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See Article History Measurement system, any of the systems used in the process of associating numbers with physical quantities and phenomena. Although the concept of weights and measures today includes such factors as temperature, luminosity, pressure, and electric current, it once consisted of only four basic measurements: The last three are, of course, closely related. Basic to the whole idea of weights and measures are the concepts of uniformity, units, and standards. Uniformity, the essence of any system of weights and measures, requires accurate, reliable standards of mass and length and agreed-on units. A unit is the name of a quantity, such as kilogram or pound. A standard is the physical embodiment of a unit, such as the platinum-iridium cylinder kept by the International Bureau of Weights and Measures at Paris as the standard kilogram. Two types of measurement systems are distinguished historically: Early units and standards Ancient Mediterranean systems Body measurements and common natural items probably provided the most convenient bases for early linear measurements; early weight units may have derived casually from the use of certain stones or containers or from determinations of what a person or animal could lift or haul. The historical progression of units has followed a generally westward direction, the units of the ancient empires of the Middle East finding their way, mostly as a result of trade and conquest, to the Greek and then the Roman empires, thence to Gaul and Britain via Roman expansion. The Egyptians Although there is evidence that many early civilizations devised standards of measurement and some tools for measuring, the Egyptian cubit is generally recognized as having been the most ubiquitous standard of linear measurement in the ancient world. Developed about bce, it was based on the length of the arm from the elbow to the extended fingertips and was standardized by a royal master cubit of black granite, against which all the cubit sticks or rules in use in Egypt were measured at regular intervals. The royal cubit mm or Four digits equaled a palm, five a hand. Twelve digits, or three palms, equaled a small span. Fourteen digits, or one-half a cubit, equaled a large span. Twenty-four digits, or six palms, were a small cubit. The digit was in turn subdivided. The 14th digit on a cubit stick was marked off into 16 equal parts. The next digit was divided into 15 parts, and so on, to the 28th digit, which was divided into 2 equal parts. Thus, measurement could be made to digit fractions with any denominator from 2 through The accuracy of the cubit stick is attested by the dimensions of the Great Pyramid of Giza; although thousands were employed in building it, its sides vary no more than 0. The Egyptians developed methods and instruments for measuring land at a very early date. The annual flood of the Nile River created a need for benchmarks and surveying techniques so that property boundaries could be readily reestablished when the water receded. The Egyptian weight system appears to have been founded on a unit called the kite, with a decimal ratio, 10 kite s equaling 1 deben and 10 debens equaling 1 sep. Over the long duration of Egyptian history, the weight of the kite varied from period to period, ranging all the way from 4. Approximately 3, different weights have been recovered from ancient Egypt, some in basic geometric shapes, others in human and animal forms. Egyptian liquid measures, from large to small, were ro, hin, hekat, khar, and cubic cubit. The Babylonians Among the earliest of all known weights is the Babylonian mina, which in one surviving form weighed about grams about 23 ounces and in another about grams about 34 ounces. Archaeologists have also found weights of 5 minas, in the shape of a duck, and a mina weight in the form of a swan. The shekel, familiar from the Bible as a standard Hebrew coin and weight, was originally Babylonian. Most of the Babylonian weights and measures, carried in commerce throughout the Middle East, were gradually adopted by other countries. The basic Babylonian unit of length was the kus about mm or The Babylonian liquid measure, qa also spelled ka, was the volume of a cube of one handbreadth about 99 to millilitres or about 6. The cube, however, had to contain a weight of one great mina of water. The qa was a subdivision of two other units; qa equaled 60 gin or 1 gur. The gur represented a volume of almost litres 80 U. Hebrew standards were based on the relationship between the mina, the talent the basic unit, and the shekel. The sacred mina was

