DOWNLOAD PDF METRIC, APOTHECARY, AND HOUSEHOLD SYSTEMS OF MEASUREMENT

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Apothecary, Household and Metric Systems of Measurement Apothecary, Household and Metric Systems of Measurement Tutoring and Learning Centre, George Brown College.

History of measurement The French Revolution gave rise to the metric system , and this has spread around the world, replacing most customary units of measure. In most systems, length distance , mass , and time are base quantities. Later science developments showed that either electric charge or electric current could be added to extend the set of base quantities by which many other metrological units could be easily defined. However, electrical units are not necessary for such a set. Gaussian units , for example, have only length, mass, and time as base quantities, and the ampere is defined in terms of other units. Other quantities, such as power and speed , are derived from the base set: Historically a wide range of units was used for the same type of quantity: Such arrangements were satisfactory in their own contexts. The preference for a more universal and consistent system based on more rational base units only gradually spread with the growth of science. Changing a measurement system has substantial financial and cultural costs which must be offset against the advantages to be obtained from using a more rational system. However pressure built up, including from scientists and engineers for conversion to a more rational, and also internationally consistent, basis of measurement. In antiquity, systems of measurement were defined locally: The unifying characteristic is that there was some definition based on some standard. Eventually cubits and strides gave way to "customary units" to meet the needs of merchants and scientists. In the metric system and other recent systems, a single basic unit is used for each base quantity. Often secondary units multiples and submultiples are derived from the basic units by multiplying by powers of ten, i. Thus the basic metric unit of length is the metre ; a distance of 1. Metrication Metric conversions are widespread although international manufacturing and travel is conducted in Imperial. US customary units are heavily used in the United States and to some degree in Liberia. Traditional Burmese units of measurement are used in Burma. It is generally deemed impractical to convert major industrial processes such as steel production to the metric system. Such a move would cause de-standardisation and incur cost unnecessarily given that industrial professionals are sufficiently dexterous to calculate in other than base Industry publish conversion tables for those members of the public familiar with the metric system. The maritime and aviation industries for instance unilaterally communicate in a single measurement of speed on purely safety grounds to avoid collisions due to mis-conversion or misunderstanding. A number of other jurisdictions have laws mandating or permitting other systems of measurement in some or all contexts, such as the United Kingdom â€” whose road signage legislation , for instance, only allows distance signs displaying imperial units miles or yards [1] â€” or Hong Kong. At retail stores, the liter is a commonly used unit for volume, especially on bottles of beverages, and milligrams, rather than grains, are used for medications. Some other standard non- SI units are still in international use, such as nautical miles and knots in aviation and shipping. Metric systems of units have evolved since the adoption of the first well-defined system in France in During this evolution the use of these systems has spread throughout the world, first to non-English-speaking countries, and then to English speaking countries. Multiples and submultiples of metric units are related by powers of ten and their names are formed with prefixes. This relationship is compatible with the decimal system of numbers and it contributes greatly to the convenience of metric units. In the early metric system there were two base units, the metre for length and the gram for mass. The other units of length and mass, and all units of area, volume, and derived units such as density were derived from these two base units. Mesures usuelles French for customary measurements were a system of measurement introduced as a compromise between the metric system and traditional measurements. It was used in France from to A number of variations on the metric system have been in use. These include gravitational systems , the centimetreâ€”gramâ€”second systems cgs useful in science, the metreâ€”tonneâ€”second system mts once used in the USSR and the metreâ€”kilogramâ€”second system mks. The SI includes two classes of units

which are defined and agreed internationally. The first of these classes includes the seven SI base units for length, mass, time, temperature, electric current, luminous intensity and amount of substance. The second class consists of the SI derived units. These derived units are defined in terms of the seven base units. All other quantities e. Imperial and US customary units[edit] Main articles: Imperial units were mostly used in the former British Empire and the British Commonwealth , but in all these countries they have been largely supplanted by the metric system. They are still used for some applications in the United Kingdom but have been mostly replaced by the metric system in commercial , scientific , and industrial applications. US customary units, however, are still the main system of measurement in the United States. While some steps towards metrication have been made mainly in the late s and early s , the customary units have a strong hold due to the vast industrial infrastructure and commercial development. While imperial and US customary systems are closely related, there are a number of differences between them. Units of length and area the inch , foot , yard , mile etc. The stone is not used in the US and the hundredweights and tons are short: Where these systems most notably differ is in their units of volume. The same is true of quarts , gallons , etc. Six US gallons are a little less than five imperial gallons. The Avoirdupois system served as the general system of mass and weight. Troy weight was customarily used for precious metals , black powder and gemstones. The troy ounce is the only unit of the system in current use; it is used for precious metals. Although the troy ounce is larger than its Avoirdupois equivalent, the pound is smaller. The obsolete troy pound was divided into 12 ounces, rather than the 16 ounces per pound of the Avoirdupois system. Natural units[edit] Natural units are physical units of measurement defined in terms of universal physical constants in such a manner that selected physical constants take on the numerical value of one when expressed in terms of those units. Natural units are so named because their definition relies on only properties of nature and not on any human construct. Various systems of natural units are possible. Some other examples are as follows: Geometric unit systems are useful in relativistic physics. In these systems the base physical units are chosen so that the speed of light and the gravitational constant are set equal to unity. They are based only on properties of free space rather than any object or particle. Atomic units are a system of units used in atomic physics , particularly for describing the properties of electrons. The atomic units have been chosen such that several the constants relating to the electron are all equal to one. The unit of energy in this system is the total energy of the electron in the Bohr atom and called the Hartree energy. The unit of length is the Bohr radius. Electronic units are similar to Stoney units but set the electron mass to unity and allow the gravitational constant to float. Quantum electrodynamical units are similar to the electronic system of units except that the proton mass is normalised rather than the electron mass.

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Chapter 2 : Approximate Equivalents Of Metric, Apothecary, And Household Measures Flashcards by ProF

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Chapter 3 : Apothecary To Metric Worksheets - Printable Worksheets

*Chapter 2 Metric, Apothecary, and Household Systems. ***Metric is preferred measurement system of healthcare *** Household system is still used in home care.*

Chapter 4 : Apothecary, and Household Systems of Measurement | Basicmedical Key

The second major weight equivalent in the metric system is 1 mg = mcg. Some medications are so powerful that smaller microgram doses are sufficient to produce a therapeutic effect. Rather than using milligrams written as decimals, it's easier to write orders in micrograms as whole numbers.

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Below is a table that displays household units of measurement and their approximate equivalents in another measurement system, such as the apothecary and the metric measurement systems.

Chapter 6 : Common Units of Pharmacology Measurement | My Online Nursing Degree

Table gives the metric and apothecary equivalents by weight and the metric, apothecary, and household equivalents by volume. Remember, conversion from one system to another is an approximation. Though the apothecary system is not or infrequently used, the table is included as a reference for approximate metric, apothecary, and household.

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In the apothecaries' system, we do not have a unit to measure length. Instead, we use the grain (or gr for short) to measure units of weight and the minim to measure units of volume. As opposed to using prefixes, the apothecaries' system uses equivalents based upon the grain or the minim.

Chapter 9 : Mathematics for Health Careers - Oakton Community College

Conversion for weights, measures, metric system, and more.