Year 3 Length and Perimeter Knowledge Organiser

Maths

Key Vocabulary

metre (m), centimetre (cm), millimetre (mm), measure, measurement, unit of measurement, length, height, width, longer/shorter, taller/shorter, ruler, accurate, partition, compare, equal to, equivalent, add, subtract, total, difference, perimeter, shape, calculate
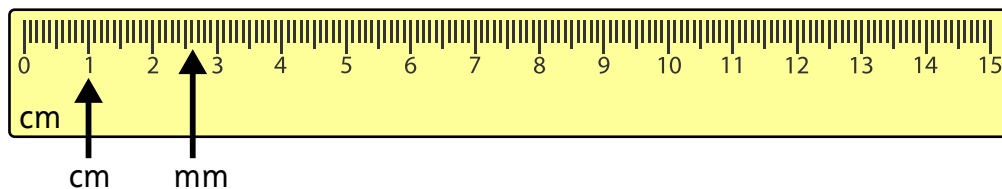
Units of measure –metres, centimetres and millimetres

Objects can be measured using metres (m), centimetres (cm) and millimetres (mm).

These measurements are related and it is useful to remember that:

100 centimetres = 1 metre

10 millimetres = 1 centimetre

Rulers, metre sticks and measuring tapes are used to measure length, height and distances.

This ruler measures in centimetres. The small lines in between the centimetres are millimetres.

Units of measure –metres, centimetres and millimetres

Different units of measure are more appropriate for measuring certain objects than others.

Small objects should be measured in mm and cm.

Large objects should use metres (m).

Objects without straight edges can be tricky to measure.

These can still be measured by using a piece of string then measuring the string.

Equivalent lengths

These are measurements that are the same but have different units of measure. For example:

If we know that 100 cm = 1 m, we can count in 100s to find an equivalent length in cm and m:

300 cm = 3 m
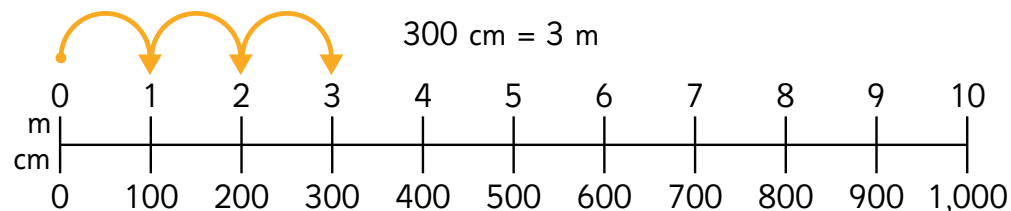
If we know that 10 mm = 1 cm, we can count in 10s to find an equivalent length in cm and mm:

3 cm = 30 mm
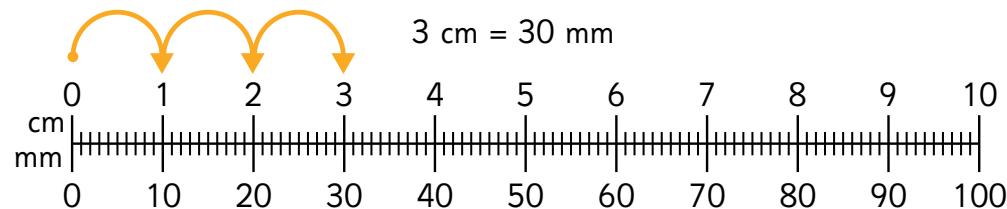
Part-whole models and bar models are useful to work out equivalent lengths, too:

157 cm

100 cm = 1 m   57 cm

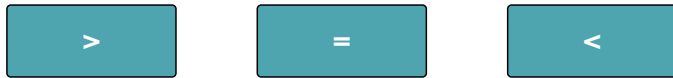| 1 m and 35 cm	
135 cm	
1 m	35 cm
100 cm	35 cm
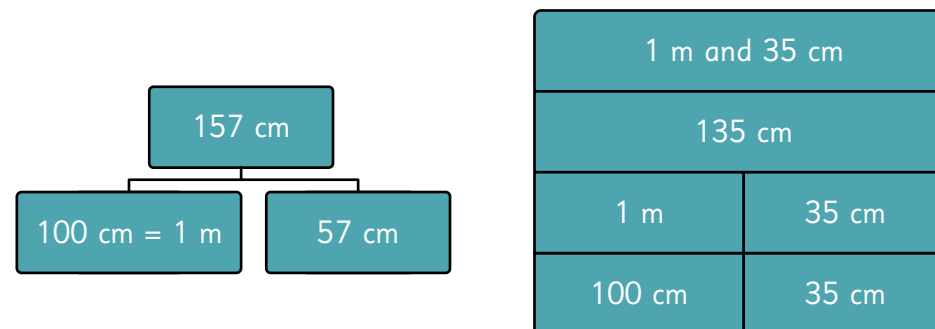
Comparing lengths

