# Using relationships to convert between metres, centimetres and millimetres

National Curriculum attainment target

Convert between different units of measure

## Lesson objectives

- Read and write the relationships between metric units for length (metres, centimetres and millimetres); use decimal notation to tenths to record length
- Use multiplication to convert from larger to smaller units of length

## Previous related lesson

## Unit 6, Week 3, Lesson 1

### Prerequisites for learning

Pupils need to:

- be able to convert between kilometres and metres
- use decimal notation to tenths to record length in kilometres and in metres

#### Vocabulary

metre (m), centimetre (cm), millimetre (mm), length, distance

Future related lessons

Unit 6, Week 3, Lesson 3; Unit 6, Week 3, Lesson 4 Success criteria

Pupils can:

- convert between metres and centimetres, centimetres and millimetres and metres and millimetres
- use decimal notation to tenths to record length in metres and in centimetres



Connect Year 4, Unit 6,

Week 3

# **Getting Started**

• Choose an activity from Measurement (length and perimeter).

## Teach

- Write on the board: 1 m = 100 cm 1 cm = 10 mm
- Ask: Which is the larger unit, metres or centimetres? (m) Say: To convert the larger unit, metres, to the smaller unit, centimetres, we need to multiply the larger unit by 100.
- Ask: How many centimetres are the same as 6/8 metres? (600 cm/800 cm)
- Ask: Which is the larger unit, centimetres or millimetres? (cm) Say: To convert centimetres to millimetres, we need to multiply the number of centimetres by 10.
- Ask: How many millimetres are the same as 4/9 centimetres? (40 mm/90 mm)
- Ask: If 10 millimetres are the same as one centimetre and 100 centimetres are the same as one metre, how many millimetres are the same as one metre? (1000) How did you find the answer? (10 × 100 = 1000)
- Ask: How many centimetres are equal to one tenth of one metre? (10 cm) How do we write one-tenth as a decimal? (0.1)
- Say: Tell your partner how to write 50 centimetres as a fraction and as a decimal of one metre. ( $\frac{1}{2}$  m, 0.5 m)
- Display: Slide 1.
- Ask: How many centimetres are the same as two-tenths of one metre? (20)
- Ask: Who can come to the board and write this using decimals? (0.2 m) Elicit that 0.2 m reads as "no whole metres and two-tenths of one metre".
- Repeat, as above, for other tenths of one metre.
- Display: Slide 2.

2

- Display the relationship: 1 cm = 10 mm and say: Tell your partner how to write five millimetres as a fraction and as a decimal of one centimetre. ( $\frac{1}{2}$  cm, 0.5 cm)
- Display the remaining lines:
  - $\frac{1}{2}$  cm = 0.5 cm = 5 mm
  - $\frac{1}{10}$  cm = 0.1 cm = 1 mm
- Ask: How many millimetres are equal to 0.4 centimetres? (4)
- Say: The length "millimetre" means one-thousandth of one metre.
- Ask: Who can remember how many millimetres are the same as one metre? (1000)
- Display: Slide 3.
- Ask: If I change 50 cm to 40 cm, what are the equivalent measurements in metres and in millimetres? (0.4 m and 400 mm)
- Say: Tell your partner two equivalent measurements for 300 mm. (0.3 m and 30 cm)
  - Write on the board: 6 m = 600 cm.
  - Ask: What number have I multiplied six by to convert the length to centimetres? (100)
  - Write on the board: 6.3 m = 600 cm + 30 cm
    - = 630 cm
- Ask: Who can tell the class how to convert 6·3 metres to millimetres? Take feedback and write on the board: 6·3 m = 600 cm + 30 cm
  - = 6000 mm + 300 mm
  - = 6300 mm
  - Repeat, as above, for 2.7 m and 4.8 m.

## Individualised Learning

Refer to Activity 2 from the Learning activities on page 258.

Pupil Book 4B: - Page 25: DIY measurements

# Plenary

#### Resources

ruler (per class)

- Ask: When you convert an amount of metres to centimetres, what number do you multiply the amount of metres by? (100)
- Repeat, as above, for converting centimetres to millimetres.
- Write on the board: 1 m = 100 cm and 1 cm = 10 mm



- Ask pairs to share the meaning of the length millimetre. (one thousandth part of one metre)
- Ask: What is 8·3 metres in centimetres? (830 cm) Can you tell the class how you found the answer?
- Repeat, as above, for converting 8.3 centimetres to millimetres.
- Hold up the ruler and say: This ruler will measure lengths from 0 to 30 centimetres. How many millimetres are the same as 30/18/25 centimetres? (300/180/250 mm) In your head, draw a line 145 mm long. Now convert this length to centimetres using decimals. How long is the line you have drawn? (14.5 cm)
- Say: A plank of wood measures 3.5 m. Ask: How many 35 cm lengths can it be sawn into? (10) • Say: Tell your partner how many lengths of 50 cm can be made from the plank of wood. (7)
- 21/2

253