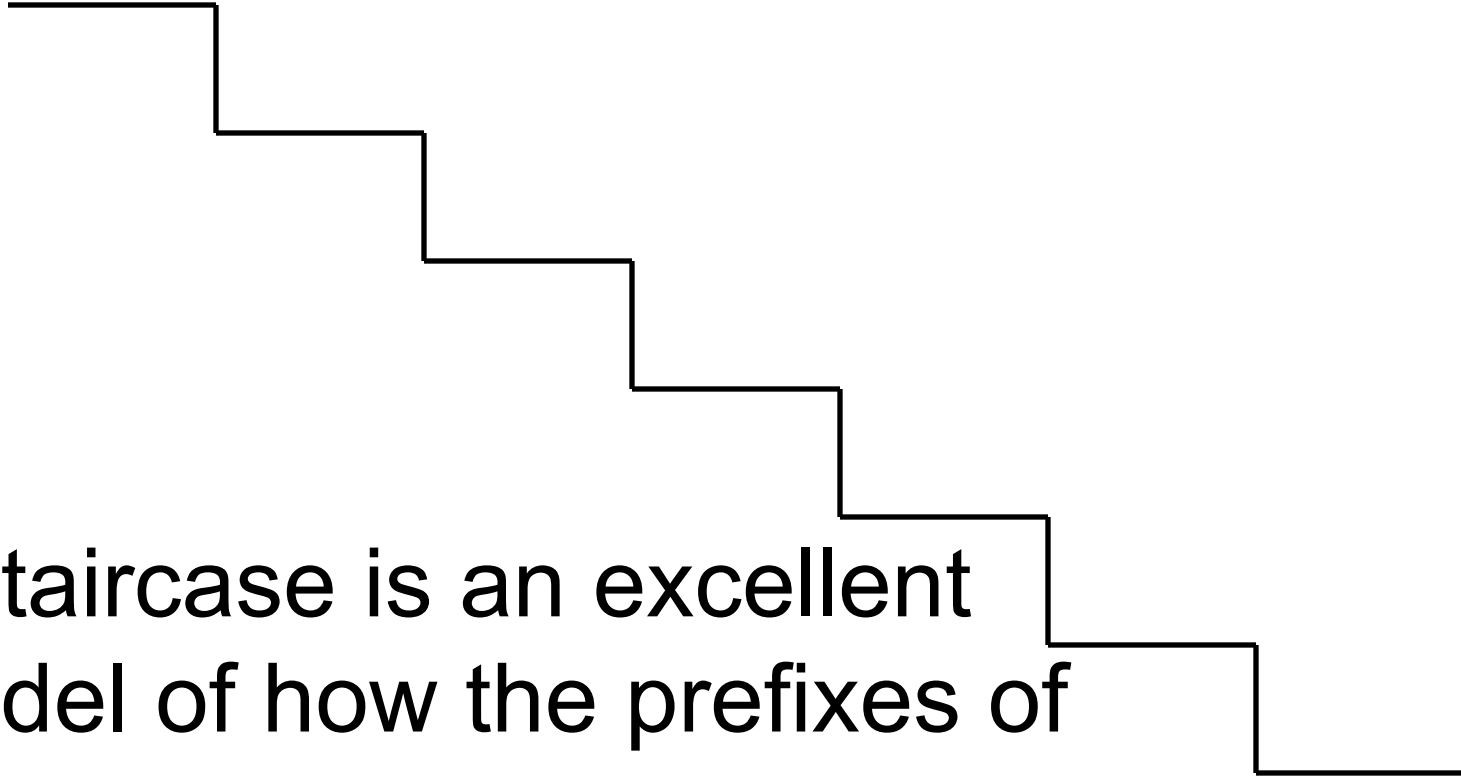


Metric Conversion



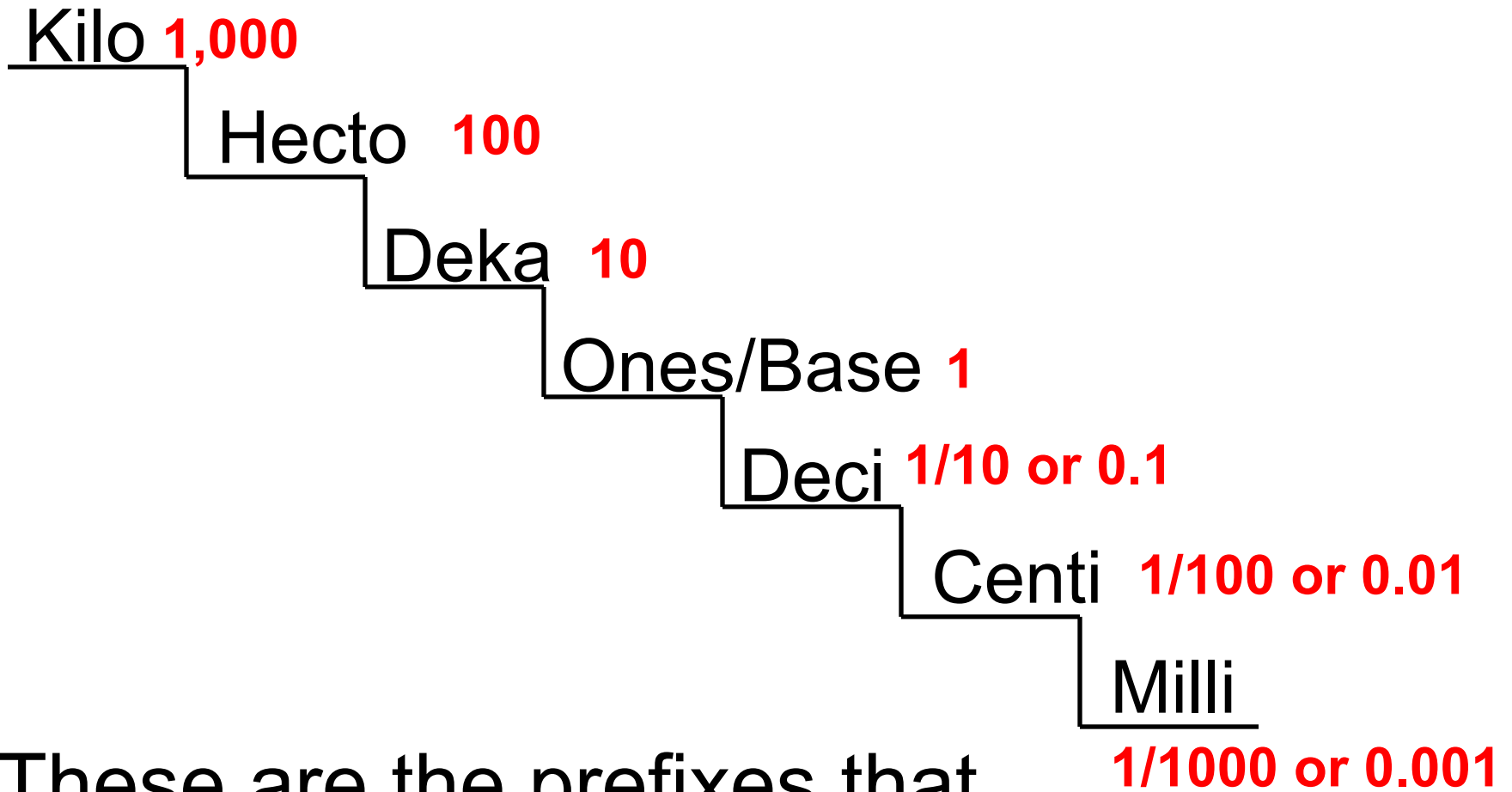
You don't really think I can do
this??

The Metric Staircase



A staircase is an excellent model of how the prefixes of metric units relate to each other.

The Metric Staircase



These are the prefixes that apply to all metric units.

Kilo Kids

Hecto Have

Deka Dropped

Ones Over

Deci Dead

Centi Changing

Milli Metrics



Here is a sentence to help you remember the prefixes.

Length

Kilometer **km**

Hectometer **hm**

Dekameter **dkm**

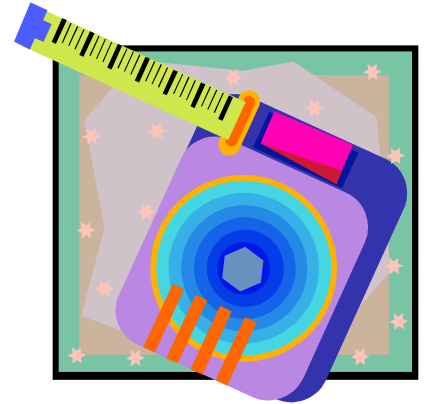
Meter **m**

Decimeter **dm**

Centimeter **cm**

Millimeter **mm**

Larger



The standard unit of length is the meter.

