

# Metric cooking with confidence



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(3377 words)

In bygone days, people used some or all of the following – either for buying ingredients or for cooking:

*bushels, coffee cups, cups, degrees Fahrenheit, demitasse, dessertspoons, drams, gallons, gas regulo, gills, glasses, grains, hundredweights, imperial gallons, jacks, noggins, ounces, pecks, pennyweights, pints, pounds, quarters, quarts, sacks, saltspoons, scruples, stones, tablespoons, teacups, teaspoons, tins, U.S. ounces, U.S. pints, U.S. quarts etc.*

All of these measures can lead to all sorts of confusions. The English cooking writer, Elizabeth David, puts it very well:

*How much cheese is a handful? How much more or less is a cupful? What is the capacity of a glass, a tumbler, or soup ladle; what is the difference between a suspicion and a pinch? How much more is a good pinch? How much wine is a little, how many olives a few? When the book says a tin of chopped almonds or pomegranate juice what are you supposed to understand by that?*

*The answer to that one, at least, I know. A tin is an English round fifty cigarette tin, at one time a fairly common unit of measurement in Egypt and other parts of North Africa and the Middle East.*

'Spices, Salt and Aromatics in the English Kitchen' (Penguin 1973)

A few years ago, we came across most of these ways of measuring, when we edited a charity cookbook for Wendy's mother's nursing home. Our contributors, including several chefs and many professional cooks, were all very experienced in the kitchen.

When we decided that our primary audience was not only our own grandchildren, but the grandchildren, great grandchildren, and great, great, grandchildren of our wonderful elderly cooks, it was very clear to us that we would have to use metric units. We could have used the units in the original recipes, but this would mean that our book would sit on our granddaughters' shelves – unused – because they couldn't understand any of the old cooking measures.

More importantly it would mean that the wonderful recipes we collected would be lost to future generations simply because of the difficulty of interpreting the old measuring languages.

Grandchildren of the 21st century might have no-one who can tell them about breakfast cups or gills; whether an ounce is dry, fluid, apothecaries or troy; the difference between an Imperial pint or a colonial pint from the USA; or the precise meaning of spoons or cups that are 'large, heaped, rounded, level, small or scant'. Such arcane knowledge will soon be gone. The children of the 21st century will cook using the International System of Units that most of us usually refer to as the metric system.

Note: these thoughts are also relevant when you are experimenting with recipes from the USA — the only nation in the world yet to 'Go metric'.

Most cooks measure volume, mass, temperature, length, and power, and that is their usual order of importance, so that is the way we will deal with them.

## Volume

Many cooking terms that you see in old recipes come from a medieval English 'doubling' method for measuring volumes that went something like this:

*Two mouthfuls were equal to a jigger; two jiggers made a jack; two jacks made a gill (pronounced jill); and two gills filled a cup. The whole series went like this: mouthful (tablespoon?), jigger, jack, gill, cup, pint, quart, pottle, gallon, peck, pail, bushel, strike, barrel, hogshead, butt, and tun.*

Of these the jack and gill were very popular because they were used for selling spirituous liquors and wines. So the jack and gill were watched very closely by the public — and by the tax collector.

When the tax collector checked a local public house he would measure the jack and the gill used to measure spirits and if they were a fair measure he would stamp a crown into the pewter. After the departure of the tax collector, the publican sometimes scraped some metal off the top of the measure so it held less — in this way he invalidated the crown seal by filing the top (crown) of the measure — in short, he broke the crown by breaking the crown. This practice has been recorded for us in the nursery rhyme, Jack and Gill.

Jack and Gill went up the hill

To fetch a pail of water.

Jack fell down and broke his crown

And Gill came tumbling after.

## Cups

Even something as simple sounding as a cup of flour is fraught with difficulty. Do you use an English teacup, a breakfast cup, a morning coffee cup, or an after dinner coffee cup? If you receive a recipe from the USA does a cup mean that you should use a teacup, a breakfast cup, or your old coffee mug with the broken handle that has 'I luv N.Y.' printed on the side? And we haven't even considered whether an after dinner coffee cup is the same as a demitasse!

