# Making a 5 Metre Measurer

## Overview

This activity is designed to develop students' ability to estimate and measure distances in metres. Students first create their own 5 metre measurer from string. They then practise using it to estimate and measure distances around the Training Centre. It is particularly ideal for students with little experience with tape measures and builders' tapes, but all students will benefit from the estimation aspect of the exercise.

## Skills and Knowledge

- Estimating distances in metres
- Using a measuring tape
- Counting in fives
- Measuring long lengths and distances
- Rounding measurements to nearest whole metre (or 1/2 m optional)

## Preparation and Materials

- Long ball of heavy string (builders string is best)
- One metre tape measures (1 per small group of students)
- Builders' tape (optional)
- Knife for cutting string
- Coloured pens or whiteboard markers
- Sticks (to wind the string around)
- Photocopy Activity Sheet 1 (1 per student) see * below also.

Select some distances for students to practise their measurements.

Some should be short distances (4 – 5 metres) and some long (6 – 20 or more metres)

For example:

- From the classroom door to the window (short distance)
- From the board to the back wall of the room (short distance)
- From the classroom door to the front gate, office or café (long distance)

Call the distances A, B, C etc.

* Alternatively you could write descriptions of these distances on a copy of Activity Sheet 1 before you photocopy it for the students.

## Suggested Procedure

### Creating the measurer

Arrange students into small groups of 3 – 4

Give each group a piece of heavy string that is more than 5 metres long.

Also give them a one-metre tape measure and a board marker or coloured pen.

Ask them to carefully make marks every one metre along the string beginning at a zero mark.


They should cut just before the zero mark so their measurer begins close to 0 (like most tape measures).

When students have finished they should check their measurer by holding it beside the measurer of another group.

If they put the zeros together then all of the other marks should be in the same place.

If some of the marks are very different, both groups should measure again and make new marks with a different colour.

### Practising with the measurers

Before students try the 'estimate and measure' activity, they should first practice using their measurers, particularly for distances that are longer than the tape.

If necessary, demonstrate how this is done by picking a distance together and asking students to suggest how this can be measured using just one of their string measurers.

Explain:

- *For long distances like this you lay the string down to its 5 metre mark,*
- *Put a mark on the ground.*
- *Then pick it up and lay it down again with the zero at the mark.*
- *Repeat as many times as necessary until you get to the end.*

To measure like this students also have to count in 5s.

Explain:

- *The first time they lay down the full measure = 5 metres.*
- *Second time they lay it down it will be 5 m + 5 m = 10 m.*
- *Third time 5 m + 5 m + 5 m = 10 m.*

Ensure students can count in fives like this by giving them a few moments practice with imaginary lengths.

Ask:

- *If I lay the tape down 4 times, how far is it?*
  [Response: 5 10 15 20 → 20 metres]

**When the measurement is not exact - rounding**

How accurate you want students to be with their measurements will depend on their prior exposure to measuring and their familiarity with halves. You may want them to use only whole numbers or to go to half metres.

If you are happy to 'round' to whole numbers only, then explain:

- *If your distance reaches a little bit more than the mark on the measurer, don't count it – ignore the extra bit.*

- Demonstrate an example with a distance on the ground such as:


*This distance would be called 4 metres.*

- *If it is close to the mark but does not reach all the way then you will count it – pretend it goes all the way to the mark.*

Again demonstrate with an example:


*This distance would be called 5 metres.*

For students with more experience with measuring, and greater understanding of halves you may want to get them to add ½ metre marks to their measurers and round all measures to the nearest half metre. But do this only if students demonstrate that it is easy for them to understand everything up to this point.

**Guess and measure**

With students still working in small groups of 3 – 4 (or pairs) distribute copies of Activity Sheet 1 to each student. They should record their own name and the names of other group members.

If you have not written them on the sheet, show students the distances, A, B, C etc. that you want them to measure.

Explain:

- *First guess (by looking) how many metres it is → record your guess*
- *Second, use your 5 metre measurers to measure the distance → record your measurement*

For example:

| | *Guess of Maya* | *Measured distance* |
|---|---|---|
| *A – From door to cafeteria* | *25 m* | *22 m* |

Groups should measure all of the distances, but the order is not important

Some groups can start with measure D some with measure A, etc. so they are not all doing the same thing at the same time.

Watch students as they do this to make sure they are using the measurer correctly.

When they have finished they should wind their measure around a stick to keep for another time.

Compare the measurements from the different groups. If any are really different then check them together.

Ask:

- *Did your guesses get better as you did more of the distances?*
- *Which were the hardest? Longer or shorter distances?*
- *Did you get more efficient at using the measurer?*

**Follow up**

The activities *'How Far will my Plane Fly'* and *'Paces for Estimating Metres'* provide further experience at estimating and measuring in metres and an alternative means of estimating longer lengths and distances. The fun of the plane flying activity will appeal particularly to younger and/or active learners.

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Activity Sheet 1

Group members' names:

…… ……

…… ……

| | Guess of: …… | Guess of: …… | Guess of: …… | Guess of: …… | Measured distance |
|---|---|---|---|---|---|
| A | | | | | |
| B | | | | | |
| C | | | | | |
| D | | | | | |
| E | | | | | |
| F | | | | | |