

Kitchen metrics

File Copy



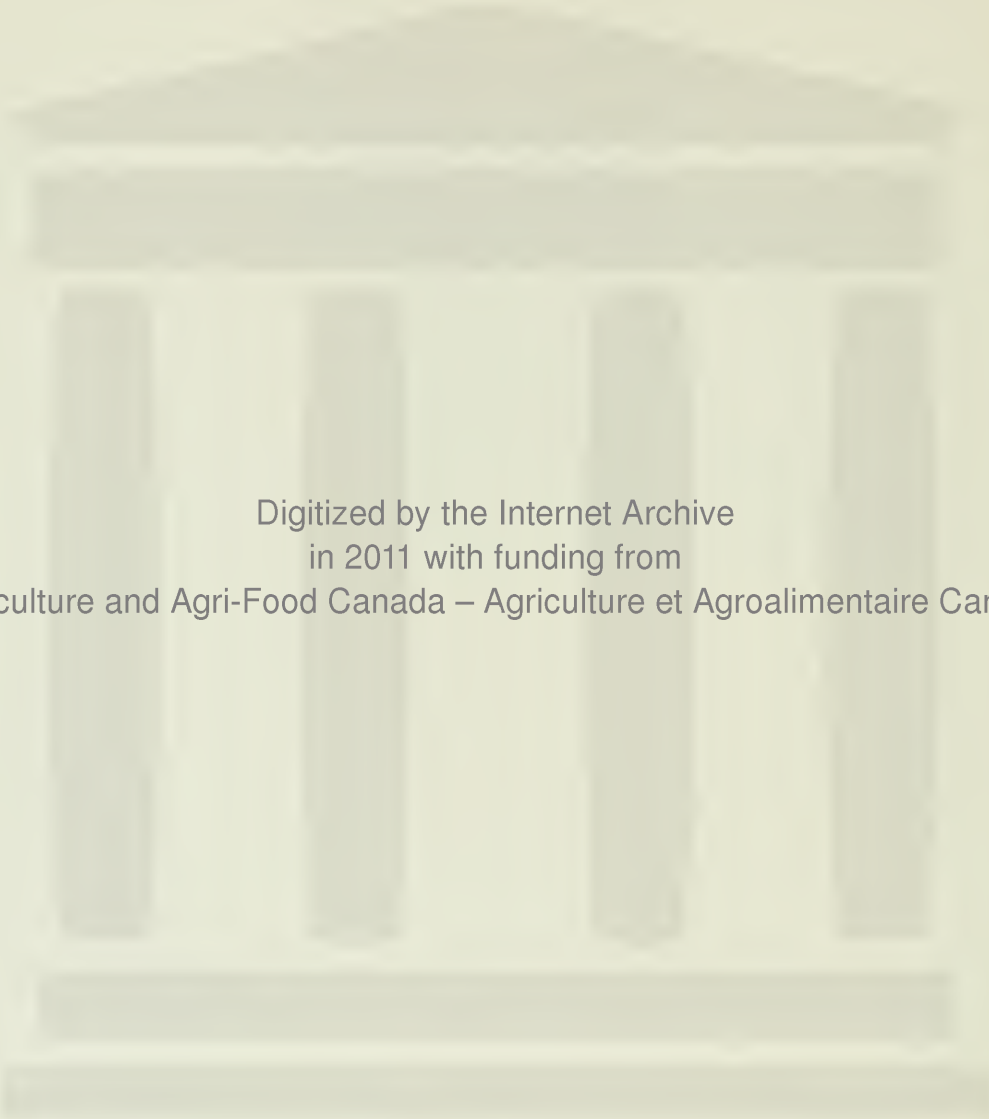
Agriculture
Canada

Publication 1702/E



630.4
C212
P 1702
1980
(1982 print)
c.2

Canada



Digitized by the Internet Archive
in 2011 with funding from
Agriculture and Agri-Food Canada – Agriculture et Agroalimentaire Canada

KITCHEN METRICS

PUBLICATION 1702, available from
Information Services, Agriculture Canada, Ottawa K1A 0C7

© Minister of Supply and Services Canada 1980
Cat. No. A73-1702/1980E ISBN: 0-662-10810-8
Printed 1980 Reprinted 1982 30M-2:82

Cette publication est aussi disponible en français et
s'intitule "Cuisine à la métrique".

Agriculture Canada, Food Advisory Division

kitchen metrics

Metric conversion has arrived. If you haven't already done so, it's time for you to "go metric" in the kitchen. The changeover may be a little difficult at first, but only until you are used to the new metric measures.

