

1 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 CENTIMETERS

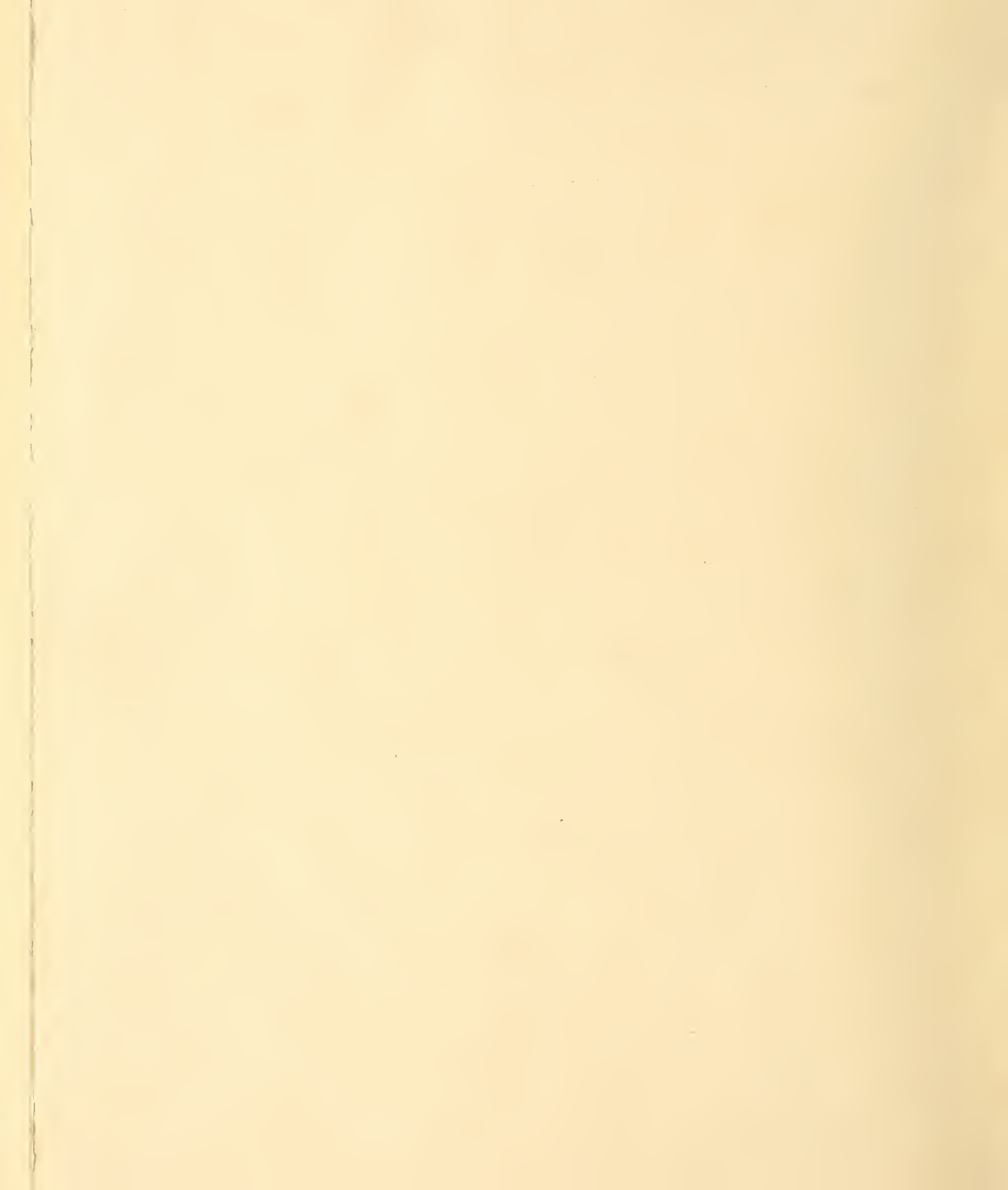
Solid with rectangular sides..... Volume=length×width×height

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

Circular No. 55, of the Bureau of Standards, 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 heat, light, gas, electricity, water, time, etc. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents each.

