

Household Weights and Measures

The purpose of this card is to present in convenient form the weights and measures tables most useful for household purposes, together with associated weights and measures information of general household interest. It also provides basic metric information for consumer use.



Advice to the Consumers

- Whenever possible, buy commodities and produce by weight, rather than by count.
- Learn the unit price (e.g., price per kilogram or liter, etc.) of what you buy and use it to choose the lowest price item. Mere package size may be deceptive. Read and compare labeled quantities in relation to unit price.
- Learn to read scale and meter indications, and observe the clerk weighing and measuring your purchases.
- When you check out at a store verify your purchases to make sure that you are charged the correct price for the item you received.
- Demand accurate weight and measure in your purchases just as you demand accurate change from the cashier.
- Some stores provide scales on which you can check the weights of your purchases. Use them!
- Become acquainted with your local or State weights and measures officials, and consult them if in doubt on any weights and measures matters. Report suspected scale or meter inaccuracies or short-weighing or short measure violations to your local official.

Equivalents of the Common Kitchen Volumes

Units	Teaspoonful	Tablespoonful	Fluid Ounces	Cupfuls	Liquid		Milliliters	Liters	Units
					Pints	Quarts			
1 teaspoonful	1	1/3	1/6	-	-	-	5	-	1 t
1 tablespoonful	3	1	1/2	1/16	1/32	-	15	-	1 T
1 fluid ounce	6	2	1	1/8	1/16	1/32	30	-	1 fl. oz.
1 cupful	48	16	8	1	1/2	1/4	240*	0.24*	1 cup
1 liquid pint	-	-	16	2	1	1/2	470*	0.47*	1 liq. pt
1 liquid quart	-	-	32	4	2	1	950*	0.95*	1 liq. qt
1 milliliter	1/5	-	-	-	-	-	1	1/1000	1 mL
1 liter	-	-	34	4.2	2.1	1.06	1000	1	1 L

- Equivalent not commonly used.

* Approximate.

Approximate Weights of some Commodities in grams (g) and Avoirdupois Ounces (oz) per Cup

	(g)	(oz)		(g)	(oz)		(g)	(oz)
Beans (dry)	184	6½	Flour (cake, sifted)	99	3½	Raisins (seedless)	142	5
Butter, margarine, cooking oils	227	8	Milk (whole, fluid)	241	8½	Rice	198	7
Citrus fruit juice (fresh)	241	8½	Milk (dry)	127	4½	Shortening (vegetable)	198	7
Cornflakes	28	1	Nutmeats (pecan)	113	4	Sugar (brown, moist, firmly packed)	213	7½
Corn meal	142	5	Oatmeal	85	3	Sugar (granulated)	198	7
Eggs (whole)	241	8½	Pancake mix	142	5	Water	236	8½
Flour (wheat, all-purpose)	113	4	Prunes (dried)	156	5½	1 Avoirdupois Ounce = 28.349 g (Approximate)		

Metric System

The metric system is simple to learn and easy to use. For use in your every-day life you will need to learn about ten new units. You will also need to get used to a few new temperatures. There are some metric units with which you are already familiar: those for time and electricity are the same as you use now. The basic units of the metric system are the meter, which is a unit of length; the gram, which is a unit of weight; and the liter, which is a unit of capacity or volume. Other units in the metric system are the decimal subdivisions and multiples of the basic units, named by combining the proper prefix with the name of the basic unit to form self-defining terms.

The prefixes commonly used are "milli," which means the one-thousandth part; "centi," which means the one-hundredth part; and "kilo," which means one thousand times. For example, "milliliter" means one-thousandth of a liter, "centimeter" means one-hundredth of a meter, and "kilogram" means one thousand grams. This makes the metric system a "decimal" system—like our monetary system—so it can be much easier system to learn and use. You can make comparisons with our monetary system that will help you to remember the metric prefixes. There are ten mills in a cent, ten millimeters in a centimeter. There are one hundred cents in a dollar, one hundred centimeters in a meter.

The Metric System in the Kitchen

Although there may be concern about the effect of metric on cooking, you really will have little to worry about. There will be no need for much change in our recipes if the new metric recipes remain volumetric and if, as anticipated, the measuring utensils retain approximately the same ratio as the customary cup (237 mL), teaspoon (5 mL), and tablespoon (15 mL). This is easily achieved by adopting a "metric cup" of 250 mL a "metric teaspoon" of 5 mL and a "metric tablespoon" of 15 mL. Of course, amounts such as "a pinch" and "2 eggs" will remain the same, although weights will be expressed in kilograms (1 kg equals 2.2 pounds) or grams. Using this type of changeover to metric in recipes, either customary or metric measuring utensils can be used for any recipe with the same results being obtained, except for slight variations in quantity, as long as the same system of measure is used for the entire recipe. For example, a "customary" recipe made by using a "metric cup" will yield only about 5 percent more quantity. Your favorite cookbooks will be useful forever!