Remember, it is not our method of cooking that is changing. We continue to measure most ingredients by volume as we always have, but with metric measures. Your ability as a cook is not affected.

Don't worry about the fate of your favorite recipes. They don't have to be thrown away, or converted to metric. You can simply prepare them using your cups and tablespoons . . . as before. But when you see a metric recipe, use **metric measures!**

To ensure that your metric recipe turns out as it should – two notes of caution:

- 1) Do **not** substitute conventional measures for metric ones. While they may appear to be similar, they are not the same.
- 2) Do **not** try to convert recipes from metric to conventional (or vice versa). Conversion involves slight differences in amounts, and you may be less than satisfied with the results.

Use metric measures with metric recipes, conventional measures with conventional recipes. It's that easy!

Many people ask why we aren't weighing recipe ingredients, as Europeans do. Scales are expensive and can be difficult to keep adjusted. And since we have always measured mainly by volume in the kitchen, we are continuing to do so.

After the initial confusion over metric units, the advantages of the system become clearer.

Some of these are:

- calculations to increase or decrease recipe size become simpler
- clumsy fractions disappear
- fluid and weighed ounces are no longer confused
- international trade is simplified as we join over 100 nations in using the International System of Units (SI), i.e. metric system

The metric units that you use in the kitchen and when shopping for food are:

VOLUME

mL (millilitre) for measuring liquid or dry ingredients

L (litre) for measuring large volumes of liquid or dry ingredients

MASS

g (gram) for measuring mass of small or light ingredients

kg (kilogram) for measuring mass of large or heavy ingredients

LENGTH

cm (centimetre) for measuring length

mm (millimetre) for measuring lengths smaller than the centimetre

TEMPERATURE

°C (degree Celsius) for measuring temperature

PRESSURE

kPa (kilopascal) for measuring pressure

Units of time, the minute and the hour, do not change under the metric system. In metric recipes they appear as:

min – for minute(s)

h – for hour(s)

mL

L

g

kg

cm

mm

°C

kPa

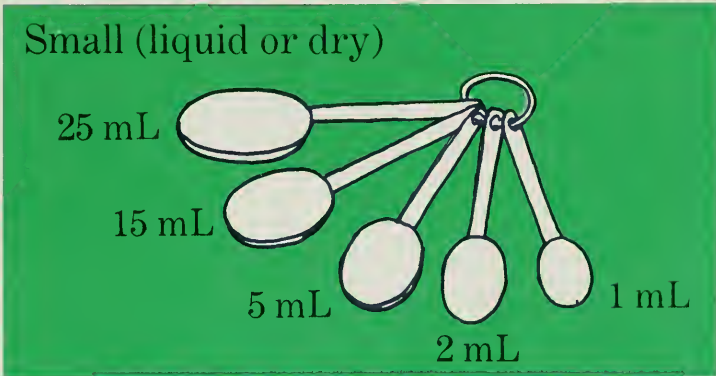
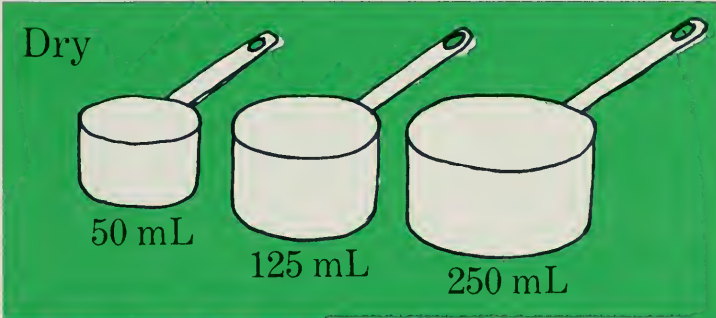
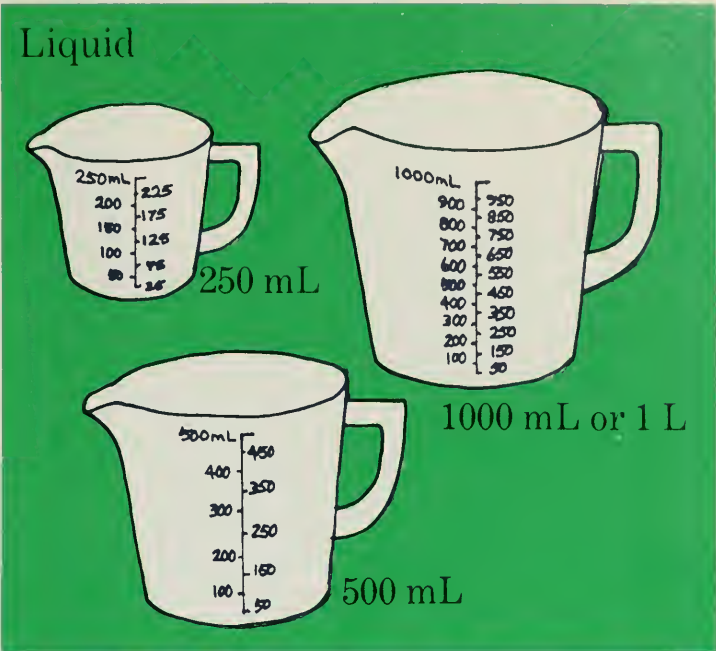
min

