

Equivalent lengths (metres and centimetres)

Notes and guidance

In this small step, children use the fact that 1 m is equivalent to 100 cm. They use this to convert multiples of 100 cm into metres and metres into multiples of 100 cm. At the beginning of this step, it might be helpful to practise counting in 100s as a class.

Encourage children to partition the measurement into metres and centimetres when converting lengths that are not multiples of 100, for example $134\text{ cm} = 1\text{ m}$ and 34 cm . Part-whole models, bar models and double number lines are useful representations to support children in these conversions.

Children may also be encouraged to find and use common fractions to convert between metres and centimetres, for example $\frac{1}{2}\text{ m}$ is equivalent to 50 cm , so $4\frac{1}{2}\text{ m}$ is equivalent to 450 cm .

Things to look out for

- Children may partition centimetres according to place value, which is inefficient when converting centimetres into metres. For example, $163\text{ cm} = 100\text{ cm} + 60\text{ cm} + 3\text{ cm}$ rather than $100\text{ cm} + 63\text{ cm}$.
- When converting multiples of 100 cm, such as 400 cm, children may write 4 m and 0 cm.

Key questions

- How many centimetres are there in 1 m?
- How can you work out how many centimetres there are in 6 m?
- What is _____ centimetres in metres?
- How many centimetres are there in _____ m and _____ cm?
- How can you partition 430 cm to help you to write the measurement in metres and centimetres?
- How many centimetres are there in $\frac{1}{2}\text{ m}$?
So how many centimetres are there in $4\frac{1}{2}\text{ metres}$?

Possible sentence stems

- There are _____ cm in 1 m.
- $1\text{ m} = 100\text{ cm}$, so _____ m = _____ cm
- I can partition _____ cm into _____ cm and _____ cm.
- There are 100 cm in 1 m, so _____ cm = _____ m and _____ cm.
- $\frac{1}{2}\text{ m} = \text{_____ cm}$

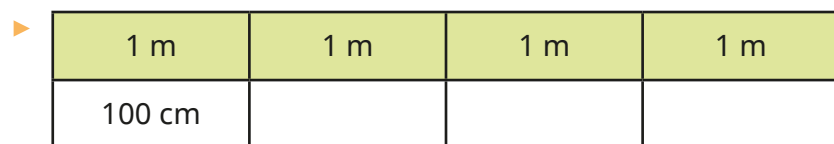
National Curriculum links

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

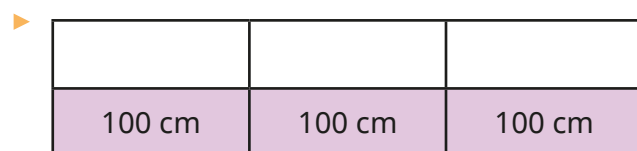
Equivalent lengths (metres and centimetres)

Key learning

- Use the bar models to complete the sentences.

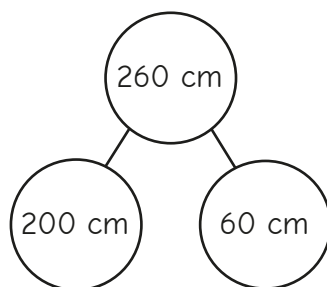


4 m = _____ cm



_____ m = 300 cm

- Esther uses the a part-whole model to find equivalent lengths.



200 cm = 2 m
260 cm = 2 m and 60 cm

Use Esther's method to convert the lengths into metres and centimetres.

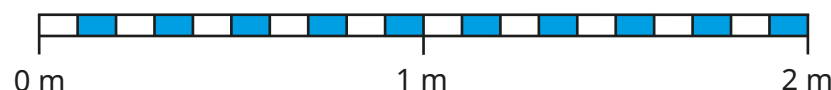
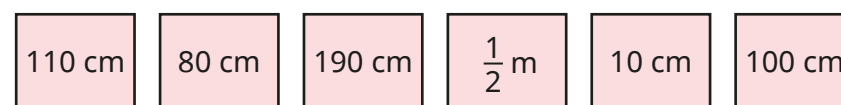
120 cm

125 cm

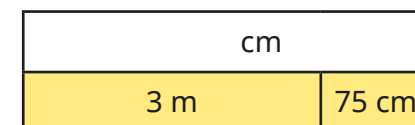
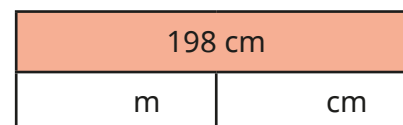
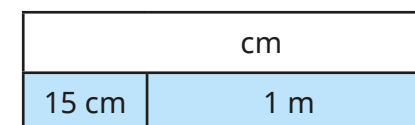
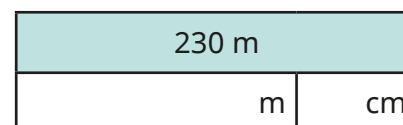
367 cm

542 cm

- Where do the measurements belong on the measuring stick?



- Complete the bar models.



- Complete the sentences.

▶ 3 m and 52 cm = _____ cm

▶ 2 m and 19 cm = _____ cm

▶ 483 cm = _____ m and _____ cm

▶ 501 cm = _____ m and _____ cm

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Reasoning and problem solving

Is the statement true or false?

$$413 \text{ cm} > 4 \text{ m and } 31 \text{ cm}$$

Explain your answer.

False

Which measurement is the odd one out?

250 cm

25 cm

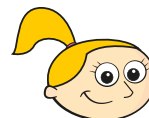
$2\frac{1}{2}$ m

2 m 50 cm

25 cm

Explain your choice.

Eva and Jack each have a skipping rope.



Eva

I have the longer skipping rope.
My skipping rope is $2\frac{1}{2}$ m long.

My skipping rope is 220 cm. It is longer than Eva's because 220 is greater than $2\frac{1}{2}$



Jack

Eva

Her skipping rope is 250 cm long, which is 30 cm longer than 220 cm.

Who is correct?

Explain your answer.