equal to 60 shekels and the sacred talent to 3, shekels, or 50 sacred minas. The Talmudic mina equaled 25 shekels; the Talmudic talent equaled 1, shekels, or 60 Talmudic minas. The volumes of the several Hebrew standards of liquid measure are not definitely known; the bat may have contained about 37 litres nearly 10 U. Greeks and Romans In the 1st millennium bce commercial domination of the Mediterranean passed into the hands of the Greeks and then the Romans. A basic Greek unit of length was the finger The coincidence with the Egyptian 24 digits equaling 1 small cubit suggests what is altogether probable on the basis of the commercial history of the era , that the Greeks derived their measures partly from the Egyptians and partly from the Babylonians, probably via the Phoenicians, who for a long time dominated vast expanses of the Mediterranean trade. A basic Greek unit of weight was the talent equal to Roman linear measures were based on the Roman standard foot pes. This unit was divided into 16 digits or into 12 inches. In both cases its length was the same. Metrologists have come to differing conclusions concerning its exact length, but the currently accepted modern equivalents are mm or Larger linear units were always expressed in feet. Five Roman feet made the pace passus , equivalent to 1. The most frequently used itinerary measures were the furlong or stade stadium , the mile mille passus , and the league leuga. The stade consisted of Roman feet metres or The mile was 5, Roman feet 1, metres or 4, feet or 8 stades. The league had 7, Roman feet 2, metres or 7, feet or 1, paces. Prior to the 3rd century bce the standard for all Roman weights was the as , or Old Etruscan or Oscan pound, of 4, grains It was divided into 12 ounces of grains In bce a new standard was created when a silver denarius was struck to a weight of The principal Roman capacity measures were the hemina, sextarius, modius, and amphora for dry products and the quartarus, sextarius, congius, urna, and amphora for liquids. Since all of these were based on the sextarius and since no two extant sextarii are identical, a mean generally agreed upon today is The hemina, or half-sextarius, based on this mean was Sixteen of these sextarii made the modius of In the liquid series, the quartarus, or one-fourth of a sextarius Six of these sextarii made the congius of The ancient Chinese system Completely separated from the Mediterranean-European history of metrology is that of ancient China, yet the Chinese system exhibits all the principal characteristics of the Western. It employed parts of the body as a source of unitsâ€”for example, the distance from the pulse to the base of the thumb. It was fundamentally chaotic in that there was no relationship between different types of units, such as those of length and those of volume. Finally, it was rich in variations. The mou , a unit of land measure, fluctuated from region to region from 0. Variations were not limited to the geographic; a unit of length with the same name might be of one length for a carpenter, another for a mason, and still another for a tailor. This was a problem in Western weights and measures as well. Shihuangdi , who in bce became the first emperor of China, is celebrated for, among other things, his unification of the regulations fixing the basic units. The basic weight, the shi , or dan, was fixed at about 60 kg pounds ; the two basic measurements, the zhi and the zhang , were set at about 25 cm 9. A noteworthy characteristic of the Chinese system, and one that represented a substantial advantage over the Mediterranean systems, was its predilection for a decimal notation, as demonstrated by foot rulers from the 6th century bce. Measuring instruments too were of a high order. A unique characteristic of the Chinese system was its inclusion of an acoustic dimension. A standard vessel used for measuring grain and wine was defined not only by the weight it could hold but by its pitch when struck; given a uniform shape and fixed weight, only a vessel of the proper volume would give the proper pitch. The change brought a substantial increase in accuracy. It soon proliferated through daily use and language variations into a great number of national and regional variants, with elements borrowed from the Celtic, Anglo-Saxon, Germanic, Scandinavian, and Arabic influences and original contributions growing out of the needs of medieval life. A determined effort by the Holy Roman emperor Charlemagne and many other medieval kings to impose uniformity at the beginning of the 9th century was in vain; differing usages hardened. The great trade fairs, such as those in Champagne during the 12th and 13th centuries, enforced rigid uniformity on merchants of all nationalities within the fairgrounds and had some effect on standardizing differences among regions, but the variations remained. A good example is the ell, the universal measure for wool cloth, the great trading staple of the Middle Ages. The ell of Champagne, two feet six inches, measured against an iron standard in the hands of the Keeper of the Fair, was accepted by Ypres and Ghent, both in modern Belgium; by Arras, in modern France; and by the other great cloth-manufacturing cities of

northwestern Europe, even though their bolts varied in length. In several other parts of Europe, the ell itself varied, however. There were hundreds of thousands of such examples among measuring units throughout Europe. The English and United States Customary systems of weights and measures The English system Out of the welter of medieval weights and measures emerged several national systems, reformed and reorganized many times over the centuries; ultimately nearly all of these systems were replaced by the metric system. In Britain and in its American colonies, however, the altered medieval system survived. British Imperial and U. Customary systems of weights and measures unit equivalents in other units of same system metric equivalent.

