

## 4.2 Measuring length

**Topic:** Measurement

**Subtopic:** Length

**Activity type/skill:** Measuring and estimating

**Literacy focus:** Vocabulary

### Objective

- Present target vocabulary in context.

### What you need

- Student worksheet (see next page)
- [Audio track 4.2](#)
- Rulers and tape measures
- Pieces of string exactly 1 or 2 metres long

### What to do

1. Look at the three pages of the student worksheet.
2. Play track 4.2 (Track 1 for this topic) – you may want to pause the track as you talk about each subject. Have students listen and look at the pictures and then talk about the text and pictures.
3. Talk about standard units of length (the first page of the student worksheet). Give students practice saying the names and identifying the abbreviations. Point out that we say 'kilometre' even when we write 'km'. Make lists on the board of the things we measure with the different units, for example, roads with kilometres, sports grounds with metres and so on.
4. Talk about non-standard units (the second page of the student worksheet). Have students use a ruler, tape measure or measured piece of string to measure their own finger, hand, handspan, nose to finger, reach and pace and compare them with the measurements in the illustration.
5. Talk about estimating length (the third page of the student worksheet). Have students estimate, then measure exactly, the length of the line and the leaf on the bottom of the page.
6. Have students fill in the chart with estimates and actual measurements of things in the classroom or outside.

### Extending the activity

- Have students estimate then measure other parts of their bodies such as heads and waists.
- Use estimating activities in *Figure it Out, Under the Sea*, Mathematics Curriculum Support, Levels 2–3, published for the Ministry of Education by Learning Media Limited, Wellington 1999.

## Activity two



### Track 1

# Measuring length

Measuring helps us describe and compare the length of things.

We can measure the length of something in two ways.

We can use standard units or non-standard units.

## Measuring with standards units - the metric system

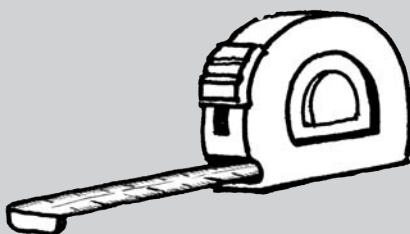
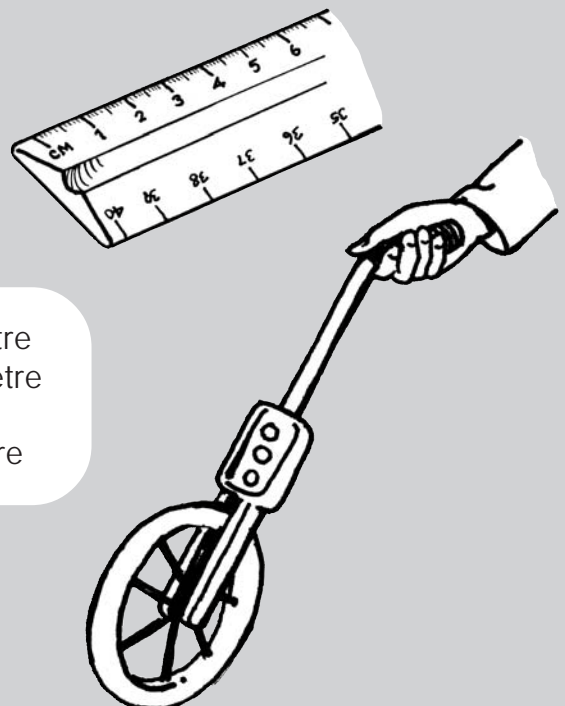
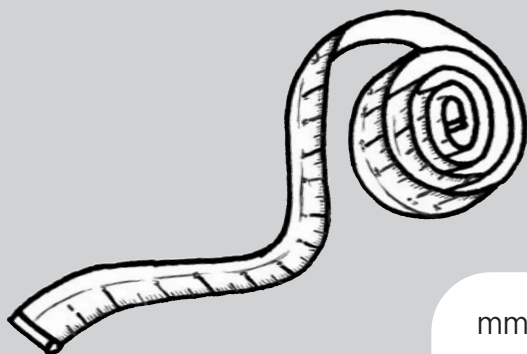
Standard units are measurements that are exact. In New Zealand we use the system of measurement called the metric system. It is an easy system to work out because it uses a base of ten. Kilometres, metres, centimetres and millimetres are standard units for measuring length in the metric system. They are always the same length.

