

Withdrawn NIST Technical Series Publication

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The attached publication has been withdrawn (archived), and is provided solely for historical purposes. It may have been superseded by another publication (indicated below).

Withdrawn Publication

Series/Number	NBS Miscellaneous Publication (MP) 39-2
Title	Household Weights and Measures
Publication Date(s)	1923
Withdrawal Date	June 1, 1926
Withdrawal Note	Superceded by 1926 edition

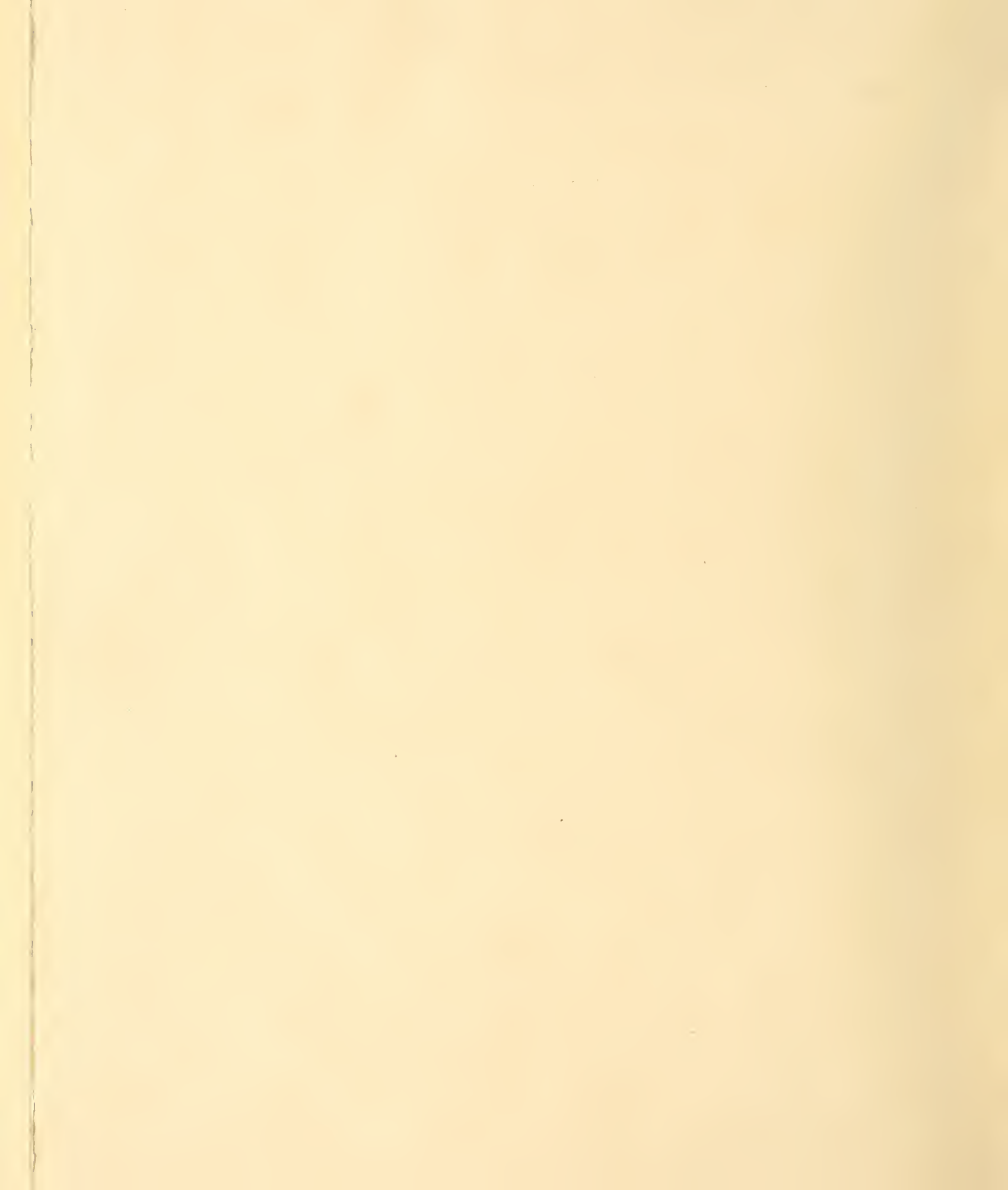
Superseding Publication(s) *(if applicable)*