## 2: Formats and Editions of The metric system : the universal language of measurement [www.enganchecu

*A universal system reduces the confusion when different systems of measurement are used and makes it easy to compare measurements taken by different persons.*

Overview Modern philosophical discussions about measurement—spanning from the late nineteenth century to the present day—may be divided into several strands of scholarship. These strands reflect different perspectives on the nature of measurement and the conditions that make measurement possible and reliable. The main strands are mathematical theories of measurement, operationalism, conventionalism, realism, information-theoretic accounts and model-based accounts. These strands of scholarship do not, for the most part, constitute directly competing views. Instead, they are best understood as highlighting different and complementary aspects of measurement. The following is a very rough overview of these perspectives: Mathematical theories of measurement view measurement as the mapping of qualitative empirical relations to relations among numbers or other mathematical entities. Information-theoretic accounts view measurement as the gathering and interpretation of information about a system. These perspectives are in principle consistent with each other. While mathematical theories of measurement deal with the mathematical foundations of measurement scales, operationalism and conventionalism are primarily concerned with the semantics of quantity terms, realism is concerned with the metaphysical status of measurable quantities, and information-theoretic and model-based accounts are concerned with the epistemological aspects of measuring. Nonetheless, the subject domain is not as neatly divided as the list above suggests. Issues concerning the metaphysics, epistemology, semantics and mathematical foundations of measurement are interconnected and often bear on one another. Hence, for example, operationalists and conventionalists have often adopted anti-realist views, and proponents of model-based accounts have argued against the prevailing empiricist interpretation of mathematical theories of measurement. These subtleties will become clear in the following discussion. The list of strands of scholarship is neither exclusive nor exhaustive. It reflects the historical trajectory of the philosophical discussion thus far, rather than any principled distinction among different levels of analysis of measurement. Some philosophical works on measurement belong to more than one strand, while many other works do not squarely fit either. This is especially the case since the early 1900s, when measurement returned to the forefront of philosophical discussion after several decades of relative neglect. The last section of this entry will be dedicated to surveying some of these developments. A Brief History Although the philosophy of measurement formed as a distinct area of inquiry only during the second half of the nineteenth century, fundamental concepts of measurement such as magnitude and quantity have been discussed since antiquity. Two magnitudes have a common measure when they are both whole multiples of some magnitude, and are incommensurable otherwise Book X, def. The discovery of incommensurable magnitudes allowed Euclid and his contemporaries to develop the notion of a ratio of magnitudes. Ratios can be either rational or irrational, and therefore the concept of ratio is more general than that of measure Michell ; Grattan-Guinness Aristotle distinguished between quantities and qualities. Aristotle did not clearly specify whether degrees of qualities such as paleness correspond to distinct qualities, or whether the same quality, paleness, was capable of different intensities. This topic was at the center of an ongoing debate in the thirteenth and fourteenth centuries Jung This theory was later refined by Nicole Oresme, who used geometrical figures to represent changes in the intensity of qualities such as velocity Clagett ; Sylla These developments made possible the formulation of quantitative laws of motion during the sixteenth and seventeenth centuries Grant The concept of qualitative intensity was further developed by Leibniz and Kant. Leibniz argued that this principle applies not only to changes in extended magnitudes such as length and duration, but also to intensities of representational states of consciousness, such as sounds Jorgensen ; Diehl An example is length: For Kant, the possibility of such synthesis was grounded in the forms of intuition, namely space and time. Intensive magnitudes, like warmth or colors, also come in continuous degrees, but their apprehension takes place in an instant rather than through a successive synthesis of parts. Scientific developments during the nineteenth century challenged the distinction between extensive and intensive magnitudes. Thermodynamics and wave

