

Add lengths

Notes and guidance

In this small step, children add lengths. They begin by adding lengths that are measured in the same unit of measurement, before adding lengths that have different units.

When measurements have different units, children should find equivalent lengths with the same unit to allow them to add the two lengths. It is important to explore with children that this can be done in two ways, for example $38\text{ mm} + 2\text{ cm}$ could be added as 38 mm and 20 mm or as $3\text{ cm } 8\text{ mm}$ and 2 cm . Encourage children to discuss the different strategies available when adding lengths, before choosing the most efficient method.

This step provides an opportunity to revisit addition both with and without exchanges as covered in Autumn Block 2

Children will use skills learnt in this step when adding lengths to find the perimeter later in the block.

Things to look out for

- If children are not secure with converting units of measurement, they may make errors when adding lengths.
- Children may add lengths without converting the units of measurement, for example $14\text{ cm} + 24\text{ mm} = 38\text{ cm}$.

Key questions

- How many centimetres are there in 1 m?
- How many millimetres are there in 1 cm?
- Why is it important the lengths have the same unit of measurement before adding them?
- Which unit of measurement will you use to find equivalent lengths before adding them? Why?
- How did you find the total length?
- Does it matter in which order you add the lengths?

Possible sentence stems

- _____ cm + _____ mm = _____ mm + _____ mm = _____ mm
- _____ m + _____ cm = _____ cm + _____ cm = _____ cm
- I am going to convert all of the units of measurement to _____ because ...

National Curriculum links

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

Add lengths

Key learning

- Dora builds this tower out of boxes.

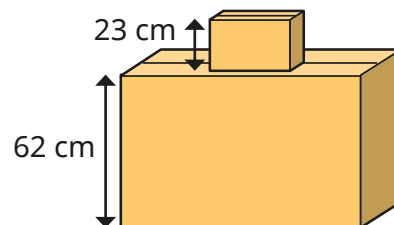
► How tall is Dora's tower?

Dora puts a third box on the tower.

The box is 30 cm tall.

► How tall is Dora's tower now?

Can you write your answer another way?



- Teddy and Kim are working out $350 \text{ cm} + 1 \text{ m } 20 \text{ cm}$.

Teddy's method

$$350 \text{ cm} + 1 \text{ m } 20 \text{ cm}$$

$$350 \text{ cm} + 120 \text{ cm} = 470 \text{ cm}$$

Kim's method

$$350 \text{ cm} + 1 \text{ m } 20 \text{ cm}$$

$$3 \text{ m } 50 \text{ cm} + 1 \text{ m } 20 \text{ cm}$$

$$3 \text{ m} + 1 \text{ m} = 4 \text{ m}$$

$$50 \text{ cm} + 20 \text{ cm} = 70 \text{ cm}$$

$$4 \text{ m and } 70 \text{ cm}$$

Talk about their methods with a partner.

Use both methods to work out the additions.

$$3 \text{ m } 65 \text{ cm} + 240 \text{ cm}$$

$$135 \text{ cm} + 5 \text{ m and } 20 \text{ cm}$$

- Complete the additions.

► $7 \text{ cm} + 30 \text{ mm} = 7 \text{ cm} + \underline{\hspace{1cm}} \text{ cm} = \underline{\hspace{1cm}} \text{ cm}$

► $22 \text{ mm} + 4 \text{ cm} = 22 \text{ mm} + \underline{\hspace{1cm}} \text{ mm} = \underline{\hspace{1cm}} \text{ mm}$

► $\underline{\hspace{1cm}} \text{ cm} = \frac{1}{2} \text{ m} + 28 \text{ cm}$

- Complete the bar models.

cm		m			cm
11 cm	20 mm	90 cm	20 cm	2 m	

- Sam, Ron and Esther take part in a standing jump competition.

Complete the table to show their total jump distances.

Child	Jump 1	Jump 2	Jump 3	Total
Sam	90 cm	65 cm	1 m 10 cm	
Ron	85 cm	85 cm	80 cm	
Esther	75 cm	1 m	1 m 25 cm	

Who jumped the greatest total distance?

Add lengths

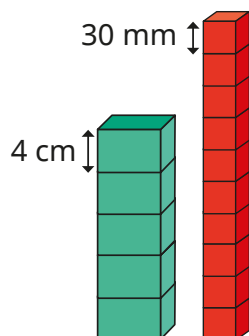
Reasoning and problem solving

Red cubes are 30 mm tall.
Green cuboids are 4 cm tall.

Tommy builds these towers.

Work out the height of each tower.

Give your answer in centimetres and in millimetres.



How much taller is the red tower than the green tower?

Draw a tower of red cubes that is between 12 cm and 24 cm tall.

Draw a tower of green cuboids that is between 12 cm and 24 cm tall.

How many answers can you find?

green tower:
20 cm, 200 mm
red tower:
30 cm, 300 mm

10 cm, 100 mm

4 to 8 red cubes
3 to 6 green cuboids

Work out the missing length.

$$234 \text{ cm} + 1 \text{ m } 83 \text{ cm} = 2 \text{ m} + \boxed{} \text{ cm}$$

217 cm

Compare methods with a partner.

Which is the odd one out?

$$4 \text{ m} + 30 \text{ cm} + 70 \text{ cm}$$

$$245 \text{ cm} + 255 \text{ cm}$$

$$50 \text{ mm} + 4 \text{ m} + 95 \text{ cm}$$

$$3\frac{1}{2} \text{ m} + 1\frac{1}{2} \text{ m}$$

All calculations add up to 5 m.

Possible answers may refer to units of measurement, fractions, number of digits.

Explain your choice.