

Decimal and fractional measures in problems

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

MEASURES

Measurements are often decimals or fractions. Convert to a **single unit** before you add, subtract or compare.

→ $1.2 \text{ km} + 750 \text{ m} \rightarrow 1200 \text{ m} + 750 \text{ m} = 1950 \text{ m}$.

→ Half a litre + 300 ml = $500 + 300 = 800 \text{ ml}$.

HOW TO ANSWER TODAY

- **Read a ruler.** Each big mark = 1 cm = 10 mm. Each little mark = 1 mm.

$$3 \text{ cm} + 7 \text{ mm} = 37 \text{ mm} = 3.7 \text{ cm}$$

- **Perimeter.** Perimeter is the distance ALL the way round. Rectangle: $(\text{length} + \text{width}) \times 2$.

$$12 \text{ m by } 8 \text{ m} \rightarrow (12 + 8) \times 2 = 40 \text{ m}$$

- **Convert units.** To a SMALLER unit → multiply. To a BIGGER unit → divide. Common factors: $\text{cm} \leftrightarrow \text{mm} \times 10$, $\text{m} \leftrightarrow \text{cm} \times 100$, $\text{km} \leftrightarrow \text{m} \times 1,000$, $\text{kg} \leftrightarrow \text{g} \times 1,000$, $\text{l} \leftrightarrow \text{ml} \times 1,000$.

$$250 \text{ cm} \rightarrow \text{m}: \div 100 = 2.5 \text{ m} \quad 3.5 \text{ kg} \rightarrow \text{g}: \times 1,000 = 3,500 \text{ g}$$

WARM-UP

- 1 Oisín is making a homemade Snakes and Ladders board for the wet-day box in 5th class. He measures the length of one square with his ruler and the edge sits at **4 cm** and **9 mm** from the start. What is the reading in mm?

A ruler reading sits 4 cm and 9 mm from the start of the ruler. What is the reading in mm?

- 2 Oisín measures the length of a small sticker on his sponsored-cycle chart using a ruler. The end of the sticker sits at **8 cm** and **4 mm** from the start of the ruler. What is the length of the sticker in mm?

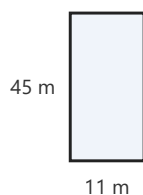
A ruler reading sits 8 cm and 4 mm from the start of the ruler. What is the reading in mm?

PRACTICE

- 1 Cian uses his ruler to measure how long a chocolate finger biscuit is at break time in 5th class. The end of the biscuit lines up at **14 cm** and **4 mm** on the ruler. What is the length of the biscuit in cm?

A ruler reading sits 14 cm and 4 mm from the start of the ruler. What is the reading in cm?

2



5th class are marking out a giant Snakes and Ladders board on the school yard for Active Week. The rectangle measures **11 m** by **45 m**. What is the perimeter of the board?