How to Convert in Metric - Linear Measure & Mass

Name: _____
Date: _____

The metric system is an easy system to use and to learn. It is based on the number ten. The base unit is the starting point. When dealing with linear measure and mass, we use the following:

Anything larger than the base unit uses these prefixes:

da	- *deca*	- ten times the base unit (x 10)
h	- *hecto*	- one hundred times the base unit (x 102)
k	- *kilo*	- one thousand times the base unit (x 103)

Anything smaller than the base unit uses these prefixes:

d	- *deci*	- one tenth of the base unit (x 0.1)
c	- *centi*	- one hundredth of the base unit (x 0.01)
m	- *milli*	- one thousandth of the base unit (x 0.001)

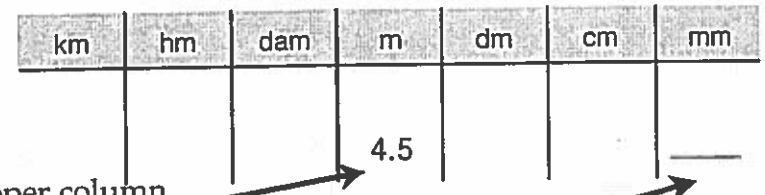
linear measure	kilometre	hectometre	decametre	metre	decimetre	centimetre	millimetre
	km	hm	dam	m	dm	cm	mm
	1000 m	100 m	10 m	1 m	0.1 m	0.01 m	0.001 m

mass	kilogram	hectogram	decagram	gram	decigram	centigram	milligram
	kg	hg	dag	g	dg	cg	mg
	1000 g	100 g	10 g	1 g	0.1 g	0.01 g	0.001 g

If you measured the width of an object and found it to be 4.5 metres, how could you find out its width in millimetres? You could either measure it in millimetres or you can convert (which is much quicker).

How to convert 4.5 metres into millimetres.

1. Remember "King Henry drank milk during Christmas mass."
2. Make a chart.



3. Write in the number you are converting. Make sure it is in the proper column. (e.g. put the 4.5 in the metres column)
4. Put a line in the column you want to end up in. (e.g. put a line in the millimetres column)
5. Count how many columns you need to move from the number to the line. (e.g. from 4.5 to ____, there are 3 columns)
   --------> that is how many decimal places you move
   (in our example, 3 decimal places)
6. Which direction did you move, left or right? (e.g. to go from 4.5 to ____, we move to the right)
   --------> that is the direction you move the decimal
   (in our example, move it 3 decimal places to the right 4.500; which is 4500.
7. Write the answer on the line. (e.g. you would write the answer on the line, 4500)
8. The solution to our problem: 4.5 m = 4500 mm.

Examples:

Convert the following:

a. 7 cm --> _____ dam
b. 15 km --> _____ m
c. 12.3 dm --> _____ hm
d. 17.53 mm --> _____ cm

	km	hm	dam	m	dm	cm	mm
a.			____			7	
b.	15			____			
c.		____			12.3		
d.						____	17.53

Convert the following: a. 33 kg --> _____ g b. 109.32 mg --> _____ dg
c. 58 dag --> _____ hg d. 9000 g --> _____ kg

	kg	hg	dag	g	dg	cg	mg
a.	33			_____			
b.					_____		109.32
c.		_____	58				
d.	_____			9000			

You do the following for homework:

Exercise I: Convert using linear measure

a. 37.3 km = _____ hm b. 0.153 dam = _____ dm c. 99.9 dm = _____m

d. 7.13 hm = _____ cm e. 359.76 cm = _____ mm f. 4000 m = _____ km

g. 170 m = _____ cm h. 1.03 km = _____ mm i. 2.5 cm = _____ m

j. 7.953 hm = _____ dam k. 9.176 dm = _____mm l. 59.8 dam = _____cm

Exercise II: Convert using mass

a. 29 g = _____mg b. 0.09 kg = _____dag c. 77 dg = _____g

d. 5.7 hg = _____kg e. 9.97 g = _____ cg f. 4752 mg = _____ g

g. 5.015 dag = _____ dg h. 33.2 dag = _____kg i. 65 mg = _____cg

j. 8 mg = _____g k. 112 dg = _____cg l. 5 g = _____ mg