Compare all of these with the simplicity of the Australian metric cup that always contains 250 millilitres. This means that there are four cups to one litre. The complete set of information an Australian cook needs to know about cups is:

1 cup = 250 millilitres

4 cups = 1000 millilitres = 1 litre

The international standard symbol for millilitre can be either mL or ml. In Australia mL is recommended for millilitres, and L is recommended for litres. Australian metric cups should be filled with a spoon and levelled with a straight edge (a spatula or the back of a knife).

Having said all of that, now we need to 'fess up' – we cheat. When we want less than a cup we think of the cup as only 240 mL. That way the cup divides more easily; 1/2 cup = 120 mL, 1/3 cup = 80 mL, and 1/4 cup = 60 mL. It's a lot easier to divide and the slight differences (always less than two teaspoons) almost never matter. We also round any conversions we make slightly upwards; this keeps the proportions in order and it makes a slightly larger dish.

If you are translating an old Australian recipe:

30 grams (g) is approximately one ounce + 10 %

500 grams (g) is approximately one pound + 10 %

600 millilitres (mL) is approximately one pint + 10 %

We say an old Australian recipe because American recipes, and old English recipes, use different measures. Firstly, an English pint and a pint in the USA are different sizes – English pints are bigger than U.S. pints and this means that U.S. ounces are different to Imperial ounces (An American ounce is 1/16 of a U.S. pint, whereas an Imperial ounce is 1/20 of an Imperial pint). But the English pint was 16 oz before 1878, so if you trying to cook a very early English recipe you must also be aware of that.

For measuring volume we only use two units:

1000 millilitres = 1 litre

## Tablespoons and teaspoons

Vague measures abbreviations or incorrect symbols can cause interesting problems. A friend mistakenly thought that two Ts of chilli meant two tablespoons (which she heaped to suit the capital T) instead of two level teaspoons of chilli. This caused much distress to her elderly diners! We also have a favourite cookbook that contains many tips on how to avert disasters such as this; the author ends each tip with the question, 'Ask me how I know?'

In the past tablespoons and teaspoons might be described as large, heaped, rounded, level, small, or scant. In addition old spoons varied in size according to the whimsy of the manufacturer – there were no standard sizes.

In Australia, metric spoons are now fixed: a teaspoon is 5 mL and a tablespoon is 20 mL. We decided that we would only use teaspoons and tablespoons, and that we would avoid all the others (dessertspoons, salt-spoons etc.) as meaningless and prone to error. Where possible, we write out the names, teaspoons and tablespoons, in full. This avoids any confusion. However sometimes when we write or edit small format books, we use the abbreviations shown here:

1 teaspoon = 1 ts = 5 millilitres = 5 mL

1 tablespoon = 1 TS = 20 millilitres = 20 mL

Sometimes you might see a reference to a dessertspoon or to an abbreviation like 'dspn'. It seems to be generally accepted that a dessertspoon = 2 teaspoons and we prefer to say two teaspoons – we never use the term dessertspoon in a written recipe. Nor do we refer to such things as salt-spoons and coffee-spoons. We only use teaspoons (5 mL) and tablespoons (20 mL).

The best volume investments we made for our kitchen were three metric measures. These consisted of: a set of metric measuring cups (1 cup, 1/2 cup, 1/3 cup, and 1/4 cup); a 1 litre

(boil-proof) measuring jug, and two sets of metric measuring spoons (1 tablespoon = 20 mL, 1 teaspoon = 5 mL, 1/2 ts and 1/4 ts). We have two sets of spoons that we think of as a 'wet' set and a 'dry' set. If you use your kitchen spoons, be wary, as they vary quite a lot in their volumes.

## Mass (formerly called weight)

No doubt you have heard the generalisation that:

*English cooks cook by weight, and American cooks cook by volume.*

Our observation suggests that this is partly true. English cooks write recipes that require you to weigh all ingredients, while cooks in the USA like to write recipes with only volume measures – from cups down to sixteenths of a teaspoon. We believe that a combination of these two methods is best, so we try to select the best way of measuring for each ingredient.