HEIGHTS AND WEIGHTS OF CHILDREN

AGE	BOYS			GIRLS			AGE	BOYS			GIRLS			
	Height	Weight	Height	Weight	Height	Weight		Height	Weight	Height	Weight			
yr. mo.	inches	lbs.	centi-meters	inches	lbs.	centi-meters	yr. mo.	inches	lbs.	centi-meters	inches	centi-meters	lbs.	centi-meters
At birth	20.3	7	52.3	20.5	7	52.1	3	33.3	35	100.3	39.1	99.1	33	84.8
3	23	13	59.7	22	10	55.9	2	33.3	41	105.7	41.2	104.8	26	86.0
6	26.5	18	67.3	23	13	65.7	3	34.3	45	111.1	43.1	110.2	27	88.6
7	27.1	18	69.2	24	12	67.3	4	35.3	49	116.2	45.5	115.6	28	90.5
8	27.6	19	70.2	25	12	68.6	5	36.3	53	121.3	47.7	121.0	29	93.3
9	28.5	20	71.4	26	12	70.2	6	37.3	58	126.4	49.9	125.4	30	94.6
10	28.8	20	72.4	27	12	70.8	7	38.3	62	131.4	51.1	130.2	31	96.5
11	29	21	73.7	28	12	72.1	8	39.3	67	136.5	52.3	131.4	32	97.8
							9	39	72	141.5	53.1	132.6	33	99.1
							10	39.1	77	146.6	54.0	133.8	34	100.3
							11	40.1	82	151.7	54.9	135.0	35	101.5
							12	41.1	87	156.8	55.8	136.2	36	102.7
							13	42.1	92	161.9	56.7	137.4	37	103.9
							14	43.1	97	167.0	57.6	138.6	38	105.1
							15	44.1	102	172.1	58.5	139.8	39	106.3
							16	45.1	107	177.2	59.4	141.0	40	107.5
								46.1	112	182.3	60.3	142.2	41	108.7
								47.1	117	187.4	61.2	143.4	42	109.9
								48.1	122	192.5	62.1	144.6	43	111.1
								49.1	127	197.6	63.0	145.8	44	112.3
								50.1	132	202.7	63.9	147.0	45	113.5
								51.1	137	207.8	64.8	148.2	46	114.7
								52.1	142	212.9	65.7	149.4	47	115.9
								53.1	147	218.0	66.6	150.6	48	117.1
								54.1	152	223.1	67.5	151.8	49	118.3
								55.1	157	228.2	68.4	153.0	50	119.5
								56.1	162	233.3	69.3	154.2	51	120.7
								57.1	167	238.4	70.2	155.4	52	121.9
								58.1	172	243.5	71.1	156.6	53	123.1
								59.1	177	248.6	72.0	157.8	54	124.3
								60.1	182	253.7	72.9	159.0	55	125.5
								61.1	187	258.8	73.8	160.2	56	126.7
								62.1	192	263.9	74.7	161.4	57	127.9
								63.1	197	269.0	75.6	162.6	58	129.1
								64.1	202	274.1	76.5	163.8	59	130.3
								65.1	207	279.2	77.4	165.0	60	131.5
								66.1	212	284.3	78.3	166.2	61	132.7
								67.1	217	289.4	79.2	167.4	62	133.9
								68.1	222	294.5	80.1	168.6	63	135.1
								69.1	227	299.6	81.0	169.8	64	136.3
								70.1	232	304.7	81.9	171.0	65	137.5
								71.1	237	309.8	82.8	172.2	66	138.7
								72.1	242	314.9	83.7	173.4	67	139.9
								73.1	247	320.0	84.6	174.6	68	141.1
								74.1	252	325.1	85.5	175.8	69	142.3
								75.1	257	330.2	86.4	177.0	70	143.5
								76.1	262	335.3	87.3	178.2	71	144.7
								77.1	267	340.4	88.2	179.4	72	145.9
								78.1	272	345.5	89.1	180.6	73	147.1
								79.1	277	350.6	90.0	181.8	74	148.3
								80.1	282	355.7	90.9	183.0	75	149.5
								81.1	287	360.8	91.8	184.2	76	150.7
								82.1	292	365.9	92.7	185.4	77	151.9
								83.1	297	371.0	93.6	186.6	78	153.1
								84.1	302	376.1	94.5	187.8	79	154.3
								85.1	307	381.2	95.4	189.0	80	155.5
								86.1	312	386.3	96.3	190.2	81	156.7
								87.1	317	391.4	97.2	191.4	82	157.9
								88.1	322	396.5	98.1	192.6	83	159.1
								89.1	327	401.6	99.0	193.8	84	160.3
								90.1	332	406.7	99.9	195.0	85	161.5
								91.1	337	411.8	100.8	196.2	86	162.7
								92.1	342	416.9	101.7	197.4	87	163.9
								93.1	347	422.0	102.6	198.6	88	165.1
								94.1	352	427.1	103.5	199.8	89	166.3
								95.1	357	432.2	104.4	201.0	90	167.5
								96.1	362	437.3	105.3	202.2	91	168.7
								97.1	367	442.4	106.2	203.4	92	169.9
								98.1	372	447.5	107.1	204.6	93	171.1
								99.1	377	452.6	108.0	205.8	94	172.3
								100.1	382	457.7	108.9	207.0	95	173.5
								101.1	387	462.8	109.8	208.2	96	174.7
								102.1	392	467.9	110.7	209.4	97	175.9
								103.1	397	473.0	111.6	210.6	98	177.1
								104.1	402	478.1	112.5	211.8	99	178.3
								105.1	407	483.2	113.4	213.0	100	179.5
								106.1	412	488.3	114.3	214.2	101	180.7
								107.1	417	493.4	115.2	215.4	102	181.9
								108.1	422	498.5	116.1	216.6	103	183.1
								109.1	427	503.6	117.0	217.8	104	184.3
								110.1	432	508.7	117.9	219.0	105	185.5
								111.1	437	513.8	118.8	220.2	106	186.7
								112.1	442	518.9	119.7	221.4	107	187.9
								113.1	447	524.0	120.6	222.6	108	189.1
								114.1	452	529.1	121.5	223.8	109	190.3
								115.1	457	534.2	122.4	225.0	110	191.5
								116.1	462	539.3	123.3	226.2	111	192.7
								117.1	467	544.4	124.2	227.4	112	193.9
								118.1	472	549.5	125.1	228.6	113	195.1
								119.1	477	554.6	126.0	229.8	114	196.3
								120.1	482	559.7	126.9	231.0	115	197.5
								121.1	487	564.8	127.8	232.2	116	198.7
								122.1	492	569.9	128.7	233.4	117	199.9
								123.1	497	575.0	129.6	234.6	118	201.1
								124.1	502	580.1	130.5	235.8	119	202.3
								125.1	507	585.2	131.4	237.0	120	203.5
								126.1	512	590.3	132.3	238.2	121	204.7