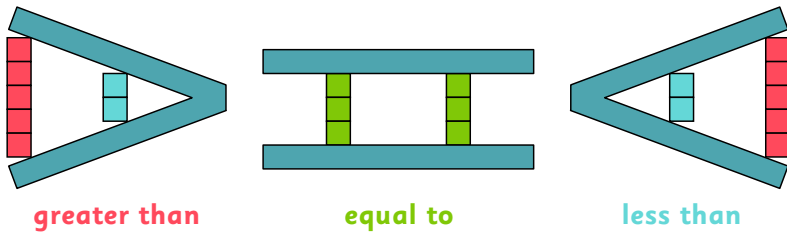We can compare lengths when they have the same unit of measure.

For example, 4 cm is equal to 40 mm. 40 mm is less than 45 mm.

We compare lengths using special symbols called **inequality symbols**, like this:

>	=	<

These symbols are used to compare values.

We can use the cubes to help visualise what each symbol means.

greater than   equal to   less than

Adding and subtracting lengths

To add lengths, first make the unit of measure the same, for example:

157 cm + 1 m and 32 cm = 1 m and 89 cm or 189 cm

157 cm		132 cm	
1 m	57 cm	1 m	32 cm

	H	T	O
	1	5	7
+	1	3	2
	2	8	9

The order you add numbers does not matter because adding is **commutative**.

	H	T	O
	5 6	1 0	
-			7
		5	3

Subtraction is **not** commutative. You must subtract the smaller number from the larger number.

For example:

6 cm − 7 mm = 60 mm − 7 mm = 53 mm

What is perimeter?

Perimeter is distance around the outside of a closed 2D shape.

A closed 2D shape is a shape where all the sides are connected with no gaps. You can measure its perimeter.
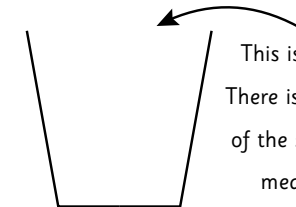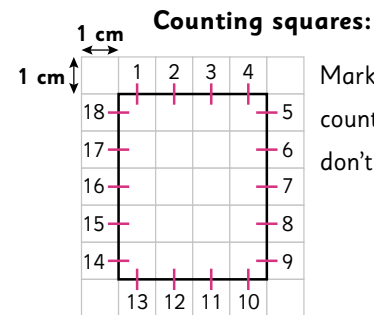
This is an open 2D shape. There is a gap between some of the sides and you cannot measure its perimeter.
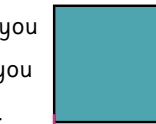
Measure perimeter

You measure perimeter by adding the lengths of all the sides of a shape together.
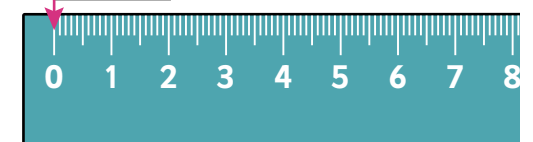
You can do this by:

Counting squares:

1 cm

1 cm

1	2	3	4
18			5
17			6
16			7
15			8
14			9
13	12	11	10

Mark edges as you count them so you don't lose track.

Or by **using a ruler**:

Line the edge of the shape up with zero on the ruler first!

0 1 2 3 4 5 6 7 8

Measure perimeter

Once you know the lengths of the sides and they have the same unit of measure, you can add them together to work out the perimeter:

3 cm = 30 mm

Then, add the sides separately:
30 mm + 30 mm + 18 mm + 18 mm = 96 mm

Or add the two sides together and multiply by 2:
30 mm + 18 mm = 48 mm x 2 = 96 mm

18 mm

3 cm