This is not always easy. For interest we checked a cup each of some of our more common cooking ingredients. Our results were: plain flour (1 cup = 150 grams), sugar (1 cup = 255 grams), brown rice (1 cup = 230 grams) and Jasmine rice (1 cup = 245 grams). As you can see mass measures are more accurate than volume (cup) measures. If you prefer to cook by mass, only using scales, weigh cupfuls of your common ingredients so that you can translate your recipes easily.

One of the delights of our kitchen is an accurate set of kitchen scales for finding the mass of various foods. Ours is an electronic device that measures, in grams, up to 5000 gram (5 kilograms). This has brought a better precision and accuracy to many aspects of our cooking. Our electronic scales have gradually become essential for many recipes that demand accuracy in their ingredients – sponges and bread come to mind.

In the olden days (last year before we bought our new mass machine) we had to do the best measures we could, using volume measures, such as cups, when a mass measure would have been preferable. For measuring mass we only use two units:

1000 grams = 1 kilogram

## Temperature

In the days of wood-fired stoves about all a good cook could guess were the differences between slow, moderate, fairly hot, hot, and very hot. Next came gas oven with marks on the gas tap called 'Regulo'; these were an improvement but still not ideal. Then came the oven-door thermometers with a precision of plus or minus about twelve degrees – if they were carefully and regularly calibrated. Needless to say this was rarely done, so cooks knew that they had to 'learn the oven' whenever they needed to cook in a strange place – really not much better than the old wood stove days.

Through all of this, cooks also had to contend with words such as 'Cool oven' to 'Very hot oven', the Regulo marks, Fahrenheit, centigrade, and finally Celsius temperatures. We use Celsius temperatures only; and we change other temperatures to Celsius in all our recipes. When we are cooking on an old Fahrenheit stove we simply halve the Fahrenheit temperature to give us a guide to the correct temperature in degrees Celsius.

For measuring temperature we only use one unit: degrees Celsius

## Length

When engineers in Australia made the conversion to metric measures, they chose to use millimetres and metres – their conversion went smoothly and quickly.

When builders in Australia, made the conversion to metric measures, they chose to use millimetres, metres, and kilometres – their conversion also went smoothly and quickly.

In the 1970s, a large group of plumbers were called together for a training day on metric conversion. They were asked to bring along old company owned rulers and measuring tapes, which were taken away for destruction. They were then given new metric rulers and tapes marked in millimetres and metres only. About a fortnight later, the plumbers were comfortably using millimetres and metres in all of their work. One critical factor in this success was the avoidance of the confusion that centimetres seem to bring.

When textile and clothing workers, in Australia, made the conversion to metric measures they chose to use centimetres – their conversion process is still going strong with a mixture of old units with metric units. Their metric conversion process has taken more than 30 years – so far – and they still hardly seem to have begun. Footwear workers are still using the lengths of barleycorns to measure the size numbers of our shoes – and shoes still hurt.

Cooks, like textile and clothing workers, are still in the nether world of conversion using centimetres. In any case cooks have quite special issues to consider when they are thinking about measurement. Cooks often inherit recipes written in old – sometimes very old – units. They also inherit equipment that is often expensive to replace like scales and stoves.

In time we hope to have all of our old recipes in metric units. In the meantime we fear that many old priceless recipes of our mothers, grandmothers and great grandmothers may be lost.

We specifically avoid the use of centimetres in any of our cooking and in writing any of our recipes.

For measuring length we only use two units:

$$1000 \text{ millimetres} = 1 \text{ metre}$$

Millimetres and metres allow us to measure much more accurately, and we don't have complicated sums to do. It's easier to say 5 millimetres than 0.5 centimetres, 1/2 centimetres, or half a centimetre; it's easier to add 175 mm to 7 mm – rather than 17.5 cm to 0.7 cm. And it's easier to picture someone who is 1.8 metres rather than someone who is 180 centimetres.

Many (most) Australian women are still struggling, trying to change to metric length measures using centimetres, and so far it has taken us more than thirty years to make what is essentially a simple change that took Australian men only a few months. We sometimes wonder if the success of metric conversion in men's traditional activities (engineering, building, and plumbing) was due to adequate funding. And the lack of success in women's traditional activities (textiles, sewing, and cooking) was due to lack of funding and consideration of these as important issues – but we digress – hhhrrmmph!

