Measurement investigation with precision

MODULE 5 · MEASURES — LENGTH, AREA, VOLUME, MASS AND CAPACITY MEASURES

HOW TO ANSWER TODAY

- **Convert units.** To a SMALLER unit → multiply. To a BIGGER unit → divide. Common factors: cm↔mm ×10, m↔cm ×100, km↔m ×1,000, kg↔g ×1,000, l↔ml ×1,000.
  250 cm → m: ÷ 100 = 2.5 m · 3.5 kg → g: × 1,000 = 3,500 g
- **Read a ruler.** Each big mark = 1 cm = 10 mm. Each little mark = 1 mm.
  3 cm + 7 mm = 37 mm = 3.7 cm
- **Estimate gap.** Subtract the smaller from the bigger to find how far off the estimate was.
  Estimated 15 cm, real 12.5 cm → 2.5 cm off

STRETCH PROBLEMS

1. 5th class are taping out a giant Snakes and Ladders track in the school yard, with the full snaking path measuring **5969 cm** from start to finish. For their maths display, they need to record the path length in kilometres. How many kilometres long is the track?
   > Convert 5969 cm to km.

2. On the 5th class nature walk through the local park, Cian finds a small oak leaf and measures it against his ruler. The tip of the leaf sits **14 cm** and **6 mm** from the start of the ruler. What is the length of the leaf in cm?

3. On the school tour to Glendalough, Oisín finds a smooth stone by the lake and guesses it is **65.7 cm** long. When he measures it with his ruler back at the coach, it is actually **59.8 cm**. By how much is his estimate off?
   > A pupil estimates a length as 65.7 cm, then measures it as 59.8 cm. By how much is the estimate off?

4. Saoirse cycles from granny's farmhouse to the far field to check on the calves. The lane runs **3290 m** from the gate to the field. How many kilometres is that?
   > Convert 3290 m to km.

5. Tadhg is drawing a scale plan of the classroom on grid paper. He estimates the length of one bookshelf as **51.6 cm**, then measures it with his ruler as **60.3 cm**. By how much is his estimate off?

INVESTIGATE

How accurately can you measure?

Measure the same object (say, your desk) three times. Do you get the same answer each time? What causes the small differences? How could you make your measuring more reliable?