1 **kilometre** = 1000 metres

1 metre = 100 **centimetres** = 1000 **millimetres**

1 **centimetre** = 10 **millimetres**

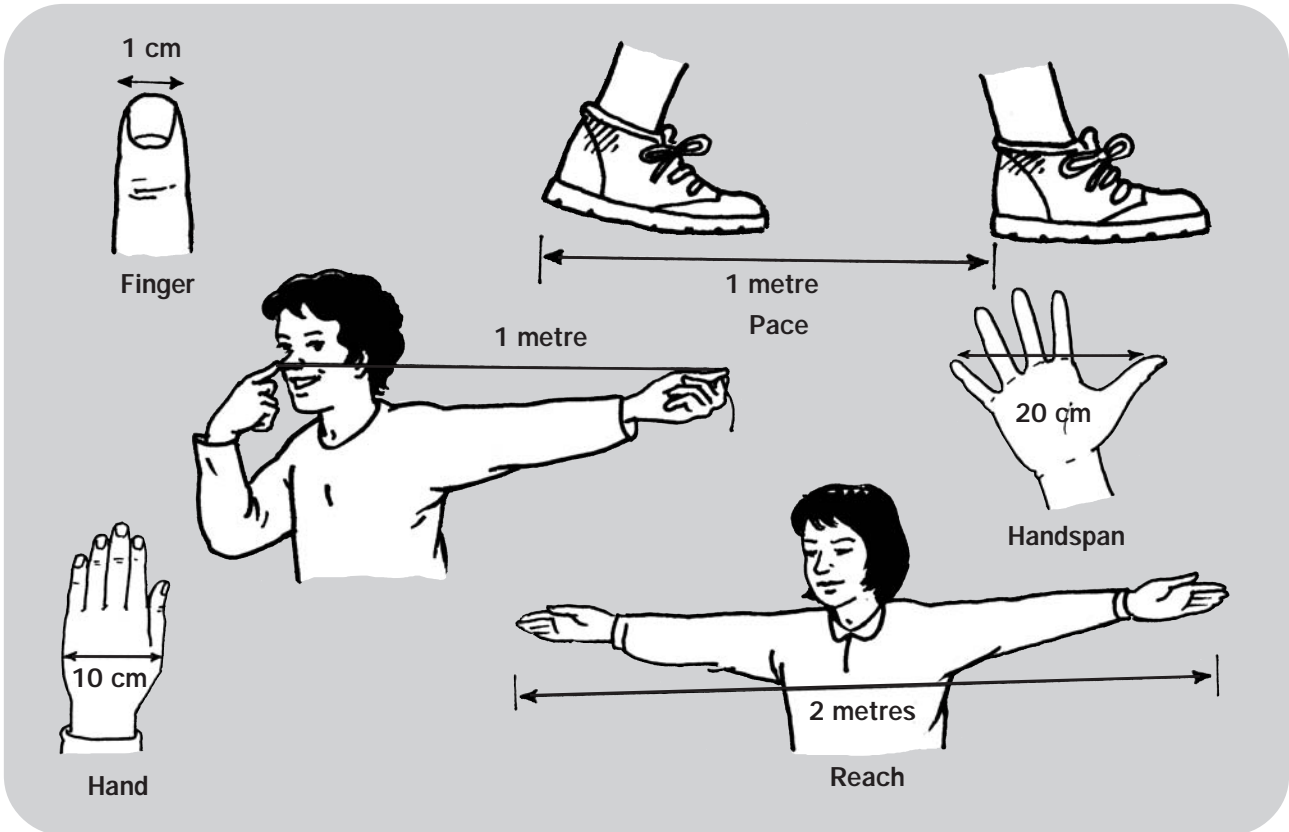
We can use tools to measure the exact length of something. The tools we usually use to measure standard units of length are a ruler, a tape measure or a trundle wheel. These tools are marked with standard units. They help us to measure accurately.