Mass

Kilogram **kg**

Hectogram **hg**

Dekagram **dkg**

Gram **g**

Decigram **dg**

Centigram **cg**

Milligram **mg**



Larger

The standard unit of mass is the gram.

Volume

Kiloliter **kl**

Hectoliter **hl**

Dekaliter **dkl**

Liter **l**

Deciliter **dl**

Centiliter **cl**

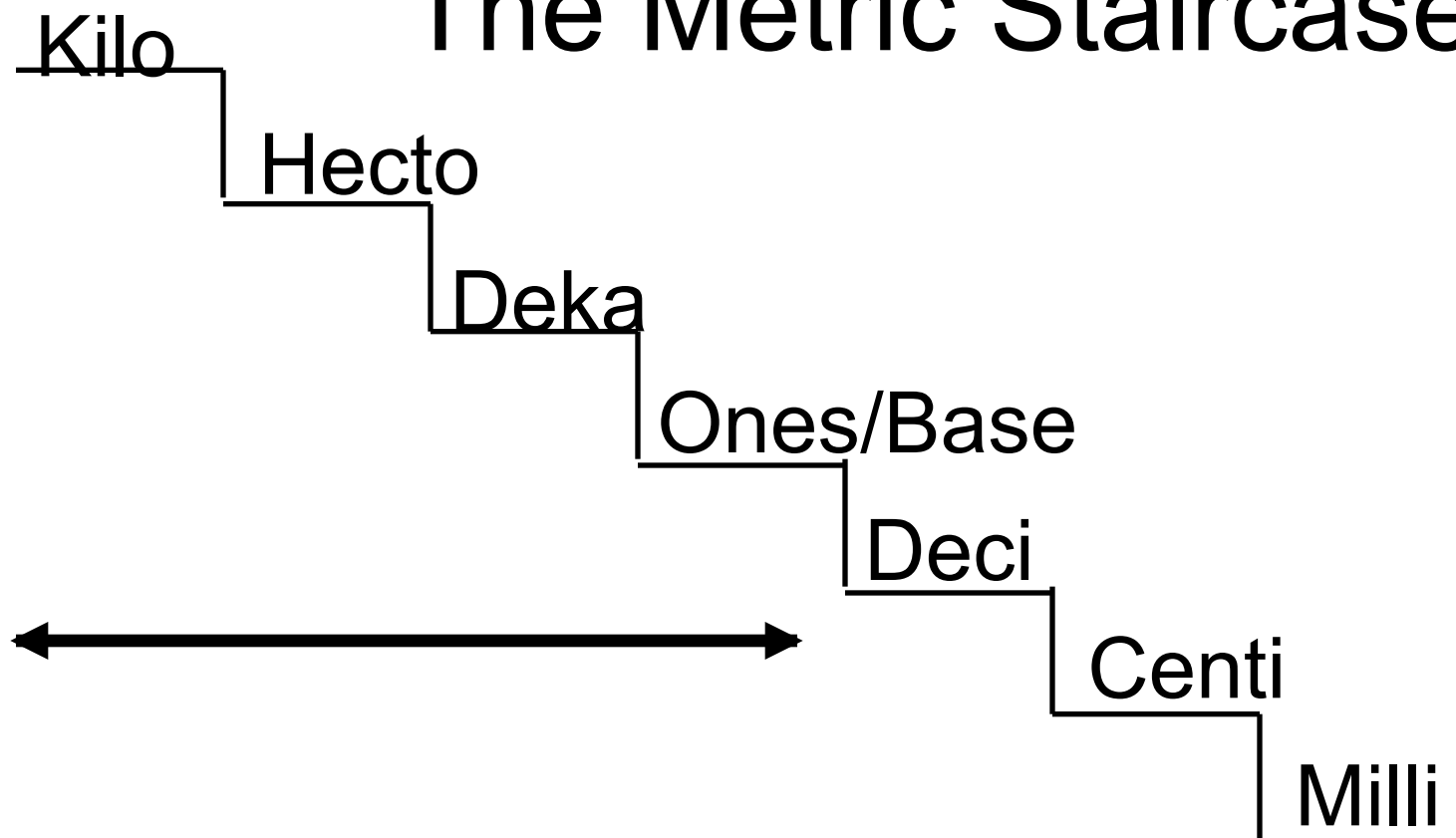
