LESSON MAKER PRO

Metric Mission

Choose, convert, and combine metric lengths.

GRADE 5 · 5.MG.1.b.i

5.MG.1.b.i "Estimate and measure to solve contextual problems that involve metric units: length (millimeters, centimeters, and meters);"

NAME _____ DATE _____

METRIC LENGTHS

Use millimeters for very small lengths, centimeters for medium lengths, and meters for longer lengths. There are 10 millimeters in 1 centimeter and 100 centimeters in 1 meter. Estimate first to check whether a measured answer makes sense.

WORKED EXAMPLE

A toy train track is 4 m 18 cm long. How many centimeters is it?

1. 4 m = 400 cm.
2. 400 cm + 18 cm = 418 cm.

Answer: 418 cm

PRACTICE 6 problems

1 A bead is 32 mm wide. Write its width in centimeters and millimeters.

ANSWER _____

2 A jump rope is 165 cm long. Write its length in meters and centimeters.

ANSWER _____

3 A 74 cm shelf and a 680 mm shelf are compared. Which shelf is longer, and by how many millimeters?

ANSWER _____

4 Which is a reasonable estimate for the length of a book: 24 mm, 24 cm, or 24 m?

ANSWER _____

5 A caterpillar travels 9 cm 6 mm. How many millimeters does it travel?

ANSWER _____

6 A seedling is 27 cm tall. It grows 15 cm. How tall is it now?

ANSWER _____

APPLY IT Show your work

1 For a school podcast, Amir uses 2 m 40 cm of cable from the microphone to the recorder and 175 cm more cable to reach a speaker. How much cable does he use in all?

WORK SPACE

ANSWER _____

2 An art display needs a support strip that is 3 m long. One piece is 1 m 35 cm long, and another piece is 86 cm long. How much more strip is needed?

WORK SPACE

ANSWER _____

3 Actual measuring task: Your teacher provides a metric ruler or tape and a flat book that fits within its scale. Estimate the book width in centimeters. Align one edge with zero and measure its width to the nearest millimeter; record your estimate and observed width with units. A display label strip must be 20 mm longer than that width. Find the strip length in millimeters and centimeters, and compare your measurement with your estimate.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A gaming club marks a race path with 1 m 26 cm of tape, 845 mm of tape, and 73 cm of tape. Estimate the total length to the nearest meter. Then find the exact total length.

WORK SPACE AND ANSWER

ANSWER KEY # Metric Mission

GRADE 5 · 5.MG.1.b.i

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A bead is 32 mm wide. Write its width in centimeters and millimeters.	**3 cm 2 mm**
2	A jump rope is 165 cm long. Write its length in meters and centimeters.	**1 m 65 cm**
3	A 74 cm shelf and a 680 mm shelf are compared. Which shelf is longer, and by how many millimeters?	**The 74 cm shelf is longer by 60 mm.**
4	Which is a reasonable estimate for the length of a book: 24 mm, 24 cm, or 24 m?	**24 cm**
5	A caterpillar travels 9 cm 6 mm. How many millimeters does it travel?	**96 mm**
6	A seedling is 27 cm tall. It grows 15 cm. How tall is it now?	**42 cm**

PART 2 · APPLY IT

1. **4 m 15 cm** Convert 2 m 40 cm to 240 cm. Add 240 cm and 175 cm to get 415 cm, which is 4 m 15 cm.
2. **79 cm** Convert all lengths to centimeters: 3 m is 300 cm and 1 m 35 cm is 135 cm. The two pieces total 221 cm, so 300 cm - 221 cm = 79 cm.
3. **Answers depend on the measured book. If its width is L mm, the strip length is L + 20 mm, or (L + 20) / 10 cm.** Observe actual zero alignment and scale reading. Check the recorded width against the book and the stated precision. Example only: a measured width of 240 mm gives 260 mm = 26 cm; do not substitute this example for the learner measurement.

CHALLENGE

Estimate: 3 m. Exact: 2 m 83 cm 5 mm.

Accept equivalent metric forms when they are exact, such as 415 cm for 4 m 15 cm. For the challenge, accept 2,835 mm or 283.5 cm as the exact total. Apply 3 requires an actual teacher-supported measurement before the contextual calculation. Accept consistent measured values and a sensible comparison with the estimate; assess zero alignment, millimeter precision and units.