

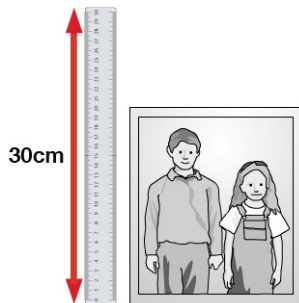
## Using measuring reference points to estimate measurements

When you are working to become familiar with metric measurements, it is useful to develop a 'feel' for the size of different units of measurement. It can be very helpful to have a few useful measuring 'reference points'. This means items that you know the measurement of, to which you can compare other things.

**One useful reference point might be: A sheet of A4 paper is roughly 30 cm long.**

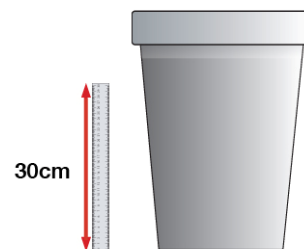
This is about the same length as a typical full-length ruler (a 30 cm/12 inch ruler).

a



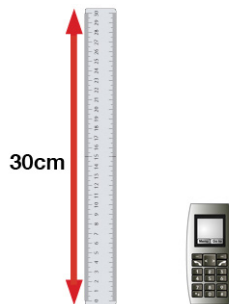
What is the height of the photograph frame?

b



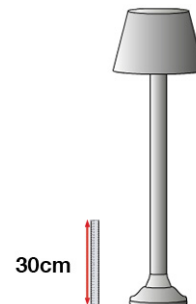
What is the height of the plant and its pot?

c



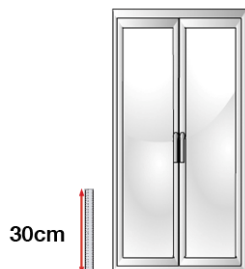
Roughly how long is the mobile phone?

d



Approximately how tall is the lamp?

e



What are the approximate height and width of the window?

**Use this same approach to estimate the measurements of everyday objects around you.**

Find some everyday items and estimate the length, width, height or depth.

**For each item, estimate the measurement first** (by thinking of the reference point of 30 cm in your mind and comparing it with the measurement you are estimating).

**Then measure the item** and see how close your estimate is to the actual measurement.

Try this with items that are a range of sizes – some of which are bigger than 30 cm and some smaller. You can use the table below to record this if you want:

Item	Estimate of measurement	Actual measurement

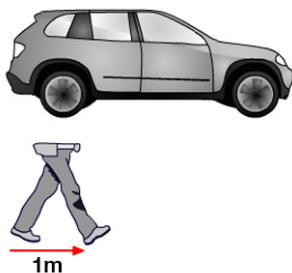
Did you find that as you tried more items – and compared your estimates with the actual measurements – you got more accurate with your estimates?

Which size(s) of items were easiest to estimate most accurately, did you find?

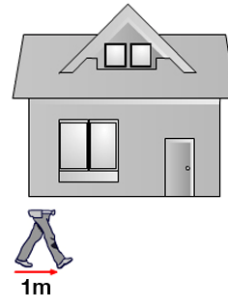
**Another useful reference point might be: A long stride is very roughly one metre.**

2 Use the ‘known’ length here to estimate the length of the other item(s):

a



b



What is the approximate length of the car?

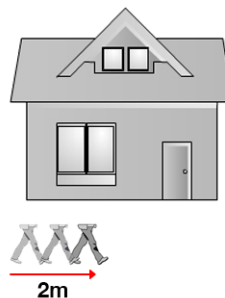
Roughly what is the width of the house?

**Finding your own reference points:**

The length of a stride varies from person to person, depending on how tall that person is and how long his or her legs are. Some people’s stride is naturally nearer to one metre long.

**Example:** Three of my strides are about two metres long. So if I want to pace out a distance to work out roughly how long it is in metres, I find it easier to use this as my reference point:

3 strides = 2 metres



- 3 If you think it would be useful, try to think of metric reference points that would work for you.

### **Length and height**

Think about lengths or heights with which you are very familiar. You could have these in your mind when you want to work out other lengths/heights.

#### **Examples:**

Your own height in metres: \_\_\_\_\_

***Note:** a small adult is about 1.5 metres; a tall adult about 2 metres; and a typical door is 2 metres high.*

A known distance on the ground, e.g.:

- the distance from a sign to a road junction
- a football pitch is typically 100 metres long
- a five-bar field gate is typically 4 metres long
- a distance related to a sports or leisure activity you know well (bowling alley, badminton court, swimming pool, etc.).

You can apply the same idea of identifying 'reference points' (if useful) to metric measurements for weight and capacity.

### **Weight**

#### **Examples:**

- A bag of sugar is typically 1 kg in weight.
- Potatoes come in 2.5 kg and 5 kg bags.

Or, if you deal with bigger weights:

- A small dog weighs about 5–10 kg and a large dog about 30–40 kg.
- A small adult weighs maybe 50 kg and a large person maybe 100 kg (or possibly more!).

**Capacity** – think about familiar items like:

- milk (1 litre, 2 litre and 4 litre containers) or
  - wine/juice (1 litre bottles/cartons)
- and containers that you are familiar with, such as:
- watering can (6 litres or 10 litres?)
  - bucket (10 litres?).

## Mini-task: Length, weight and capacity

### Answer sheet

1 Rough sizes are:

- a Photograph frame 20 cm
- b Plant and pot 45 cm
- c Mobile phone 10 cm
- d Lamp 100 cm (1 metre)
- e Window 90 cm high and 50 cm wide

2 Rough sizes are:

- a Car 4 m
- b House 6 m