optics showed that differences in temperature and hue corresponded to differences in spatio-temporal magnitudes such as velocity and wavelength. Electrical magnitudes such as resistance and conductance were shown to be capable of addition and division despite not being extensive in the Kantian sense, i. For example, 60 is twice 30, but one would be mistaken in thinking that an object measured at 60 degrees Celsius is twice as hot as an object at 30 degrees Celsius. This is because the zero point of the Celsius scale is arbitrary and does not correspond to an absence of temperature. When subjects are asked to rank on a scale from 1 to 7 how strongly they agree with a given statement, there is no *prima facie* reason to think that the intervals between 5 and 6 and between 6 and 7 correspond to equal increments of strength of opinion. These examples suggest that not all of the mathematical relations among numbers used in measurement are empirically significant, and that different kinds of measurement scale convey different kinds of empirically significant information. The study of measurement scales and the empirical information they convey is the main concern of mathematical theories of measurement. A key insight of measurement theory is that the empirically significant aspects of a given mathematical structure are those that mirror relevant relations among the objects being measured. This mirroring, or mapping, of relations between objects and mathematical entities constitutes a measurement scale. As will be clarified below, measurement scales are usually thought of as isomorphisms or homomorphisms between objects and mathematical entities. Other than these broad goals and claims, measurement theory is a highly heterogeneous body of scholarship. It includes works that span from the late nineteenth century to the present day and endorse a wide array of views on the ontology, epistemology and semantics of measurement. Two main differences among mathematical theories of measurement are especially worth mentioning. These relata may be understood in at least four different ways: This issue will be especially relevant to the discussion of realist accounts of measurement Section 5. Second, different measurement theorists have taken different stands on the kind of empirical evidence that is required to establish mappings between objects and numbers. As a result, measurement theorists have come to disagree about the necessary conditions for establishing the measurability of attributes, and specifically about whether psychological attributes are measurable. Debates about measurability have been highly fruitful for the development of measurement theory, and the following subsections will introduce some of these debates and the central concepts developed therein. Although accounts of measurement varied, the consensus was that measurement is a method of assigning numbers to magnitudes. For example, Helmholtz Bertrand Russell similarly stated that measurement is any method by which a unique and reciprocal correspondence is established between all or some of the magnitudes of a kind and all or some of the numbers, integral, rational or real. Defining measurement as numerical assignment raises the question: Moreover, the end-to-end concatenation of rigid rods shares structural featuresâ€”such as associativity and commutativityâ€”with the mathematical operation of addition. A similar situation holds for the measurement of weight with an equal-arms balance. Here deflection of the arms provides ordering among weights and the heaping of weights on one pan constitutes concatenation. Early measurement theorists formulated axioms that describe these qualitative empirical structures, and used these axioms to prove theorems about the adequacy of assigning numbers to magnitudes that exhibit such structures. Specifically, they proved that ordering and concatenation are together sufficient for the construction of an additive numerical representation of the relevant magnitudes. An additive representation is one in which addition is empirically meaningful, and hence also multiplication, division etc. A hallmark of such magnitudes is that it is possible to generate them by concatenating a standard sequence of equal units, as in the example of a series of equally spaced marks on a ruler. Although they viewed additivity as the hallmark of measurement, most early measurement theorists acknowledged that additivity is not necessary for measuring. Examples are temperature, which may be measured by determining the volume of a mercury column, and density, which may be measured as the ratio of mass and volume. Nonetheless, it is important to note that the two distinctions are based on significantly different criteria of measurability. As discussed in Section 2 , the extensive-intensive distinction focused on the intrinsic structure of the quantity in question, i. The fundamental-derived distinction, by contrast, focuses on the properties of measurement operations. A fundamentally measurable magnitude is one for which a fundamental measurement operation has been found. Consequently, fundamentality is not an intrinsic property of a magnitude: Moreover, in fundamental

measurement the numerical assignment need not mirror the structure of spatio-temporal parts. Electrical resistance, for example, can be fundamentally measured by connecting resistors in a series Campbell This is considered a fundamental measurement operation because it has a shared structure with numerical addition, even though objects with equal resistance are not generally equal in size. The distinction between fundamental and derived measurement was revised by subsequent authors. Fundamental measurement requires ordering and concatenation operations satisfying the same conditions specified by Campbell. Associative measurement procedures are based on a correlation of two ordering relationships, e. Derived measurement procedures consist in the determination of the value of a constant in a physical law. The constant may be local, as in the determination of the specific density of water from mass and volume, or universal, as in the determination of the Newtonian gravitational constant from force, mass and distance. Duncan Luce and John Tukey in their work on conjoint measurement, which will be discussed in Section 3. A complementary line of inquiry within measurement theory concerns the classification of measurement scales. Stevens , distinguished among four types of scales: Nominal scales represent objects as belonging to classes that have no particular order, e. Ordinal scales represent order but no further algebraic structure. For example, the Mohs scale of mineral hardness represents minerals with numbers ranging from 1 softest to 10 hardest , but there is no empirical significance to equality among intervals or ratios of those numbers. The Kelvin scale, by contrast, is a ratio scale, as are the familiar scales representing mass in kilograms, length in meters and duration in seconds. Stevens later refined this classification and distinguished between linear and logarithmic interval scales As Stevens notes, scale types are individuated by the families of transformations they can undergo without loss of empirical information. Empirical relations represented on ratio scales, for example, are invariant under multiplication by a positive number, e. Linear interval scales allow both multiplication by a positive number and a constant shift, e. Ordinal scales admit of any transformation function as long as it is monotonic and increasing, and nominal scales admit of any one-to-one substitution. Absolute scales admit of no transformation other than identity. Two issues were especially contested. Several physicists, including Campbell, argued that classification and ordering operations did not provide a sufficiently rich structure to warrant the use of numbers, and hence should not count as measurement operations. The second contested issue was whether a concatenation operation had to be found for a magnitude before it could be fundamentally measured on a ratio scale. The debate became especially heated when it re-ignited a longer controversy surrounding the measurability of intensities of sensation. It is to this debate we now turn. These differences were assumed to be equal increments of intensity of sensation. This law in turn provides a method for indirectly measuring the intensity of sensation by measuring the intensity of the stimulus, and hence, Fechner argued, provides justification for measuring intensities of sensation on the real numbers. Those objecting to the measurability of sensation, such as Campbell, stressed the necessity of an empirical concatenation operation for fundamental measurement.

