

Converting between units of length and using decimal notation

National Curriculum attainment target

- Convert between different units of measure

Lesson objectives

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

Previous related lesson

None

Prerequisites for learning

Pupils need to:

- be able to measure and estimate length using metric units (m, cm and mm)

Vocabulary

kilometre (km), metre (m), length, distance

Future related lessons

Unit 6, Week 3, Lesson 2; Unit 6, Week 3, Lesson 3; Unit 6, Week 3, Lesson 4

Success criteria

Pupils can:

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



Getting Started

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

**Collins
Connect**
Year 4, Unit 6,
Week 3

i After the French Revolution, the emperor Napoleon Bonaparte set the best scientists and mathematicians in all of France the task of inventing standard units of measurement for length, mass and capacity. It is called the metric system and the standard unit of length is the metre.

Teach

Resources

metre stick (per class)

- Ask: **Which metric units of length did you work with in Year 3?** (m, cm and mm)
- Say: **There is a unit for measuring lengths and distances much longer than a metre. Who can tell me what it is called?** (kilometre) **What might we measure in kilometres?**
- Explain to the children the background to the kilometre.
- Hold up a metre stick and say: **The standard unit of measurement for length is the metre. If you lay one thousand of these metre sticks end to end, you will have the same length as one kilometre. The measure "kilometre" means one thousand metres. We can write the word in full or shorten it using the letters km.**
- Display: Slide 1.
- Ask: **Which is the larger unit, metres or kilometres?** (km) Say: **To convert the larger unit, kilometres, to the smaller unit, metres, we need to multiply the larger unit by 1000.**
- Ask: **How many metres are the same as five/seven kilometres?** (5000 m/7000 m)
- Elicit in metres the fractions $\frac{1}{2}$ and $\frac{1}{10}$ of 1 km. (500 m and 100 m)
- Display: Slide 2.
- Ask: **Who can point to the position of 500 m on the number line?** Display 500 m on the number line.
- Repeat and display 100 m. Recall that 100 m equals one tenth of one kilometre.





- Ask: **How might we write this as a decimal?** (0.1 km) Display 0.1 km below 100 m on the number line.
- Ask: **Who can point to the position of 0.9 km ? How many metres equal 0.9 km?** Display 0.9 km and 900 m on the number line.
- Ask: **Who can find the position of 0.4 km ? How many metres equal 0.4 km?** Display 0.4 km and 400 m on the number line.
- Continue, as above, to complete the number line.
- Write 2.7km on the board.
- Say: **Discuss with your partner the steps we need to take to convert 2.7 km to metres.**
- Take feedback and write on the board: $2.7 \text{ km} = 2 \text{ km } 700 \text{ m}$

$$= 2000 \text{ m} + 700 \text{ m}$$

$$= 2700 \text{ m}$$



- Ask: **How do we write 2.7 km using fractions?** ($2\frac{7}{10}$ km)
- Write 6400m on the board.
- Ask pairs to discuss different ways of recording 6400 m and to share this with the class.
- Take feedback and write on the board: $6400 \text{ m} = 6000 \text{ m} + 400 \text{ m}$

$$= 6 \text{ km } 400 \text{ m}$$

$$= 6.4 \text{ km}$$



- Ask: **Who can explain why 5 km 800 m is written in decimal notation as 5.8 km?** ($\frac{8}{10} = 0.8$ so $800 \text{ m} = \frac{8}{10}$ of 1 km or 0.8 km)



- Say: **Calum's house is 1.8 kilometres from Craigton school and Keira's house is 1900 metres from Craigton school. Ask: Which child lives closer to the school? (Calum) Can you explain to the class how you found the answer?**

Individualised Learning

Refer to Activity 1 from the Learning activities on page 258.

Pupil Book 4B: – Page 24: Kilometres and metres

Progress Guide 4: – Support: Year 4, Unit 6, Week 3, Lesson 1:
Kilometre dominoes

Resources: scissors (per child)

Plenary



- Say: **Tell your partner what the word "kilometre" means.**
- Ask: **When you convert an amount of kilometres to metres, what number do you multiply the amount of kilometres by?** (1000)
- Ask: **How many metres are the same as 5 kilometres/9 kilometres?** (5000 m/9000 m)
- Ask: **What is 7.4 kilometres in metres?** (7400 m) Explain to the class how you converted 7.4 kilometres to metres.
- Repeat, as above, for other examples.
- Say: **It takes about 10 minutes to walk one kilometre. Who takes about 10/15 minutes to walk to school? How far from school is your house?** (1 km/1.5 km)
- Ask: **A football pitch is 100 m long. What is that distance in kilometres?**
- Repeat for other distances in multiples of 100 m and in kilometres to one decimal place.



Homework Guide 4

Year 4, Unit 6, Week 3, Lesson 1:
Out and about distances