h

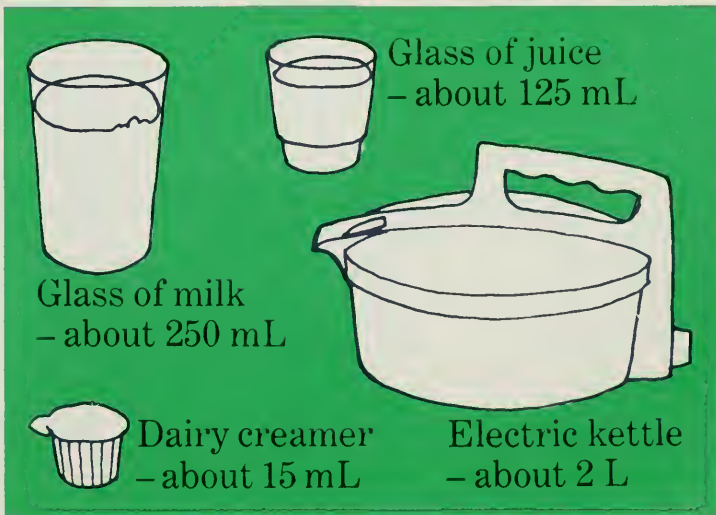
volume

The new metric measures look very much like the old measures and they come in the same three basic types: liquid, dry and small.

A Word of Caution – **Be sure to buy standard measures**, with the correct number of millilitres stamped clearly on each. **Do not buy measures that are marked with any amounts different from those listed.**



Examples of volume sizes are:

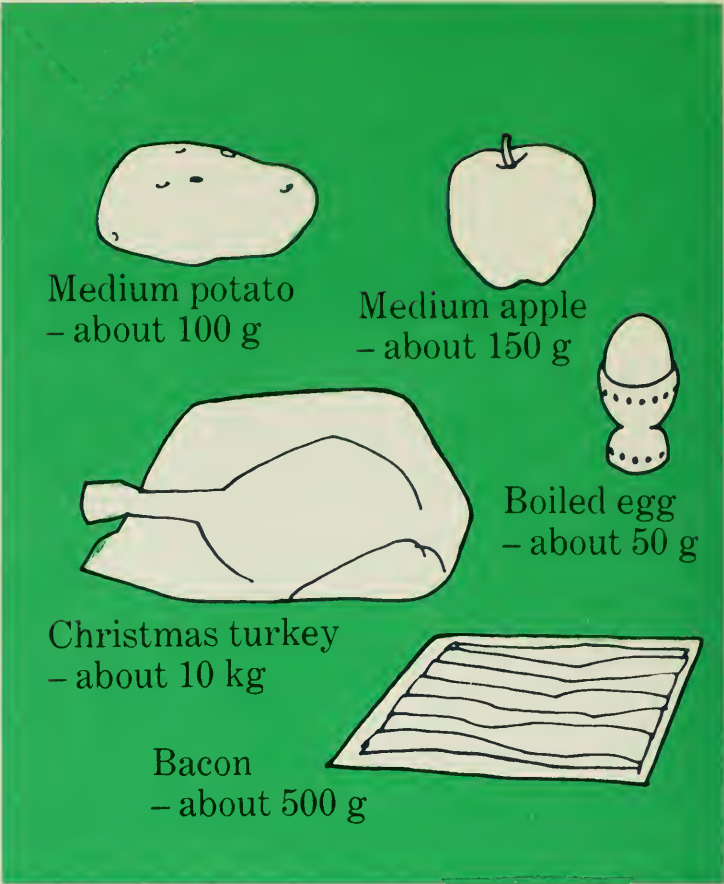


mass

You need to know metric terms for mass when you go shopping for meats, fruits and vegetables.

