

### Learning objective

PNS: Measuring

- Draw and measure lines to the nearest millimetre.

### Resources

'Ruler rules' Notebook file; individual whiteboards and whiteboard markers; assortment of everyday class items: pencil, pen, eraser, pencil sharpener, book, stationery case, reading book, homework diary; rulers (15 and 30cm); photocopyable page 90 'Measuring table' for each child.




### Links to other subjects English

PNS: Drama

- Ask children to use drama to teach younger children the differences between kilometres and centimetres, making the explanation as fun and visual as possible.

### Whiteboard tools

To rotate the ruler, select it, press the green dot and drag to rotate.


-  Pen tray
-  Select tool
-  Screen Shade

# Ruler rules

## Starter

Go to page 2 of the Notebook file. The children have to re-arrange the digits to make numbers that are greater than, then less than, then as close as possible to the number on the board. Ask one or two children to read the number out loud each time. Invite a volunteer to re-arrange the numbers on the board. Use the Random Number Generator to create a four-digit number. Ask the children to create a greater than/less than/as close as possible number to the one on the board.

## Whole-class shared work

- Give the children rulers and ask them to place their fingers on any millimetre line. Ask: *What is a millimetre a division of?* (A centimetre, a metre and a kilometre.)
- Display the ruler on page 3 of the Notebook file. Ask: *What do the divisions stand for?* Explain that although this metric ruler is enlarged, it measures centimetres and millimetres (show the divisions).
- Move the Screen Shade  to reveal the lower half of the page. Demonstrate placing the ruler accurately on the end of the square, over the 0, to ensure an accurate measurement. Ask for a volunteer to come up and read the answer. Repeat with the other shapes.
- Discuss how the measurements would be different if a centimetre ruler were used.
- Display page 4. Ask the class to write an estimate for the length of the recorder on their whiteboards, using the interactive whiteboard ruler as the guide. Note down answers. Measure the recorder. Congratulate the person with the nearest estimate. Repeat with the other objects. (The objects are all movable and the ruler can be rotated.)

## Independent work

- Display page 5. Ask the children to find, estimate and measure the items listed in the table.
- Give each child a copy of photocopyable page 90. Working in pairs, they should choose five more items to estimate and measure.
- The children should estimate the length of an object to the nearest millimetre, keeping their estimates hidden from their partners. They should then measure the object, deduct their estimated length from the actual measurement and enter this as their score.
- When all of the items have been measured, the person with the lowest score is the winner.
- Ensure that less confident learners choose smaller items to estimate.
- Challenge more confident learners to estimate and measure larger items, such as the length of a bookcase.

## Plenary

- Ask volunteers to write up their estimated and actual measurements for each item on page 5 of the Notebook file. Discuss the differences between the estimated and actual measurements.
- Compare everyone's scores and celebrate the success of the person with the lowest score.
- Ask: *What happened to your estimates as you measured more items?* (They should have improved with practice.)
- Discuss where people got estimates very wrong - usually with larger objects - and reflect that it is harder to estimate larger objects accurately, and that another unit of measurement is needed in those cases.