Metric Units for Measuring Length

The basic unit for measuring length in the metric system is **the meter**. All the other units are based on the meter, and in fact, have the word "meter" in them.

Each unit in the metric system is 10 times the smaller unit. For example, 1 kilometer is 10 hectometers and 1 centimeter is 10 millimeters. However, we don't commonly use hectometers, dekameters, or decimeters. You need to learn only the units that are bolded in the chart.

Units of length in the metric system

kilometer	**km**	"Kilo" means 1,000.
hectometer	hm	(not used)
dekameter	dam	(not used)
meter	**m**	**the basic unit**
decimeter	dm	(not used much)
centimeter	**cm**	This is 1/100 of a meter.
millimeter	**mm**	This is 1/10 of a centimeter.

10, 10, 10, 10, 10, 10, 10

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

1. Draw two lines at least 4 m long that start at the same place (outside, in a hallway, or a large room).

   a. On the one line, make marks for 1 m, 2 m, 3 m, and 4 m. Then try to take "hops" one meter long.

   1 meter   1 meter   1 meter   1 meter
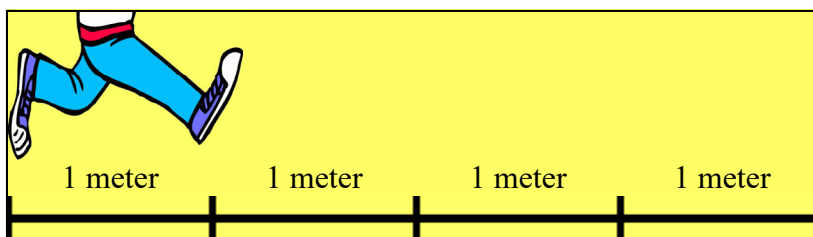
   b. On the second line make marks at each foot, from 1 to 13 feet. Then take 1-yard hops.

   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	Height
	_____ cm = __1__ m _____ cm.

Conversions between units

Remember what millimeters look like on a ruler. They are tiny! **Ten millimeters make 1 cm.**

Then verify from a measuring tape that **100 centimeters makes one meter**. "Centi" means one hundred (from the Latin word *centum*). That is why 1 dollar has 100 *cents*, and 1 meter has 100 *centi*meters.

Lastly, **1 kilometer is 1,000 meters**, because "kilo" means one thousand.

1 km = 1,000 m	**1 m = 100 cm**	**1 cm = 10 mm**

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

a. 5 m = _____ cm	**b.** 4 m 6 cm = _____ cm	**c.** 800 cm = _____ m
8 m = _____ cm	9 m 19 cm = _____ cm	239 cm = ____ m _____ cm
12 m = _____ cm	10 m 80 cm = _____ cm	407 cm = ____ m _____ cm

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

a. 5 cm = _____ mm	**b.** 2 cm 8 mm = _____ mm	**c.** 50 mm = ____ cm _____ mm
8 cm = _____ mm	7 cm 5 mm = _____ mm	72 mm = ____ cm _____ mm
14 cm = _____ mm	10 cm 4 mm = _____ mm	145 mm = ____ cm _____ mm

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

a. 5 km = _____ m	**b.** 2 km 800 m = _____ m	**c.** 2,000 m = _____ km
23 km = _____ m	6 km 50 m = _____ m	4,300 m = ____ km _____ m
1 km 200 m = _____ m	13 km 579 m = _____ m	18,700 m = ____ km _____ m

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

   a. 5 km 200 m + 8 km 900 m

   b. 3 km 600 m + 2 km 800 m

   c. 1,500 m + 2 km 600 m

   d. 6 × 700 m

7. Solve.

a. Find the perimeter of this rectangle.

2 m

80 cm
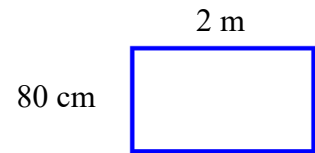
b. Find the perimeter of this rectangle.

7 mm

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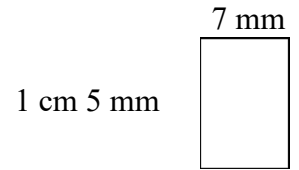
c. One side of a square measures 5 cm 6 mm. What is its perimeter?

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?

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?

Puzzle Corner

How about if the wall is 3 meters long?