Instead of ounces and pounds you use grams and kilograms.
1 kg (kilogram) = 1000 g (grams)

Examples of foods measured in grams and kilograms are:



Medium potato
– about 100 g

Medium apple
– about 150 g

Boiled egg
– about 50 g

Christmas turkey
– about 10 kg

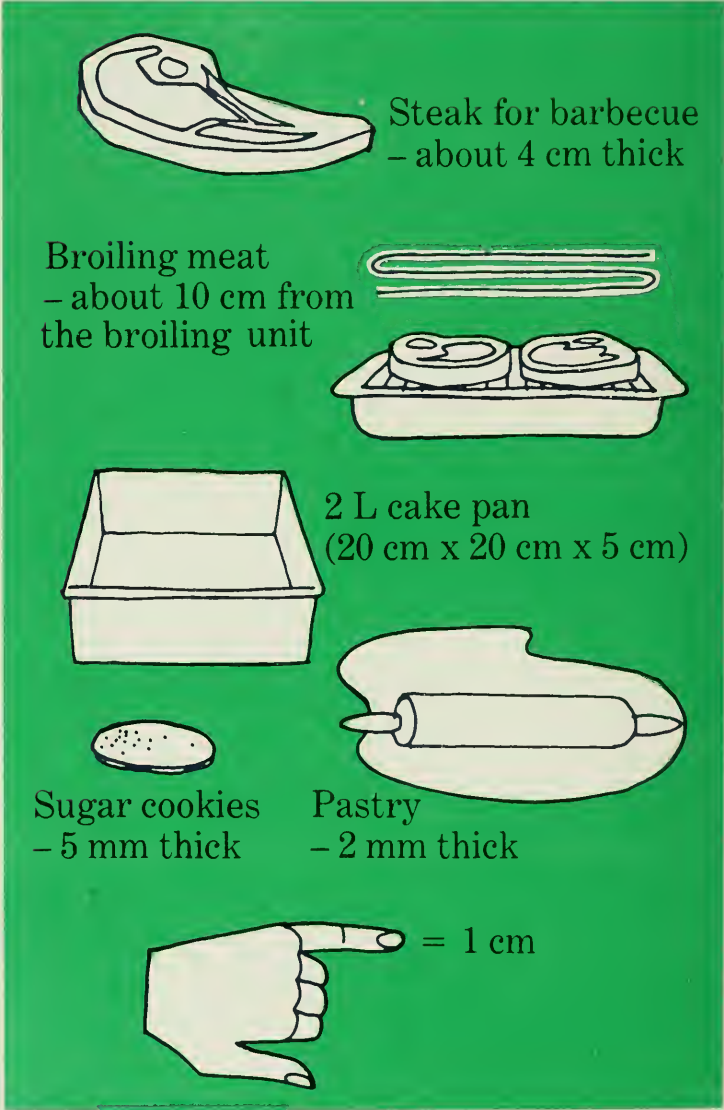
Bacon
– about 500 g

length

The centimetre (cm), (about this long —), is the common unit for measuring length in the kitchen. You see the centimetre used for thicknesses of meat and for distances from the broiling unit.

Volume of cake pans and other bakeware is in litres or millilitres. If dimensions are given, they are in centimetres.

There are 10 mm in 1 cm. Millimetres are used for very small measurements and are not very common in the kitchen. They will, however, be used for rolled doughs.