When decimal money was introduced on the 14th of February 1966, we looked at it carefully, talked about old money and real money for a few weeks, and then accepted the change. Because we use money every day, we learned about it quickly and then got on with our lives. Try asking someone, 'How much is that in pounds, shillings, and pence?' and wait for the funny look.

Generally, we did well with things we used every day. The police on the side of the road with their 'hair-dryers' soon taught us about 'kilometres per hour', and the rising price of petrol soon taught us about litres.

But for things where we didn't measure every day – if ever – we took a lot longer, and measuring lengths was one of these.

Let me share a trick that has helped me a lot. I too was having dreadful trouble with metric measurements until the day I measured the width of my little finger – it was 10 mm wide – and the width of my palm (across the knuckles – it was 80 mm wide; and from knowing those two simple measurements I have never looked back.

If I want to cut strips of skirt steak 10 mm wide for a stir-fry I just look at my little finger.

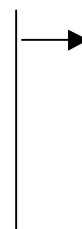
If I want to cube lamb for a shish kebab to 20 mm, I look at my little finger and double it.

If I want pastry rolled out to 5 mm, I look at my little finger and roll the pastry to half its thickness.

Because I don't use centimetres I never have any issues with instructions such as: 'Roll the pastry to 0.5 centimetres; or roll it out to 1/2 centimetre'.

And I also know how much rain we've had!

By the way this drawing is 10 mm wide so you can measure your little finger right now. For most men the 10 mm will be close to the width of their little fingernail.



## Energy

The modern metric unit for energy is the joule, but one joule is only a small amount of energy – one joule is the energy produced when the head of a single match is burnt.

For the energy in food, we use the kilojoule, which replaces the old terms calorie, Calorie, and kilocalorie

$$1000 \text{ joules} = 1 \text{ kilojoule}$$

## Power

Cooks only need to refer to power when they are buying a new appliance. The power rating of an appliance follows the usual simple metric rules.

$$1000 \text{ watts} = 1 \text{ kilowatt}$$

Most cooks only need to know that a 600 watt microwave oven will take twice as long to cook as a 1200 watt oven.

## Don't mix units

One of our favorite stories is about NASA's \$1 250 000 000 Mars Climate Orbiter that flew for more than two years before it reached the red planet, where it crashed. Someone had switched NASA's normal metric measures to the old inch, ounce, foot, and pound measures. Oops!

We know that disasters in the kitchen will not cost quite this much, but we're not taking any chances; it's always too expensive if you have to throw food away.

We never mix old units with metric units, and we don't own any dual measurement scales or dual measurement rulers either. Don't duel with dual!

## Be the best - be metric

Internationally every nation in the world now uses metric measurements for all of their trade and all of their manufacturing. (even the USA bases its old pound measurements on kilograms and its feet and yards on metres!)

For cooks this means that modern recipes from any nation in the world, except those from the USA, can be cooked easily and with confidence. We regularly cook modern recipes from China, England, France, India, and Russia with the full confidence that the cook who wrote the recipe is using the same measures that we use – the measures that are contained in the International System of Units – the modern metric system.

## Summary

Metric measurements are simple and straightforward. And on a personal level, we know that metric measures can be learnt very easily and quickly. After all, for cooking we have few metric units to learn:

For volume:	1000 millilitres = 1 litre
For mass:	1000 grams = 1 kilogram
For length:	1000 millimetres = 1 metre
For energy:	1000 joules = kilojoules
For power:	1000 watts = 1 kilowatt
For temperature:	We only use degrees Celsius

And these metric units are all we will ever need in our kitchen.

Now let's go back for a moment:

*breakfast cups, bushels, coffee cups, cups, degrees Fahrenheit, demitasse, dessertspoons, drams, gallons, gas regulo, gills, glasses, grains, hundredweights, imperial gallons, noggins, ounces, pecks, pennyweights, pints, pounds, quarters, quarts, sacks, salt-spoons, scruples, stones, tablespoons, teacups, teaspoons, tins, U.S. ounces, U.S. pints, U.S. quarts etc.*

Learning a few metric measures to replace all of the conflicting and confusing old measures appears, to us, to be an excellent trade.

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