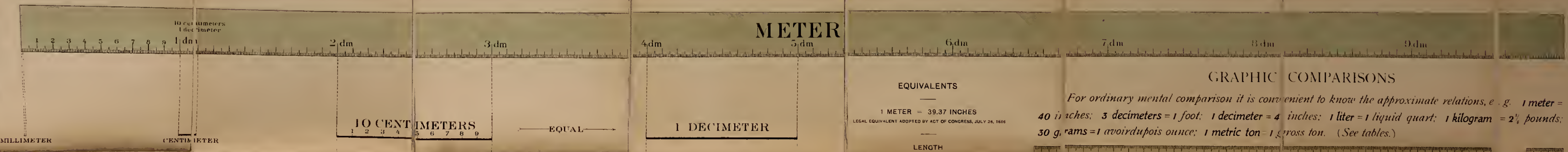




DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
S.W. Stratton Director

INTERNATIONAL METRIC SYSTEM



THE 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) are 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.

PREFIXES	MEANING	UNITS
MILLI-	= one thousandth $\frac{1}{1000}$.001
CENTI-	= one hundredth $\frac{1}{100}$.01
DECI-	= one tenth $\frac{1}{10}$.1
unit = one		
DEKA-	= ten $\frac{10}{1}$	10
HECTO-	= one hundred $\frac{100}{1}$	100
KILO-	= one thousand $\frac{1000}{1}$	1000

The metric terms are formed by combining the words "METER," "GRAM," and "LITER" with the six numerical prefixes.

LENGTH		
10 milli-meters	mm = 1 centi-meter	cm
10 centi-meters	= 1 deci-meter	dm
10 deci-meters	= 1 METER (about 40 inches)	m
10 meters	= 1 deka-meter	dkm
10 deka-meters	= 1 hecto-meter	hm
10 hecto-meters	= 1 kilo-meter (about 5/8 mile)	km

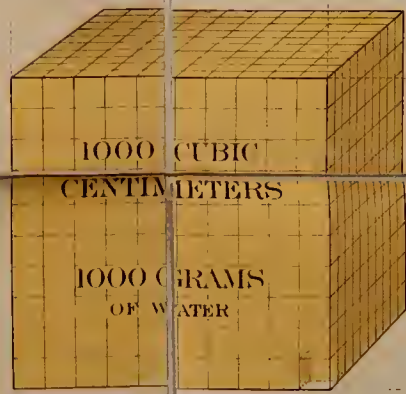
MASS		
10 milli-grams	mg = 1 centi-gram	cg
10 centi-grams	= 1 deci-gram	dg
10 deci-grams	= 1 GRAM (about 15 grains)	g
10 grams	= 1 deka-gram	dkg
10 deka-grams	= 1 hecto-gram	hkg
10 hecto-grams	= 1 kilo-gram (about 2 pounds)	kg

CAPACITY		
10 milli-liters	ml = 1 centi-liter	cl
10 centi-liters	= 1 deci-liter	dl
10 deci-liters	= 1 LITER (about 1 quart)	l
10 liters	= 1 deka-liter	dkl
10 deka-liters	= 1 hecto-liter (about a barrel)	hl
10 hecto-liters	= 1 kilo-liter	kl

The square and cubic units are the squares and cubes of the linear units. The ordinary unit of land area is the HECTARE (about 2 1/2 acres).



EQUAL



EQUAL



EQUALS

EQUIVALENTS

1 METER = 39.37 INCHES
LEGAL EQUIVALENT ADOPTED BY ACT OF CONGRESS, JULY 28, 1866

LENGTH	
Centimeter	= 0.3937 inch
Meter	= 3.28 feet
Meter	= 1.094 yards
Kilometer	= 0.621 statute mile
Kilometer	= 0.5399 nautical mile
Inch	= 2.540 centimeters
Foot	= 0.305 meter
Yard	= 0.914 meter
Statute mile	= 1.61 kilometers
Nautical mile	= 1.853 kilometers

AREA	
Sq. centimeter	= 0.155 sq. inch
Sq. meter	= 10.76 sq. feet
Sq. meter	= 1.196 sq. yards
Hectare	= 2.47 acres
Sq. kilometer	= 0.388 sq. mile
Sq. inch	= 6.45 sq. centimeters
Sq. foot	= 0.0929 sq. meter
Sq. yard	= 0.836 sq. meter
Acre	= 0.405 hectare
Sq. mile	= 2.59 sq. kilometers