Steak for barbecue
– about 4 cm thick

Broiling meat
– about 10 cm from the broiling unit

2 L cake pan
(20 cm x 20 cm x 5 cm)

Sugar cookies
– 5 mm thick

Pastry
– 2 mm thick

1 cm

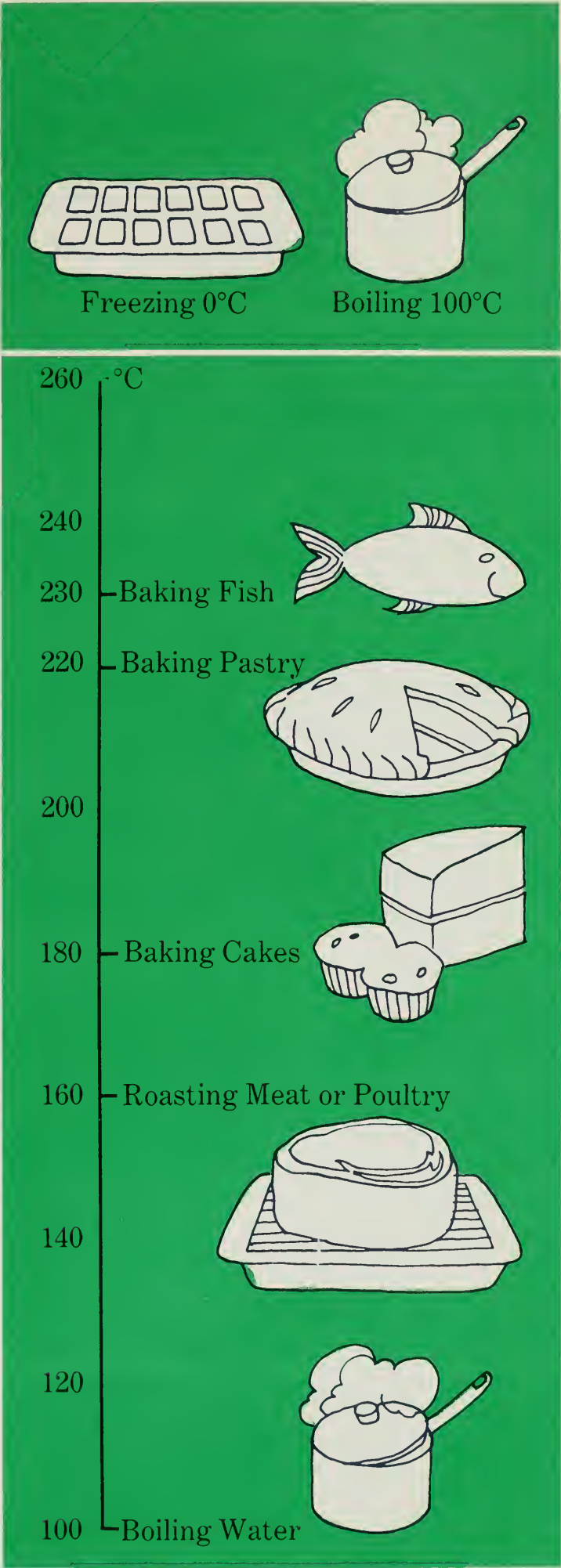
As a helpful hint, the width of your little finger is about 1 cm.

temperature

Degrees Celsius ($^{\circ}\text{C}$) has replaced degrees Fahrenheit ($^{\circ}\text{F}$) in measuring temperature. Two useful reference points to learn on the Celsius scale are 0°C , the freezing point of water, and 100°C , the boiling point of water.

OVEN TEMPERATURES

To help you become familiar with the temperatures most often used, here are some replacement temperatures for $^{\circ}\text{F}$:



INTERNAL TEMPERATURES FOR COOKING MEAT*

Beef – rare	60°C
– medium	65°C
– well done	75°C
Lamb – medium	65°C
– well done	75°C
Pork – cured	
ready to eat	55°C
cook before eating	75°C
– fresh	
well done	80°C or 85°C
Turkey or Chicken	
– stuffing	70°C
– thigh	85°C
Veal – well done	80°C

STORAGE TEMPERATURES

Refrigerator storage	4°C
Freezer storage	-18°C
Keeping foods warm in the oven	100°C
Cold cellar, cool storage	10°C to 15°C
Safety zone temperatures	
– cold foods	lower than 4°C
– hot foods	higher than 60°

OTHER TEMPERATURES USED IN THE KITCHEN

Gelling stage	
(jam and jelly making)	102°C to 106°C
Deep-fat frying most foods	190°C
Deep-fat frying breaded chicken	175°C
Yeast dough rises	30°C
Scalding	80°C
Lukewarm (e.g. temperature to which candy should be cooled before beating)	45°C
Fudge or soft ball stage	115°C
Peanut brittle or hard crack stage	150°C

*Internal temperatures are measured using a meat thermometer.
Meat thermometers are marked in 5°C increments.

pressure

Pressure is used in the kitchen when pressure cooking or canning. Metric kilopascals (kPa) replace pounds per square inch (PSI).