## 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.

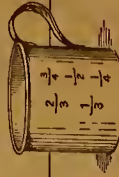
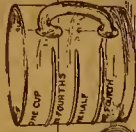
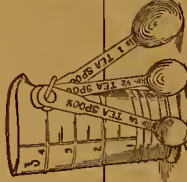
#### EQUIVALENTS OF CAPACITY.

(All measures level full.)

3 teaspoons	≡	1 tablespoon.
½ fluid ounce	≡	1 tablespoon.
16 tablespoons	≡	1 cup.
2 gills	≡	1 cup.
¼ 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	50	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.
		Turnips	55
		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.
		Chopped meat (packed):	1 cup = ½ pound.

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		
<b>Coal:</b>								
Bituminous (piled loose).....	44 to 54	<b>Masonry:</b>						
Anthracite (piled loose).....	50 to 57	Brickwork .....	100 to 140	<b>Woods:</b>				
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):		Sand.....	90 to 117	Maple .....	3250 to 3920	39 to 47		
Dry, loose.....	72 to 80	Gravel.....	90 to 117	Oak .....	3080 to 4670	37 to 56		
Moist, moderately packed.....	90 to 100	Trap, quarried, in loose piles.....	107	Pine (American white).....	1830 to 2580	22 to 31		
Soft mud, packed.....	110 to 120			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.



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 "centi-meter" 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	1.	"the unit of length"
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"

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
<b>Coal:</b>		<b>Masonry:</b>		<b>Woods:</b>		
Bituminous (piled loose)...	44 to 54	Brickwork .....	100 to 140	Fir (balsam) .....	2170	26
Anthracite (piled loose)...	50 to 57	Roughly scabbled mortar rubble .....	140 to 150	Hemlock .....	2330 to 2580	28 to 31
Coke (piled loose).....	23 to 32	Mortar, hardened .....	103	Maple .....	3250 to 3920	39 to 47
Charcoal of pine and oak...	15 to 30	Sand .....	90 to 117	Oak .....	3080 to 4670	37 to 56
<b>Earth (common loam):</b>		Gravel .....	90 to 117	Pine (American white) .....	1830 to 2580	22 to 31
Dry, loose.....	72 to 80	Trap, quarried, in loose piles .....	107	Pine (yellow).....	1920 to 3080	23 to 37
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

Circular No. 55, of the Bureau of Standards, 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 heat, light, gas, electricity, water, time, etc. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents each.

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.