Milliliter **ml**



Larger

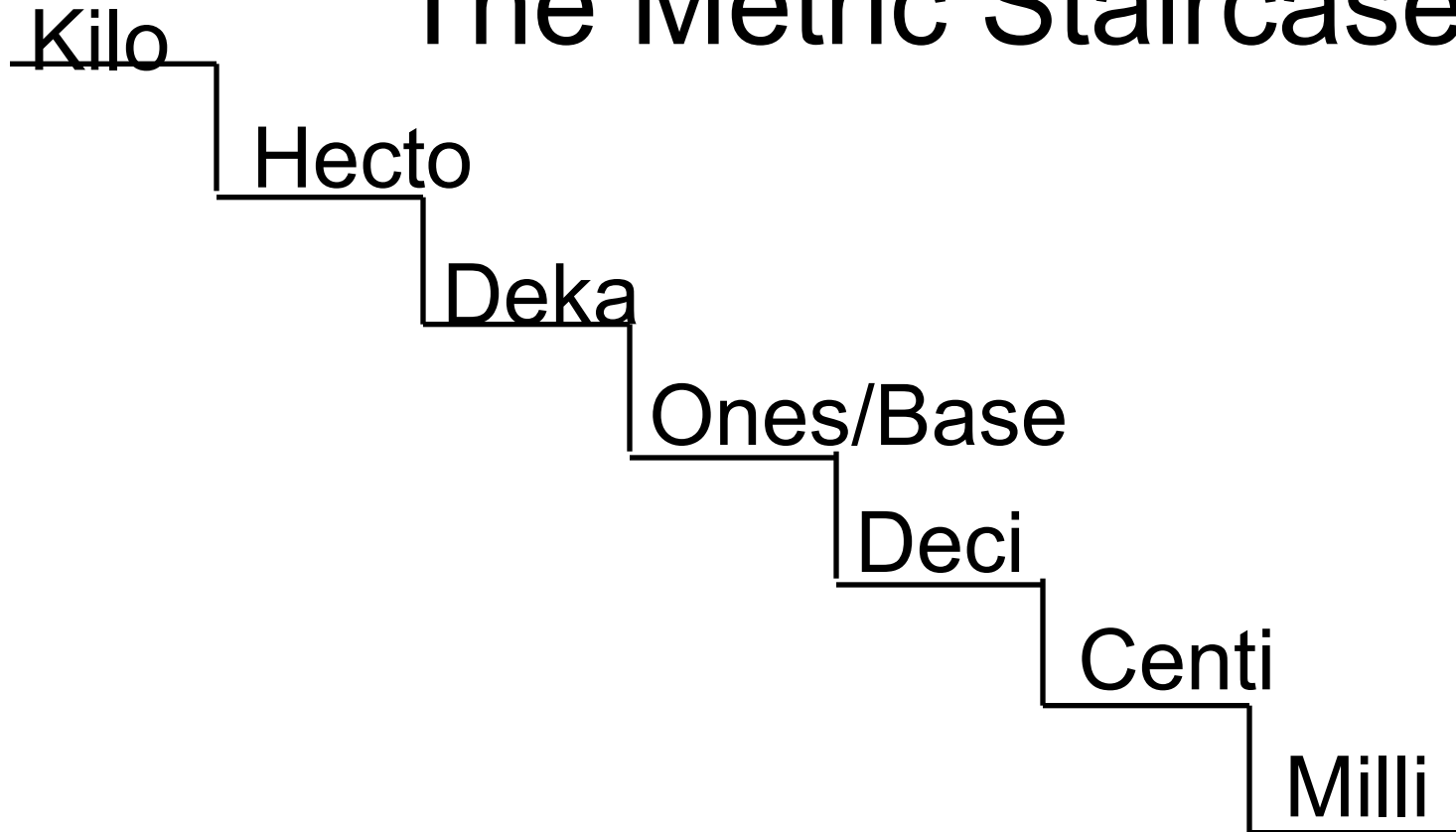
The standard unit of volume is the liter.

The Metric Staircase



The staircase also tells us which way to move the decimal. As the unit gets smaller, you shift the decimal to the right. As the unit gets larger, the decimal shifts to the left.