Some replacement pressures for pounds per square inch are:

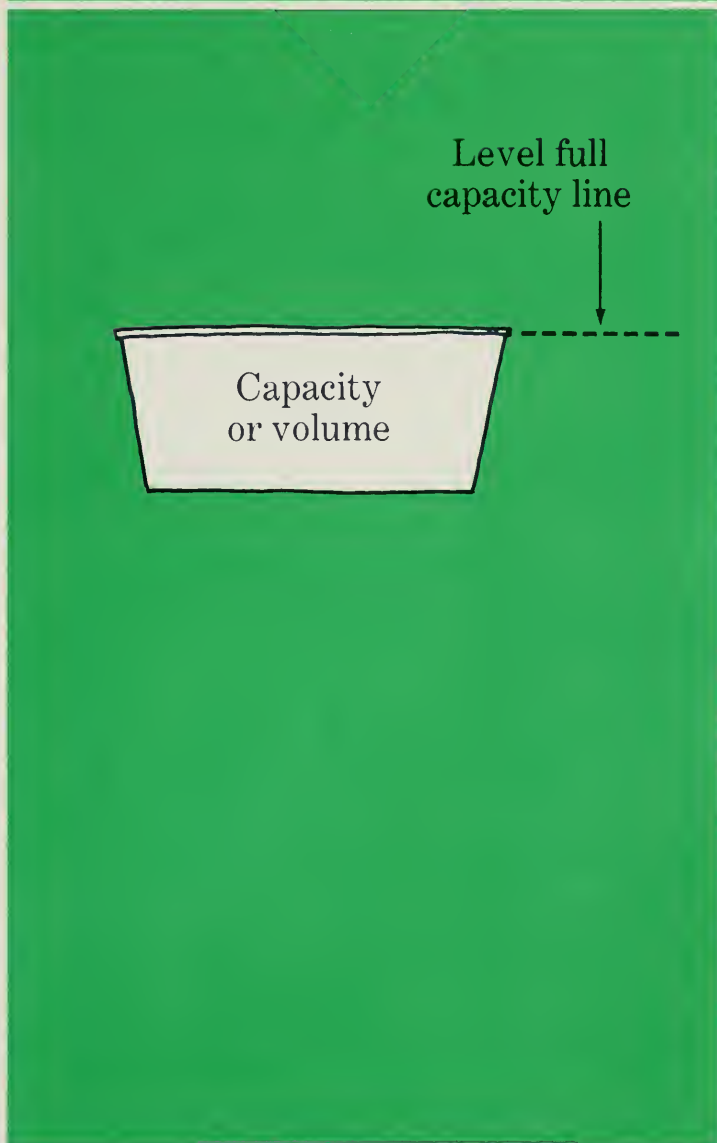
kPa	PSI	
35	5	canning fruits
70	10	canning vegetables and meats
100	15	pressure cooking meats and canning vegetables and meats



pan sizes

Metric pans are designated by volume (litres or millilitres). Manufacturers are making bakeware according to defined depths and shapes. Size is determined by a level full capacity.

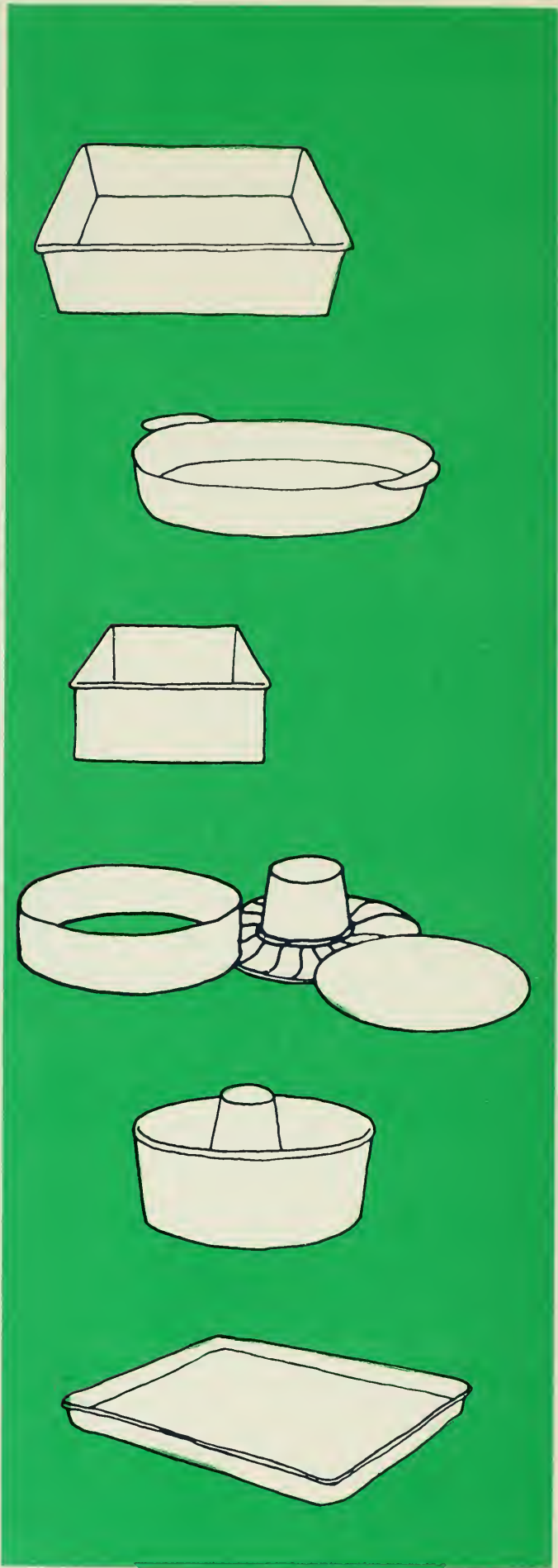
New baking pans don't have to be bought. The old ones are similar enough. To determine the volume of your existing pans for use in metric recipes, fill them with water using a liquid metric measure. For example, if you fill an 8-inch square cake pan with water, the volume of water may measure 1900 mL. This is approximately 2000 mL or 2 L, and will be suitable for a recipe calling for a 2 L cake pan.