Everyday Metric Units

Basic Metric Units

Meter : a little longer than a yard (about 1.1 yards)

Liter: a little larger than a quart (about 1.06 quarts)

Gram: about the weight of a \$1 bill

Kilogram: about 2.2 pounds.

Other Units and Comparisons

millimeter: 0.001 meter: diameter of paper clip wire

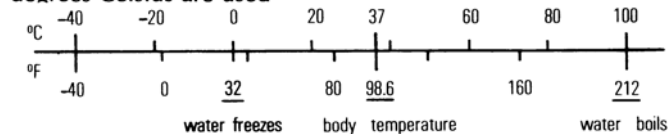
centimeter: 0.01 meter: the width of a paper clip (about 0.4 inch)

kilometer: 1000 meters (about 0.6 mile)

milliliter: 0.001 liter (5 make a teaspoon)

TEMPERATURE

degrees Celsius are used



Metric Units and Symbols

meter	m	millimeter	mm	kilogram	kg
liter	L	centimeter	cm	milliliter	mL
gram	g	kilometer	km		

What Will the Metric System Mean in the Marketplace?

When metric units become commonplace you will use different measuring units for the weight, volume and length declarations on packaged goods. Currently, in packaged items the number of different types of measurement you encounter in one day's shopping is bewildering. Some weights are expressed in aovidupois ounces and pounds; fluid measures are expressed in gallons, liquid quarts, pints, and fluid ounces; and dry measures are expressed in bushels, pecks, dry quarts, and pints and a dry quart is 16 percent larger in volume than a liquid quart.

The metric system uses the liter or multiples of a liter (e.g., 2.5 liters) or milliliters (e.g., 500 mL) for liquid volume. Milk and gasoline will be sold by the liter rather than the gallon although at the service station you will still be able to buy \$20 worth or just fill it up! In the supermarket you will buy food by the kilogram or gram instead of by the pound or ounce. Rugs and fabrics will be sold by the meter rather than by the yard (e.g., a 9 x 12 foot carpet will be a 3 x 4 meter carpet.) The centimeter will replace the inch and the foot (e.g., a 21-inch lawnmower will be called 53 centimeters.)

Useful Measurement Equivalents

Customary with Metric Conversions (Approximate)

Metric

Length

1 inch = 2.54 centimeters
 1 foot = 12 inches = 30.49 centimeters
 1 yard = 3 feet = 36 inches = 91.44 centimeter (0.914 4 meter)
 1 (statute mile) = 5280 feet = 1.609 kilometers

100 centimeters = 1 meter
 1000 meters = 1 kilometer
 10 000 square centimeters = 1 square meter
 10 000 square meters = 1 hectare
 1 000 000 cubic centimeters = 1 cubic meter
 1000 milliliters = 1 liter
 1 milliliter = 1 cubic centimeter
 1000 grams = 1 kilogram
 1000 kilograms = 1 metric ton

Area

1 square foot = 144 sq inches =6.45 square centimeters
 1 square yard = 9 square feet =0.836 square meters
 1 acre = 43 560 square feet = 0.404 Hectare (4046 sq. meters)
 1 square mile = 640 acres =258.9 Hectares or 2.5 million square meters

Volume

1 cubic foot= 1728 cubic inches = 28.31 liters
 1 cubic yard= 27 cubic feet =0.7645 cubic meters
 1 quart (liquid) = 2 pints = 32 fluid ounces =946 milliliters (0.946 liter)
 1 peck = 8 quarts = 8.8 liters
 1 bushel = 4 pecks = 32 quarts = 35.23 liters
 1 dry pint = 550 milliliters
 1 dry quart = 1.1 liter

For more Weights and Measures information, contact your local or state weights and measures office, or:

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 Email: owm@nist.gov
 or visit our website at:
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Weight (mass)

1 oz = 28.35 grams
 1 pound = 16 ounces = 453.59 grams (0.453 59 kilogram)
 1 ton = 2000 pounds = 907 kilograms (0.907 metric ton)
 1 long ton = 2240 pounds = 1016 kilograms (1.102 metric tons)