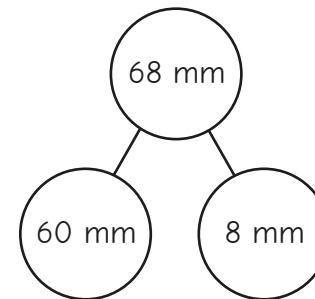
➤ A = _____ cm and _____ mm

A = _____ mm

➤ B = _____ cm and _____ mm

B = _____ mm

- Whitney uses a part-whole model to find an equivalent length.

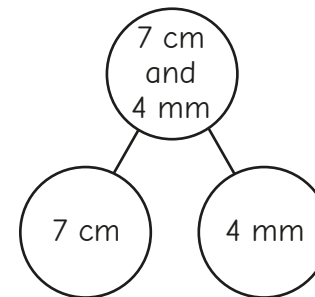


60 mm = 6 cm
68 mm = 6 cm and 8 mm

Use Whitney's method to convert the lengths into centimetres and millimetres.

➤ 24 mm ➤ 35 mm ➤ 91 mm ➤ 88 mm

- Ron uses a part-whole model to find an equivalent length.



7 cm = 70 mm
7 cm and 4 mm = 74 mm

Use Ron's method to convert the lengths into millimetres.

➤ 6 cm and 8 mm ➤ 8 cm and 6 mm ➤ 1 cm and 9 mm

Equivalent lengths (centimetres and millimetres)

Reasoning and problem solving

Mo, Rosie and Kim are finding equivalent lengths.



40 cm and 7 mm is equivalent to 47 mm.

Mo



4 cm and 7 mm is equivalent to 47 mm.

Rosie



7 mm and 4 cm is equivalent to 47 mm.

Kim

Whose conversion is incorrect?

Whose conversion could be improved?

Talk about your answers with a partner.



Mo

Kim

Dexter is thinking of a measurement.



In millimetres, my measurement is a multiple of 2
It is greater than 81 mm.
It can be partitioned as 8 cm and _____ mm.

What measurement could Dexter be thinking of?

82 mm, 84 mm,
86 mm or 88 mm

Which measurement is the odd one out?

500 mm	50 cm
$\frac{1}{2}$ m	500 cm

500 cm

Explain your choice.