The attached publication has been **superseded by** the following publication(s):

Series/Number	NBS Miscellaneous Publication (MP) 39-3
Title	Household Weights and Measures
Author(s)	
Publication Date(s)	June 1, 1926
URL/DOI	https://doi.org/10.6028/NBS.MP.39-3

Additional Information *(if applicable)*

Contact	Elizabeth Benham, Office of Weights and Measures
Latest revision of the attached publication	
Related Information	
Withdrawal Announcement Link	



HOUSEHOLD WEIGHTS AND MEASURES

The object of this card is to present in convenient form the weights and measures tables most useful for household purposes. In addition to the capacity measures illustrated, every kitchen should be provided with a good household weights and measures test set. This will be found indispensable in checking the amounts of commodities purchased and very useful for a variety of other purposes. A complete set comprises a weighing scale of from 10 to 30 pounds capacity or more graduated to 1 ounce or less, a set of liquid measures, a yard measure or a tape 3 or 6 feet in length, and, perhaps, a set of dry measures. These pieces should be of simple but rugged construction and of satisfactory accuracy and should, whenever possible, be tested by and bear the seal of a weights and measures official.

Common Kitchen Measures.

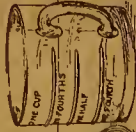
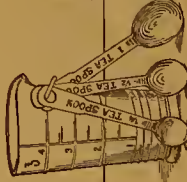
EQUIVALENTS OF CAPACITY.

(All measures level full.)

3 teaspoons	≡	1 tablespoon.
½ fluid ounce	≡	1 tablespoon.
16 tablespoons	≡	1 cup.
2 gills	≡	1 cup.
½ liquid pint	≡	1 cup.
8 fluid ounces	≡	1 cup.
1 liquid pint	≡	2 cups.
16 fluid ounces	≡	2 cups.

Liquid Measure.

4 fluid ounces	≡	1 gill.
4 gills	≡	1 pint.
2 pints	≡	1 quart.
4 quarts	≡	1 gallon (231 cubic inches).
3½ gallons	≡	1 barrel.
2 barrels	≡	1 hoghead.



Dry Measure.

(For fruits, vegetables, and other dry commodities.)

2 pints	≡	1 quart.
8 quarts	≡	1 bushel.
4 pecks	≡	1 bushel (2150.42 cubic inches).
105 quarts	≡	1 barrel (7056 cubic inches).

The pint and quart dry measures are about 16 per cent larger than the pint and quart liquid measures.

Avoirdupois Weight

27½ grains	≡	1 dram.
16 drams	≡	1 ounce.
16 ounces	≡	1 pound.
4 quarters	≡	1 hundredweight.
20 hundredweight	≡	1 ton.

(Short hundredweight = 100 pounds.
Long hundredweight = 112 pounds.
Short ton = 2,000 pounds.
Long ton = 2,240 pounds.)

Approximate Weights of Some Common Dry Commodities.

	Pounds per bushel.		
Apples	48	Ice	1 cubic foot = 57½ pounds.
Beans	60	30 cubic inches	= 1 pound.
Beets	60	Sugar, granulated:	
Carrots	60	1 cup	= ½ pound.
Cranberries	32	1 cup	= ½ pound.
Cucumbers	48	Butter: 1 cup	= ½ pound.
Onions	57	Lard: 1 cup	= ½ pound.
Parsnips	50	Flour: 1 cup	= ½ pound.
		Chopped meat (packed):	1 cup = ½ pound.
			1 cup = ½ pound.
		Rice: 1 cup	= ½ pound.
		Commeal: 1 cup	= 5 ounces.
		Raisins (stemmed):	1 cup = 6 ounces.
			1 cup = 6 ounces.
		Currants (cleaned):	1 cup = 6 ounces.
			1 cup = 6 ounces.
		Bread crumbs (stale):	1 cup = 2 ounces.
			1 cup = 2 ounces.