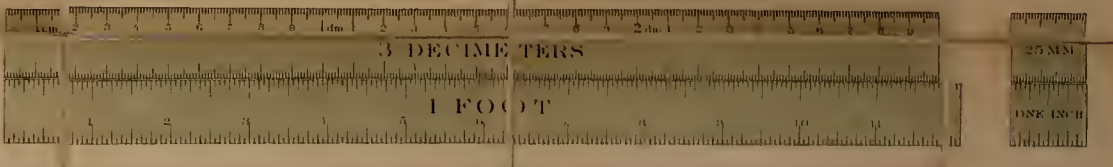
VOLUME	
Cu. centimeter	= 0.0610 cu. inch
Cu. meter	= 35.3 cu. feet
Cu. meter	= 1.36 cu. yards
Cu. inch	= 16.39 cu. centimeters
Cu. foot	= 0.0283 cu. meter
Cu. yard	= 0.764 cu. meter

CAPACITY	
Milliliter	= 0.0338 U. S. liq. ounce
Milliliter	= 0.2708 U. S. apoth. dram
Liter	= 1.057 U. S. liq. quarts
Liter	= 0.2642 U. S. liq. gallon
Liter	= 0.809 U. S. dry quart
Dekaliter	= 1.136 U. S. pecks
Hectoliter	= 2.839 U. S. bushels
U. S. liq. ounce	= 29.57 milliliters
U. S. apoth. dram	= 3.70 milliliters
U. S. liq. quart	= 0.946 liter
U. S. dry quart	= 1.101 liters
U. S. liq. gallon	= 3.786 liters
U. S. peck	= 0.881 dekaliter
U. S. bushel	= 0.3624 hectoliter

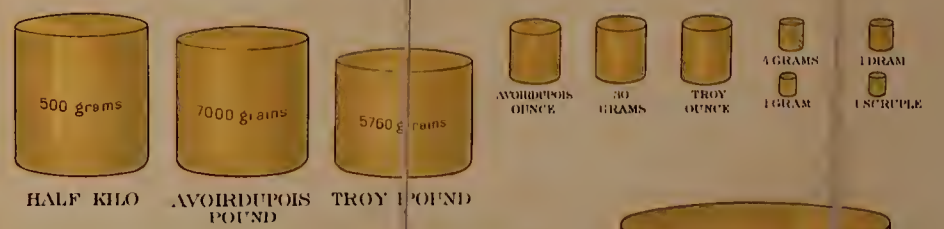
WEIGHT	
Gram	= 15.43 grains
Gram	= 0.772 U. S. apoth. scruple
Gram	= 0.2572 U. S. apoth. dram
Gram	= 0.0353 avoirdupois ounce
Gram	= 0.03216 troy ounce
Kilogram	= 2.205 avoirdupois pounds
Kilogram	= 2.875 troy pounds
Metric ton	= 0.984 gross or long ton
Metric ton	= 1.102 short or net tons
Grain	= 0.0648 grams
U. S. apoth. scruple	= 1.288 grams
U. S. apoth. dram	= 3.88 grams
Avoirdupois ounce	= 28.35 grams
Troy ounce	= 31.10 grams
Avoirdupois pound	= 0.4536 kilogram
Troy pound	= 0.373 kilogram
Gross or long ton	= 1.016 metric tons
Short or net ton	= 0.907 metric ton

GRAPHIC COMPARISONS

For ordinary mental comparison it is convenient to know the approximate relations, e. g. 1 meter = 40 inches; 3 decimeters = 1 foot; 1 decimeter = 4 inches; 1 liter = 1 liquid quart; 1 kilogram = 2 1/2 pounds; 30 grams = 1 avoirdupois ounce; 1 metric ton = 1 gross ton. (See tables.)



IN THE FOLLOWING ILLUSTRATIONS THE UNITS IN EACH GROUP HAVE EQUAL BASES SO THAT THE HEIGHTS SHOW DIRECTLY THE RELATIVE VALUES OF THE UNITS



Slight changes in the paper due to humidity will alter the absolute but not the relative dimensions shown.