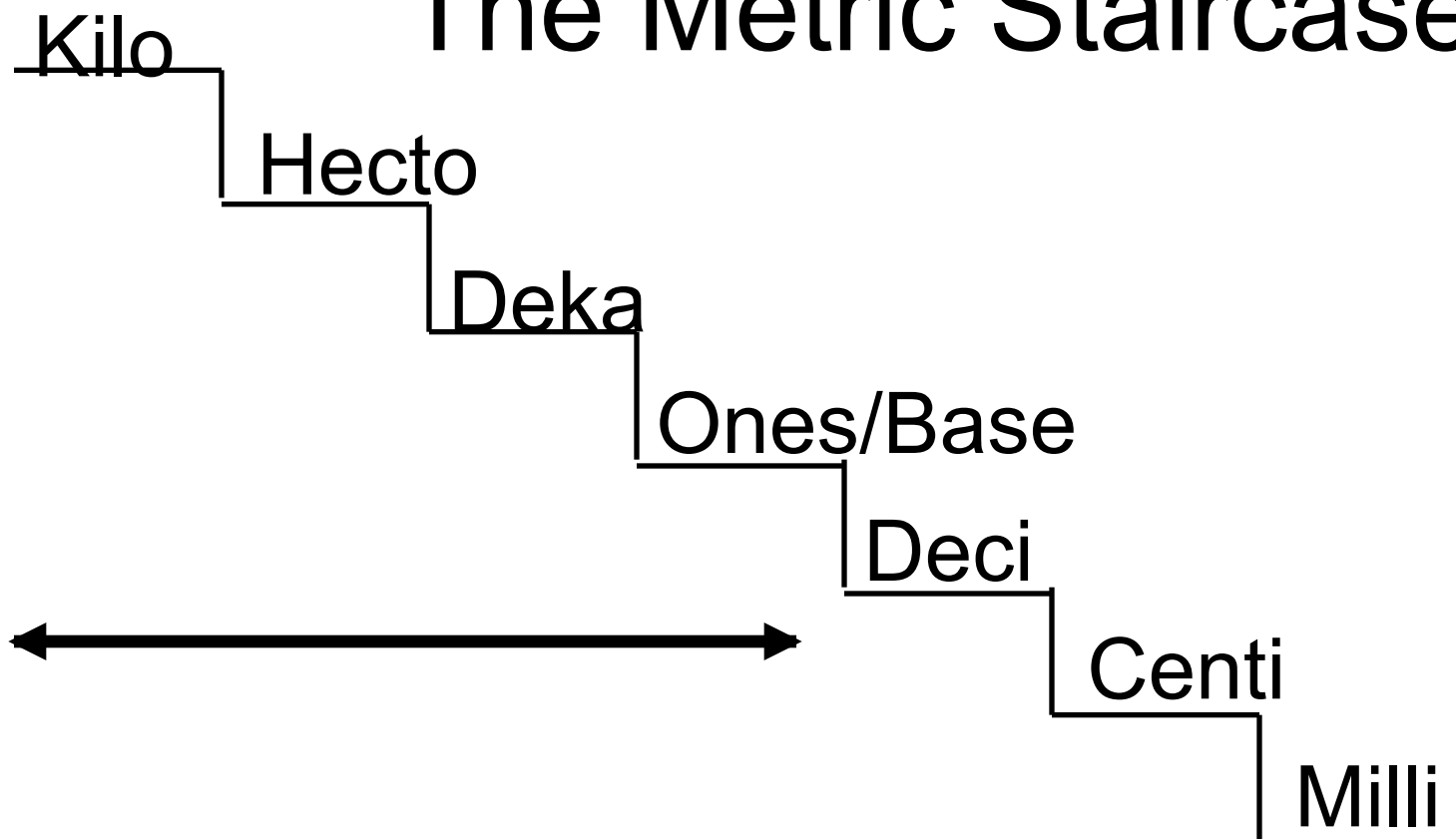
The Metric Staircase



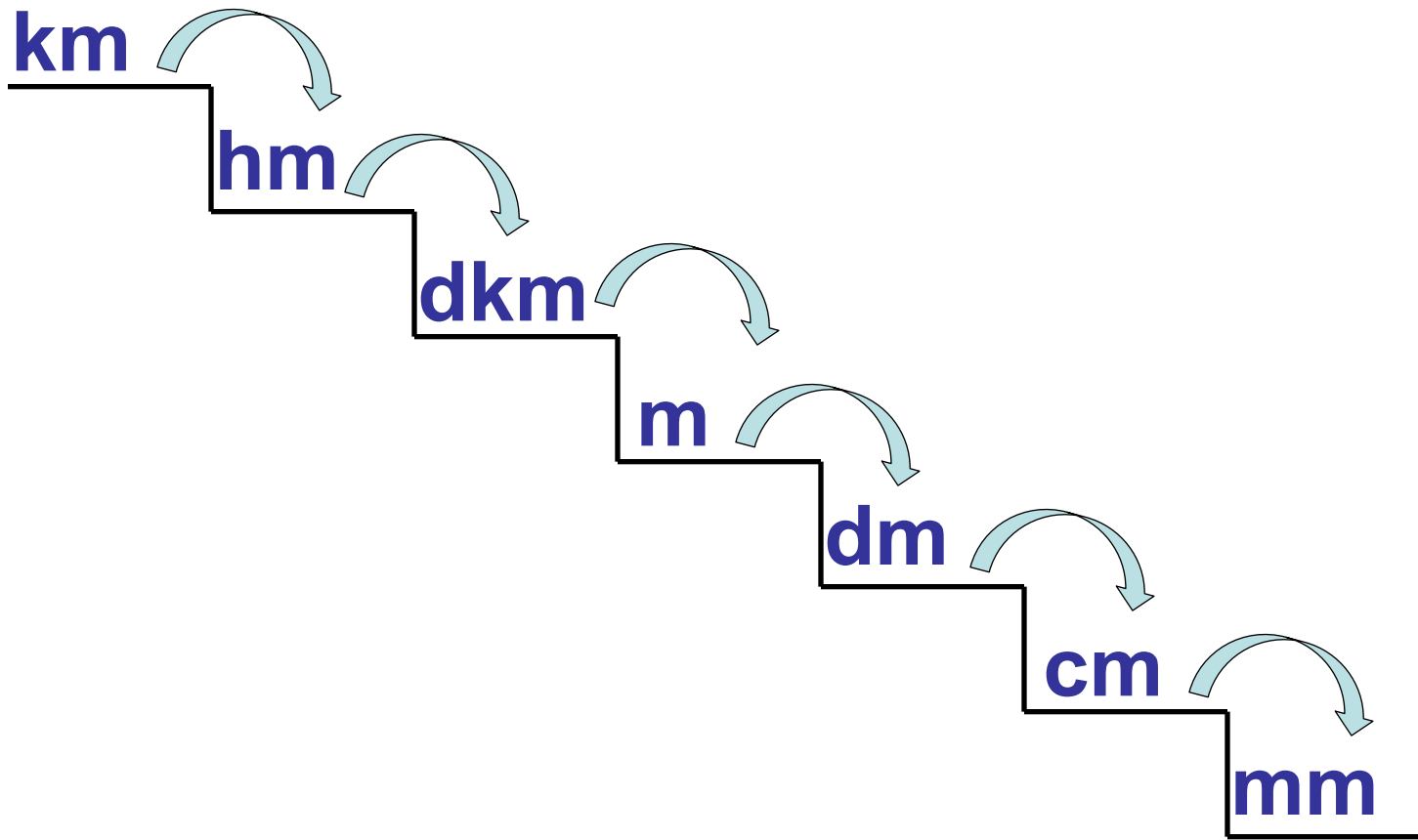
The metric staircase is easy to use because each unit differs from the next by a factor of 10.

Units get **larger** as you climb. Units get **smaller** as you descend.

The Metric Staircase



When converting between units, move the decimal one place for every step taken. Move it in the direction shown on the staircase. If there is not a number in the moved place, place a zero in the spot.

