

Metric Units for Measuring Length

The **basic unit** for measuring length in the metric system is **the meter**. All the other units for measuring length have the word “meter” in them.

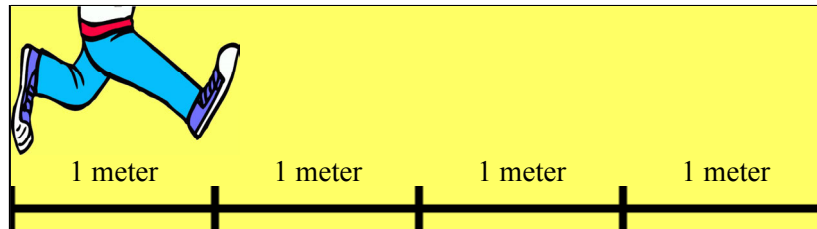
Each unit is 10 times the smaller unit. For example, 1 kilometer is 10 hectometers. But we do not commonly use hectometers, dekameters, or decimeters. You only need to learn the bolded units in the chart.

<u>Units of length in the metric system</u>			
10	kilometer	km	“Kilo” means 1,000.
10	hectometer	hm	(not used)
10	dekameter	dam	(not used)
10	meter	m	the basic unit
10	decimeter	dm	(not used much)
10	centimeter	cm	100 of these make a meter.
10	millimeter	mm	This is 1/10 of a centimeter.

Remember also that 1 meter is very close to 1 yard. One meter is a tiny bit longer than 1 yard.

1. Outside, or in a long corridor or room, draw two lines that start at the same place.

- a. Using a measuring tape, mark on the one line 1 m, 2 m, 3 m, and 4 m. Can you take “hops” 1 meter long?



- b. Mark on the second line marks from 1 foot to 13 feet. Make 1-yard hops. Compare: do the two kinds of hops feel about the same?



2. Measure how tall you and other people are in centimeters. Write it also using whole meters and centimeters.

Name	How tall
	_____ cm = <u>1</u> m _____ cm.

Conversions between units

Remember what millimeters look like on your ruler. 10 millimeters make 1 cm.

And 100 centimeters is 1 meter. “Centi” actually means a hundred (from the Latin word *centum*).

Lastly, 1 kilometer means one thousand meters, because “kilo” means 1,000!

$$1 \text{ km} = 1,000 \text{ m}$$

$$1 \text{ m} = 100 \text{ cm}$$

$$1 \text{ cm} = 10 \text{ mm}$$

3. One meter is 100 cm. Convert between meters and centimeters.

a. $5 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

$8 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

$12 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$

b. $4 \text{ m } 6 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

$9 \text{ m } 19 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

$10 \text{ m } 80 \text{ cm} = \underline{\hspace{2cm}} \text{ cm}$

c. $800 \text{ cm} = \underline{\hspace{2cm}} \text{ m}$

$239 \text{ cm} = \underline{\hspace{1cm}} \text{ m } \underline{\hspace{1cm}} \text{ cm}$

$407 \text{ cm} = \underline{\hspace{1cm}} \text{ m } \underline{\hspace{1cm}} \text{ cm}$

4. One centimeter is 10 mm. Convert between centimeters and millimeters.

a. $5 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

$8 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

$14 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

b. $2 \text{ cm } 8 \text{ mm} = \underline{\hspace{2cm}} \text{ mm}$

$7 \text{ cm } 5 \text{ mm} = \underline{\hspace{2cm}} \text{ mm}$

$10 \text{ cm } 4 \text{ mm} = \underline{\hspace{2cm}} \text{ mm}$

c. $50 \text{ mm} = \underline{\hspace{1cm}} \text{ cm } \underline{\hspace{1cm}} \text{ mm}$

$72 \text{ mm} = \underline{\hspace{1cm}} \text{ cm } \underline{\hspace{1cm}} \text{ mm}$

$145 \text{ mm} = \underline{\hspace{1cm}} \text{ cm } \underline{\hspace{1cm}} \text{ mm}$

5. One kilometer is 1,000 m. Convert between kilometers and meters.

a. $5 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

$23 \text{ km} = \underline{\hspace{2cm}} \text{ m}$

$1 \text{ km } 200 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

b. $2 \text{ km } 800 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

$6 \text{ km } 50 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

$13 \text{ km } 579 \text{ m} = \underline{\hspace{2cm}} \text{ m}$

c. $2,000 \text{ m} = \underline{\hspace{2cm}} \text{ km}$

$4,300 \text{ m} = \underline{\hspace{1cm}} \text{ km } \underline{\hspace{1cm}} \text{ m}$

$18,700 \text{ m} = \underline{\hspace{1cm}} \text{ km } \underline{\hspace{1cm}} \text{ m}$

6. Calculate. Give your answer using whole kilometers and meters.

a. $5 \text{ km } 200 \text{ m} + 8 \text{ km } 900 \text{ m}$

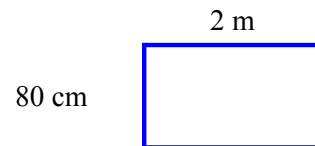
b. $3 \text{ km } 600 \text{ m} + 2 \text{ km } 800 \text{ m}$

c. $1,500 \text{ m} + 2 \text{ km } 600 \text{ m}$

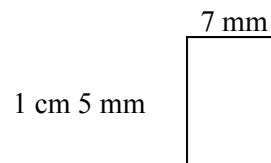
d. $6 \times 700 \text{ m}$

7. Solve.

a. Find the perimeter of this rectangle.



b. Find the perimeter of this rectangle.



c. One side of a square measures 5 cm 6 mm. What is its perimeter?

d. *A challenge.* A square has a perimeter of 6 cm. How long is its side?

8. Solve the problems.

a. How many millimeters are in a *meter*?

b. John jogs around a track 1 km 800 m long twice a day, five days a week.
How long a distance does he jog in a day?

In a week?

c. Gary is 1 m 34 cm tall and Jared is 142 cm tall.
How much taller is Jared?

d. Kathy's wallpaper has butterflies that are 8 cm wide. She will
put the wallpaper in her room. How many complete butterflies
can she have on a wall that is 1 meter long?

How about if the wall is 3 meters long?