These weights are approximate only and should therefore not be used in determining whether correct measure is given or received.

1 Circular of the Bureau of Standards No. 55, entitled "Measurements for the Household," contains in popular form a large amount of information which is very useful about the home. In addition to discussing weighing and measuring as done in the up-to-date kitchen, this circular treats of the measurement and economical use of electricity, gas, and water, etc. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents each.

INTERNATIONAL METRIC SYSTEM

The fundamental unit of the metric system is the METER (the unit of length). From this the units of mass (GRAM) and capacity (LITER) were derived. All other units are the decimal subdivisions or multiples of these. These three units are simply related, so that for all practical purposes the volume of one kilogram of water (one liter) is equal to one cubic decimeter.

When the meaning of the three units and the six prefixes (shown in second column) is known, the metric system is understood. The design of the system makes it self-explanatory. The tables of derived units form themselves automatically. No tables need be or should be memorized.

Smaller and larger units are named by combining the proper numeral prefix with the name of the basic unit. The new term is self-defining—for example, "centi-meter." Here "centi" means "the one-hundredth part of," and "meter" means "the unit of length," so that "centimeter" expresses precisely its meaning, "the one-hundredth part of the unit of length." Every other metric term is as easily formed and expresses as clearly its own definite meaning.

Name	Value	Meaning
METER LITER GRAM ARE	1. 1. 1. 1.	"the unit of length" "the unit of volume" "the unit of weight" "the unit of area"
MILLI-CENTI-DECI-DEKA-HECTO-KILO-	.001 .01 .1 10. 100. 1000.	"the thousandth part of" "the hundredth part of" "the tenth part of" "ten times" "one hundred times" "one thousand times"

One meter = 39.37 inches (exactly); 1 liter = 1.06 quarts (nearly); 1 gram = 0.04 avoirdupois ounce (nearly).



APPROXIMATE WEIGHTS OF SOME COMMON MATERIALS

Name	Pounds per cubic foot	Name	Pounds per cubic foot	Name	Pounds per 1000 board feet	Pounds per cubic foot		
Coal:								
Bituminous (piled loose).....	44 to 54	Masonry:						
Anthracite (piled loose).....	50 to 57	Brickwork	100 to 140	Woods:				
Coke (piled loose).....	23 to 32	Roughly scabbled mortar rubble.....	140 to 150	Fir (balsam)	2170	26		
Charcoal of pine and oak.....	15 to 30	Mortar, hardened.....	103	Hemlock	2330 to 2580	28 to 31		
Earth (common loam):								
Dry, loose.....	72 to 80	Sand.....	90 to 117	Maple	3250 to 3920	39 to 47		
Moist, moderately packed.....	90 to 100	Gravel.....	90 to 117	Oak	3080 to 4670	37 to 56		
Soft mud, packed.....	110 to 120	Trap, quarried, in loose piles.....	107	Pine (American white).....	1830 to 2580	22 to 31		
				Pine (yellow).....	1920 to 3080	23 to 37		
				Poplar	1830 to 2580	22 to 31		

The wood is supposed to be seasoned and of average dryness.

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LITER	1.	"the unit of volume"
GRAM	1.	"the unit of weight"
ARE	1.	"the unit of area"
MILLI-	.001	"the thousandth part of"
CENTI-	.01	"the hundredth part of"
DECI-	.1	"the tenth part of"
DEKA-	10.	"ten times"
HECTO-	100.	"one hundred times"
KILO-	1000.	"one thousand times"

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Moist, moderately packed	90 to 100			Poplar	1830 to 2580	22 to 31
Soft mud, packed.....	110 to 120					

The wood is supposed to be seasoned and of average dryness.

