The Metric System

The metric system is the system of measurement used by most bakers in Canada.

The metric system uses the same prefixes for all measurements.

kilo	hecta	deca		deci	centi	milli
1000	100	10	1	0.1	0.01	0.001

An easy way to remember the prefixes is by memorizing this silly sentence:

Kangaroos	**hopping**	**down**	**Main**	**don't**	**catch**	**me**
kilo	hecta	deca	(middle)	deci	centi	milli

To refer to different types of measurement (a weight or a volume or a distance), the end of the word changes.

Example:	One thousand metres is a kilometre
	One thousand litres is a kilolitre

In baking, only some of the prefixes are commonly used.

Here are the ones that you need to know:
(The lines are space-holders for units that bakers don't often use)

Mass / Weight

kilogram	_____	_____	gram	_____	_____	milligram
1 kg			1 g			1 mg
1000 g			1 g			0.001 g

Length

_____	_____	_____	metre	_____	centimetre	millimetre
			1 m		1 cm	1 mm
			1 m		0.01 m	0.001 m

Volume / Capacity

			litre	decilitre		millilitre
_____	_____	_____	1 L	1 dL	_____	1 mL
			1 L	0.1 L		0.001 L

To convert from one unit to another, move the decimal place the same number of spaces in the direction as the 'hops' between the units.

Example 1: Convert 100 mL to L.

Answer: To get from mL to L, it takes 3 hops to the left.

1 L   1 dL   1 mL

To make the conversion, the decimal place in 100 mL moves 3 places to the left.

100.0 mL   100 mL is equal to 0.1 L
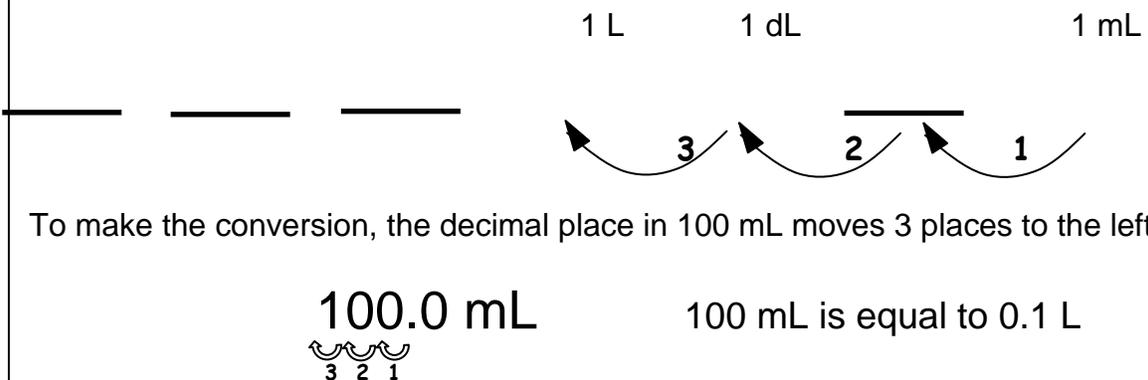
Practice Problems

Convert the measurements on the left to the units indicated on the right.

1000 mg = 1 g

1.	10 m	=		cm	6.	100 mg	=	g
2.	100 cm	=		m	7.	20,000 g	=	kg
3.	1000 mm	=		cm	8.	7 kg	=	g
4.	1 kg	=		g	9.	5 g	=	mg
5.	200 g	=		kg	10.	60 cm	=	mm

Answers are at the end of the worksheet.

Conversions between units follow the same steps when the numbers involved aren't round numbers.

Example 2: Convert 1.2356 m to cm

Answer: It takes 2 hops to the right to get from m to cm, so we move the decimal two places to the right.
1.2356 m is 123.56 cm

Practice Problems

Practice with real numbers.
Convert the measurements on the left to the units indicated on the right.

	12 g	=	1200	mg

#		=		units
11.	165 cm	=		m
12.	22 m	=		cm
13.	75 mg	=		g
14.	555 g	=		kg
15.	102 cm	=		mm

#		=		units
16.	715 mm	=		cm
17.	21 kg	=		g
18.	21000 mg	=		kg
19.	91 cm	=		m
20.	11000 mm	=		cm

Answers are at the end of the worksheet.

Conversion between types of measurement

One of the advantages of the metric system is that it allows for easy conversion between types of measurement.

For water at 4°C:

$$1 \text{ L} = 1 \text{ kg} = 1000 \text{ cm}^3$$
$$1 \text{ mL} = 1 \text{ g} = 1 \text{ cm}^3$$

Other watery liquids are assumed to have the same density as water, so these rules can also be used for milk, juice, etc. out of the fridge.

Example 3: What is the weight of 432 mL of water?

Answer: If 1 mL of water weighs 1 g, then 432 mL weighs 432g.

Example 4: How many mL of milk will fit in a container that is 10 cm by 12.5 cm by 34 cm?

Answer: First find the volume of the container, in cubic cm

$$10 \times 12.5 \times 34 = 4250 \, cm^3$$

Then convert cm³ to mL

$$4250 \, cm^3 = 4250 \, mL$$

Practice Problems

Practice converting between different types of measurement.

21.	62 L	=		cm^3
22.	1000 cm^3	=		L
23.	2.2 kg	=		ml
24.	7000 g	=		L
25.	232 ml	=		cm^3
26.	22 L	=		kg
27.	1237 g	=		L
28.	512 ml	=		kg
29.	75 cm^3	=		L
30.	12 L	=		cm^3

31. Sarah is converting a home recipe for commercial use. She needs twelve times the original yield. The original recipe calls for 200 g of water. How many kg of water will she use in the commercial recipe?

32. Maureen wants to make as much chou pastry as she can. The recipe calls for 125 g of butter and 0.325 kg of flour for one batch. She has 550 g of butter, so how much flour should use?

33. Louis wants to make 12 loaves of Turkish Pied Bread. The recipe calls for 100 ml of cool water to make 3 loaves. How many liters of water does he need for 12 loaves?

34. How many cm^3 of orange blossom water will Kevin use in making 5 quarts of Moroccan stew if the recipe calls for 15 mL to yield 3 quarts of Moroccan stew?

Answers

1. 1,000 cm	2. 1 kg	3. 100 cm	4. 1000 g	5. 0.2 kg
6. 0.1 g	7. 20 kg	8. 7,000 g	9. 5,000 mg	10. 600 mm
11. 1.65 m	12. 2,200 cm	13. 0.075 g	14. 0.555 kg	15. 1020 mm
16. 71.5 cm	17. 21,000 g	18. 0.021 kg	19. 0.91 m	20. 110 cm
21. 62,000 cm^3	22. 1 L	23. 2,200 ml	24. 7 L	25. 232 cm^3
26. 22 kg	27. 1.237 g	28. 0.512 kg	29. 0.075 L	30. 12,000 cm^3
31. 2.4 kg	32. 1.3 kg	33. 0.4 L	34. 25 cm^3	