Some of the bakeware sizes being used:

Utensil*	Metric Volume	
Cake Pan or Dish	2	L
	2.5	L
	3	L
	3.5	L
	4	L
	5	L
Round Layer Cake Pan or Dish	1.2	L
	1.5	L
Fruit Cake Pan	1.5	L
	3	L
	4.5	L
Spring Form Pan	1.5	L
	3	L
	4.5	L
Tube Pan (Angel Food Pan)	2	L
	3	L
Jelly Roll Pan or Baking Sheet	1	L
	2	L

*It is important that the utensil name be identified with the volume measure.



Utensil*	Metric Volume	
Casserole	500	mL
	750	mL
	1	L
	1.5	L
	2	L
	2.5	L
	3	L
	4	L
Custard Dishes	150	mL
	200	mL
	250	mL
	300	mL
	500	mL
	750	mL
Loaf Pan or Dish	1.5	L
	2	L
	3	L
Muffin Pan or Tart Pan (each serving)	25	mL
	50	mL
	75	mL
Pie Plate or Pan	1	L



Although we have been used to identifying bakeware by length, width and depth, this new volume system is actually better. It is easier to determine the size of pan needed for the volume of batter. This way too, there is more uniformity in pan sizes.

*It is important that the utensil name be identified with the volume measure.

buying information

When buying such items as meat, fish, poultry or cheese, the mass in grams or kilograms is marked on the label where the weight used to appear.

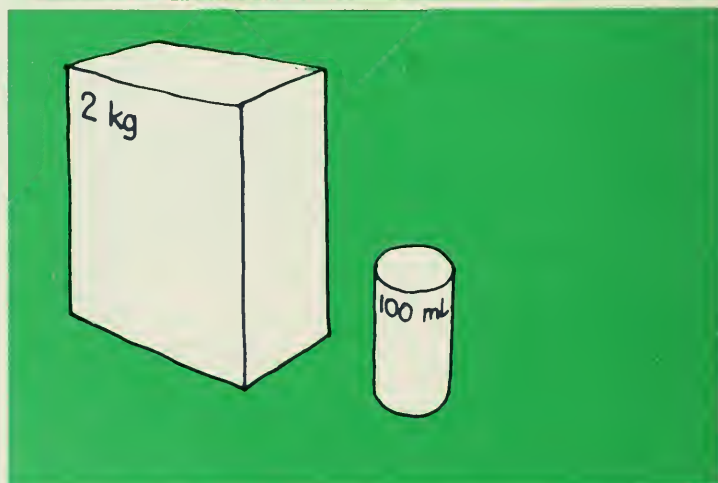
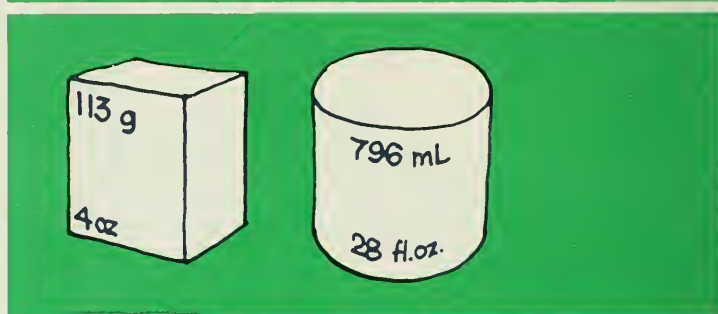
Often these items are selected by size (e.g. a roast for company) or by number (e.g. four chicken legs). If this is the case, metric conversion shouldn't prove to be too difficult. But **do** check the mass on labels from time to time, as this will give you a good reference point should you order a specific quantity by mass.