Solid with rectangular sides..... Volume=length×width×height

Cylinder:

Area (exclusive of that of ends)=3.1416×diameter×height
Volume=0.7854×diameter×diameter×height

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HEIGHTS AND WEIGHTS OF CHILDREN

AGE	BOYS					GIRLS					AGE	BOYS					GIRLS				
	Height		Weight		kilograms	Height		Weight		kilograms		Height		Weight		kilograms	Height		Weight		kilograms
yr. mo.	inches	centi-meters	lbs.	oz.		inches	centi-meters	lbs.	oz.		inches	centi-meters	lbs.	oz.	inches		centi-meters	lbs.	oz.	inches	
At birth	20½	52.3	7	10	3.45	20½	52.1	7	3	3.25	2	3½	85.7	27	2	12.30	33½	84.8	26	6	11.96
3	23½	59.7	13		5.90	22	55.9	13	0	5.90	2	3	88.3	29	13	15	33½	86.0	27	4	12.36
6	26½	67.3	18		8.16	25½	65.7	16	12	7.60	2	6	98.9	29	8	13.38	34½	88.6	28	4	12.81
7	27½	69.2	19	2	8.68	26½	67.3	17	6	7.88	2	9	101.8	30	10	13.89	35½	90.5	29	2	13.21
8	27½	70.2	19	12	8.96	27	68.6	18	4	8.28	3	3	94.3	32	4	14.63	36½	93.3	30	8	13.84
9	28½	71.4	20	0	9.24	27½	70.2	19	2	8.68	3	3	96.2	33	2	15.02	37½	94.6	31	10	14.34
10	28½	72.4	20	14	9.47	27½	70.8	19	8	8.84	3	6	98.1	33	12	15.31	38	96.5	32	8	14.74
11	29	73.7	21	6	9.70	28½	72.1	20	2	9.13	3	9	99.1	34	8	15.65	38½	97.8	33	4	15.08
1	29½	74.6	21	14	9.92	28½	73.3	20	12	9.41	4	4	99.1	35	14	16.27	39	99.1	33	12	15.31
1 1	29	75.9	22	14	10.38	29	74.6	21		9.52	5	6	105.7	41	2	18.64	41½	104.8	39	11	18.01
1 2	30	76.8	23		10.43	29½	74.9	21	10	9.81	6	6	111.1	45	3	20.50	43	110.2	43	5	19.64
1 3	30½	78.1	23	10	10.72	30½	76.5	21	14	9.92	7	7	116.2	49	2	22.27	45	115.6	47	8	21.55
1 4	31½	79.1	24	2	10.94	30½	77.5	22	10	10.26	8	8	121.3	53	14	24.45	47½	121.0	52		23.59
1 5	31½	79.7	24	8	11.11	30½	78.1	22	14	10.38	9	9	126.4	59	3	26.95	49	125.4	57	2	25.90
1 6	31½	80.6	24	10	11.17	31½	79.1	23	6	10.60	10	10	131.4	65	5	29.62	51½	130.2	62	6	28.30
1 7	32½	81.9	25	8	11.57	31½	80.0	23	12	10.77	11	11	135.3	70	3	31.84	53	135.6	68	13	31.21
1 8	32½	82.9	25	12	11.68	32	81.3	24	2	10.94	12	12	140.0	76	14	34.88	55½	141.9	78	5	33.52
1 9	32½	83.5	25	12	11.68	32½	81.9	24	12	11.23	13	13	145.4	84	13	38.46	58	148.0	88	11	40.23
1 10	33½	84.4	26	14	12.19	32½	82.9	25	4	11.45	14	14	150.1	94	14	42.05	59½	152.1	98	6	44.63
1 11	33½	85.4	27		12.25	32½	83.5	25	10	11.62	15	15	158.1	107	2	48.58	61½	155.3	106	2	48.13
											16	16	165.1	121		54.88	61½	156.5	112		50.80

The data for this table were furnished by the Children's Bureau, United States Department of Labor, and is collated from such leading authorities as Holt, Crum, Bowditch, and others. There is a variation in height and weight of healthy children of the same age which should be taken into account in using the above figures to judge normal development.