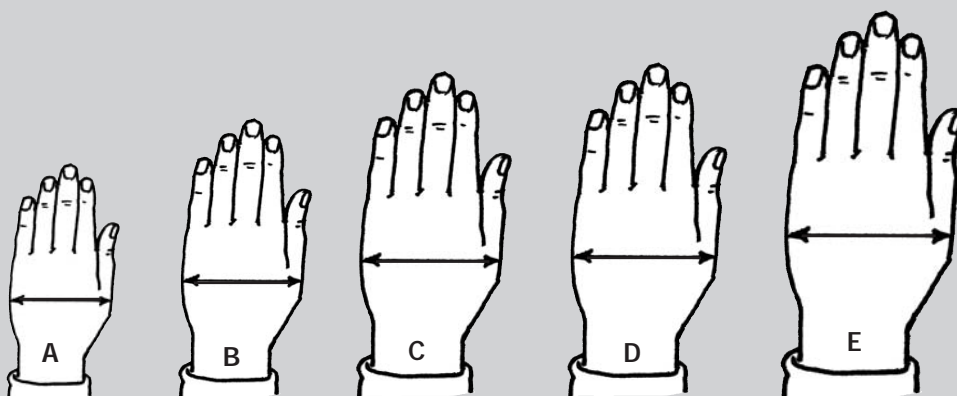
mm = millimetre  
cm = centimetre  
m = metre  
km = kilometre

## Measuring with non-standard units

Non-standard units are not exact. We often use parts of our bodies as units for measuring length. We can use our hands, fingers, arms and paces to measure the length of things. Most adults have measurements about the same as these:



Non-standard measurements are not accurate because people's bodies are different sizes.



A is smaller than B.

A is the smallest.

C is bigger than A and B.

C and D are about the same size.

C is nearly as big as D.

They are almost the same size.




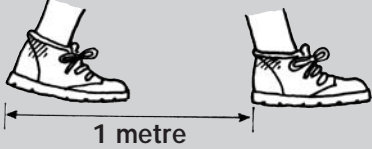
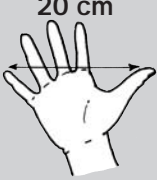
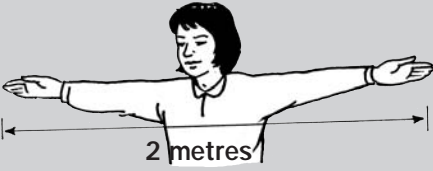
E is bigger than D.

E is the biggest.

Activity two

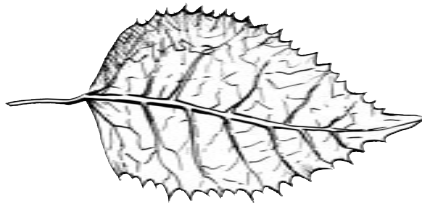
# Estimating length

We use non-standard units to estimate length. Estimating cannot give us an exact length, but it can tell us about how long something is.

 <p>1 cm Finger</p>	 <p>1 metre</p>
 <p>10 cm Hand</p>	 <p>1 metre Pace</p>
 <p>20 cm Handspan</p>	 <p>2 metres Reach</p>

*estimate* = \_\_\_\_\_

exact length = \_\_\_\_\_



*estimate* = \_\_\_\_\_

exact length = \_\_\_\_\_

	estimate using body parts	measurement using a ruler