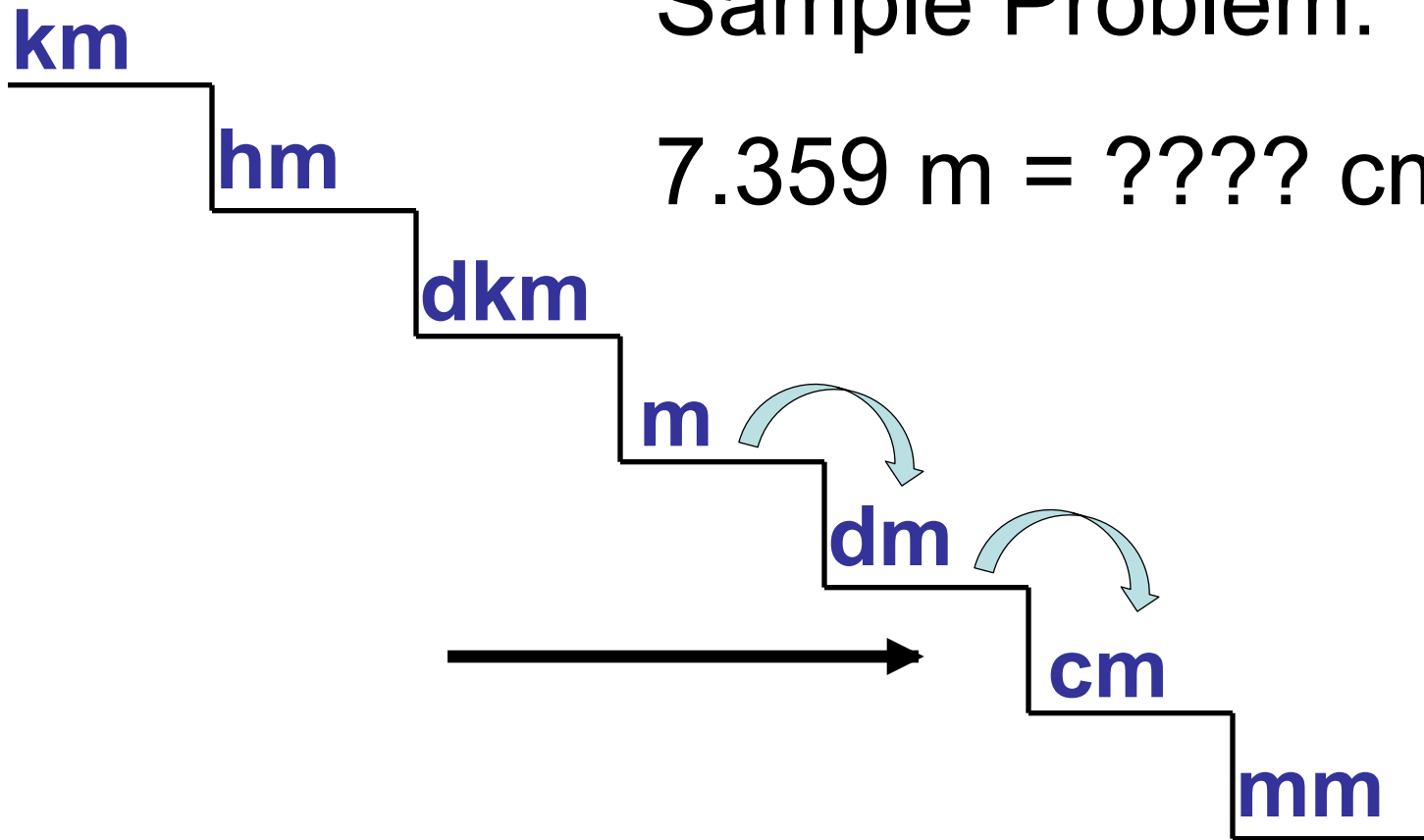


Let's use a line to represent a distance of a kilometer.

1 km = 10 hm = 100 dkm = ? m = ? dm = ? cm = ? mm

Sample Problem:

$$7.359 \text{ m} = \text{???? cm}$$



To get from m to cm, we must take 2 steps to the right. Therefore, we must shift the decimal two places to the right.

