

Chapter 1 | Measurement Foundations: Length, Units, and Estimation

Worksheet C | Mixed Practice & Application

Name: _____ Grade: _____ Date: _____

Warm-up: Worked Examples

Example 1: Complete Measurement

Problem: A running track is 400 metres around. A student records the distance as 400. What must be included?

Add the unit $\Leftrightarrow$ $400 \rightarrow 400 \text{ m}$

Example 2: Convert Metres to Centimetres

Problem: Convert 2.35 m to centimetres.

Conversion fact $\Leftrightarrow$ $1 \text{ m} = 100 \text{ cm}$

Multiply $\Leftrightarrow$ $2.35 \times 100 = 235$

Answer $\Leftrightarrow$ $2.35 \text{ m} = 235 \text{ cm}$

Example 3: Choose a Reasonable Unit

Problem: Choose the most reasonable unit for the height of a classroom doorway: mm, cm, m, or km.

Estimate the size $\Leftrightarrow$ doorway height = a few units

Answer $\Leftrightarrow$ m

Example 4: Find Length from Ruler Marks

Problem: A ribbon begins at 6.25 cm and ends at 19.8 cm on a ruler. Find its length.

Subtract $\Leftrightarrow$ $19.8 - 6.25 = 13.55$

Answer $\Leftrightarrow$ 13.55 cm

Example 5: Common-Trap Conversion

Problem: A student says that $3.2 \text{ km} = 320 \text{ m}$. Explain the error and give the correct conversion.

Wrong move $\Leftrightarrow$ $3.2 \times 100 = 320$

Correct conversion $\Leftrightarrow$ $3.2 \times 1000 = 3200$

Answer $\Leftrightarrow$ $3.2 \text{ km} = 3200 \text{ m}$

Practice

1. A school hallway is 36 m long. Write the length in centimetres.

2. A board is 2.4 m long. Another board is 180 cm long. Which board is longer? Show how you know.

3. A backpack strap begins at 4.8 cm and ends at 22.3 cm on a ruler. Find its length.

4. A wooden stick is measured as 112 mm. Write the measurement in centimetres.

5. A student writes $900\text{ cm} = 0.9\text{ m}$. Explain why the answer cannot be correct.

6. Choose the best unit for each measurement: a. width of a fingernail; b. height of a classroom ceiling; c. distance across a province; d. length of a textbook.

7. A dog leash begins at 13.5 cm and ends at 31.2 cm on a ruler. Find its length.

8. A map scale shows that 1 cm represents 5 km. A student says that 3 cm on the map represents 15 m in real life. Is the student correct? Explain.

9. A cabinet is 1.9 m tall. Write its height in centimetres.

10. A piece of ribbon begins at 2.75 cm and ends at 18.4 cm. Find its length.

11. A classroom is 8 m long and 7 m wide. Which measurement is more reasonable for the classroom's length: 8 m or 8000 km? Explain.

12. A cyclist travels 6 km. Write the distance in metres.

13. A student wants to measure the length of a soccer field. Which tool and unit would be most useful: a ruler and millimetres, a tape measure and metres, or a road map and kilometres? Explain.

14. Non-Routine Item 1: Broken Ruler. A ruler has its first 5 cm broken off. A pencil begins at 6.4 cm and ends at 19.1 cm. a. Find the pencil's length. b. Explain why the broken beginning does not prevent an accurate measurement.

15. Non-Routine Item 2: Find the Error. Two students measure a strip that begins at 8.3 cm and ends at 21.7 cm. Student A says 21.7 cm. Student B says $21.7 \text{ cm} - 8.3 \text{ cm} = 13.4 \text{ cm}$. Who is correct? Explain.