Fruits and vegetables, if pre-packaged, are also marked in grams and kilograms. Or, they can be weighed using the retail scales in the store.

Packaged goods are required to show the volume or mass on the label. Some products will carry both the conventional and metric units.

This is called soft conversion. Other products have undergone hard conversion, where only round metric numbers appear.

Eventually most products will undergo hard conversion.



This, then, is the basic information you need for metric cooking. Once you have purchased a set of metric measures and have a reliable tested recipe, you are ready to create your first metric product.

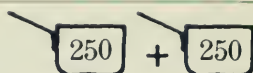
Like anything new, it takes time to adjust to metric cooking. The more you use metric measures, the easier and more natural they become.

Let's take a look at the following recipes and see how to apply some of the metric measures.

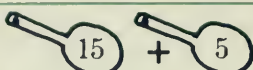


lemon loaf

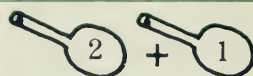
500 mL sifted all-purpose flour



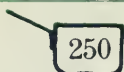
20 mL baking powder



3 mL salt



250 mL sugar



75 mL butter, melted

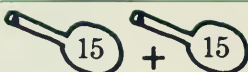


2 beaten eggs

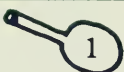
250 mL milk



30 mL finely grated lemon rind



1 mL almond extract



Sift together dry ingredients. Combine butter, eggs, milk, lemon rind and extract. Add to dry ingredients, mixing just enough to moisten. Turn into greased 2 L loaf pan. Bake at 180°C until skewer inserted in center comes out clean (about 1 h). Makes 1 loaf. Top with lemon glaze if desired.

LEMON GLAZE

25 mL sugar



25 mL lemon juice



Combine sugar and lemon juice. Mix until sugar is dissolved. When loaf is almost cool spoon mixture over top.

vegetables eastern style

250 mL sliced onion
250 mL thinly sliced celery
125 mL coarsely chopped
sweet red pepper
500 mL sliced mushrooms
25 mL fat
50 mL water
1 L coarsely chopped
Chinese cabbage
25 mL brown sugar
25 mL cider vinegar
25 mL soy sauce
15 mL cornstarch

Sauté onion, celery, red pepper, mushrooms and stalk of Chinese cabbage in fat until tender-crisp (about 10 min). Add water and bring to boil. Add cabbage leaves. Cover and cook 2 min. Combine remaining ingredients and add to pan. Stir and cook until thick and clear. 6 servings.

potato beef casserole

125 mL chopped onion
125 mL diced celery
1 garlic clove, crushed
25 mL fat
500 g ground beef
2 mL salt
1 mL pepper
1 can (284 mL) condensed
cream of mushroom soup
500 mL hot mashed potatoes
15 mL margarine
Dash salt and pepper
15 mL melted margarine


Sauté onion, celery and garlic in fat until onion is transparent. Add beef and brown. Drain off excess fat. Add seasonings and soup. Turn into greased 2 L baking dish. Combine potatoes and 15 mL margarine. Season with salt and pepper. Spread potatoes over meat mixture and brush with melted margarine. Bake 30 min at 190°C. 6 servings.

KITCHEN METRICS


VOLUME

Use metric measures for metric recipes. Measures are marked in millilitres (mL) and are available in the following sizes:

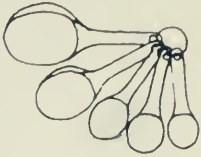
1000 mL = 1L
500 mL
250 mL



250 mL
125 mL
50 mL



25 mL
15 mL
5 mL
2 mL
1 mL



TEMPERATURE

Most commonly used oven temperatures

°C	replaces	°F	°C	replaces	°F
100		200	190		375
150		300	200		400
160		325	220		425
180		350	230		450

Refrigerator temperature: 4°C replaces 40°F
Freezer temperature: -18°C replaces 0°F

MASS

1 kg (1000 g) is slightly more than 2 pounds
30 g is about 1 ounce

LENGTH

1 cm (10 mm) is slightly less than 1/2 inch
5 cm is about 2 inches

PRESSURE

Pressure for pressure cookers and canners is measured in kilopascals (kPa) instead of pounds per square inch (PSI).

kPa	replaces	PSI
35		5
70		10
100		15

CAL/BCA OTTAWA K1A 0C5



3 9073 00187466 0