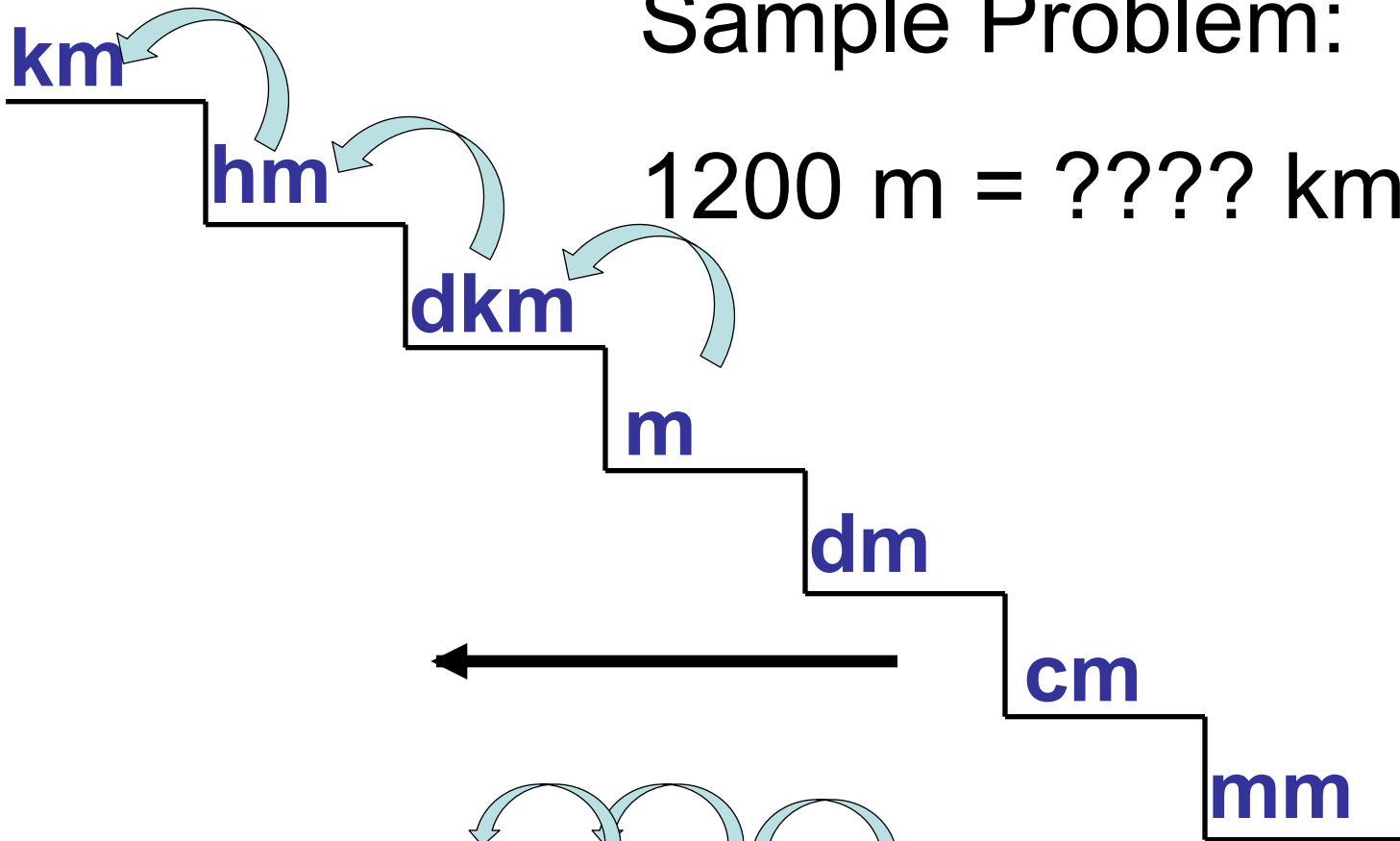
Answer:

$$7.359 \text{ m} = 7 \text{ } \overset{\curvearrowright}{\underset{\curvearrowright}{.}} \text{ } 3 \text{ } \overset{\curvearrowright}{\underset{\curvearrowright}{5}} \text{ } .9 \text{ cm}$$

$$735.9 \text{ cm}$$

Sample Problem:

$$1200 \text{ m} = \text{???? km}$$



$$1200 \text{ m} = 1.200 \text{ km}$$

Answer:

1.2 cm

$$45.6 \text{ cm} = ?? \text{ m}$$

$$45.6 \text{ cm} = .456 \text{ m}$$



$$4568 \text{ g} = ?? \text{ kg}$$

$$4568 \text{ g} = 4.568 \text{ kg}$$



$$9.08 \text{ l} = ?? \text{ ml}$$

$$9.08 \text{ l} = 9,080 \text{ ml}$$



$$320 \text{ mg} = ?? \text{ g}$$

$$320 \text{ mg} = 0.320 \text{ g}$$



Homework

1) $10 \text{ L} = ?? \text{ ml}$

2) $123 \text{ mm} = ?? \text{ cm}$

3) $3000 \text{ g} = ?? \text{ kg}$

4) $1.2 \text{ kg} = ?? \text{ dkg}$

5) $1.2 \text{ kg} = ?? \text{ dg}$

6) $5 \text{ g} = ?? \text{ mg}$

7) $50 \text{ g} = ?? \text{ kg}$