## 3: Universal Screening Within a RTI Model | RTI Action Network

*The metric system: the universal language of measurement. 2. The metric system: the universal language of measurement. by Pathescope Educational Films, inc.;*

We also see the system is usually able to make correct deductions from a variety of units, but not always. Units constructed from body part labels exist in most Terran languages, and by a quick scan, similar units can be translated close enough for verbal approximation. Likewise, for radio and television capable species, many common objects will have reference sizes, mentioned in transmissions. Especially tall buildings in travel shows. If it says the building is "shobliks tall" and it measures to m, then a shoblik is roughly Large objects can be readily scanned from orbit and accurately remotely measured, and televideo shows are likely to provide accurate enough measures. Likewise, time increments will usually be consistent, and the time unit subdivisions figured. Further, many units of time can be grabbed from the Radio and Televideo programming. Most Television on Earth runs in Hour long blocks, often subdivided into 15 minute or 30 minute blocks for shorter programs. News channels are likely to continuously mention the time in units of the second or third level subdivision, depending upon how large the major subdivision is. Further, most units of frequency will be in a tertiary or smaller subunit, and you can compare their cycles unit for conversion to Hertz - Cycles per second. If you can figure out the numbers, you can figure out the frequency time unit by seeing how many waves it takes on that frequency to generate their rating, and get a fairly precise timing increment. For reference, our subunit is the hour: Most frequencies are assigned with significant digits, and the remainder truncated. In such cases, many conversions will be painfully clear. For primitives, drop a drone unit near the village, with a silent scanner and a high gain set of directional mics, and track the sounds, reverse engineer the raw sounds, and in a few days, have a basic lexicon. If the drone also is able to pick up brainwaves in field effect, then so much the better - the sounds and brain waves will be more tightly linked. So, we can see how a ship coming into a technically sophisticated system can glean quite a wealth of knowledge. We seldom see a lot of the "backstory" to the Universal Translator, except on Enterprise, where Ms. Sato is working on it. But there is another element Several older starfaring races now long gone, and apparently who dealt with several worlds. The Iconians and the Old Kings of the Klingons, at least. This means borrowed words and terms influencing local languages. Which makes for easier translation as well. Some of the more stable terms over time are body parts and measurement units. Drams, Scruples, Pounds and Ounces go back to Rome, their original non-measure meanings lost, but their measurement still being used. The combination of scanning the frequencies on the inbound, massive computational power, and the best programmers and linguists from dozens of worlds, plus hundreds of lexicons, and common influences in the histories. The only thing amazing is the speed at which they can compile the data. As for the primitives, we must presume the use of brainwave scanning at close range.

## 4: Measurement in Science (Stanford Encyclopedia of Philosophy)

*The Quest to Perfect the Universal Language of Science This machine, known as the Kibble balance, will help physicists re-define the kilogram to parts per billion. J. L. Lee/NIST.*

Those vivid hues are seared into your memory. Pantone has names for all of them. If you wanted to explain the precise colors to anyone, anywhere around the world all you have to do is dial up Pantone Spectera Yellow , Pantone Vibrant Green , and Pantone Poppy Red. Looking at you, Minion Yellow. It Started With A Universal Language Back in the early s, Pantone was a printing company in Carlstadt, New Jersey, with a specialty in color charts for the cosmetic, fashion, and medical industries. Lawrence Herbert joined the company in and noticed how difficult it was for designers, ad agencies, and printers to communicateâ€”identifying exact colors from names alone is tough. For example, there are red-based purples and blue-based purples, warm and cool shades, lighter and darker tones. Mistakes happened, there were tons of inefficiencies due to reprints, and Herbert knew there had to be a better way to do things. He bought Pantone in and launched the first PMS guide in with 10 colors in an effort to reduce the number of variables happening in the printing process. Creating an objective, numeric language means that any printer anywhere in the world can accurately produce a color. Picture a shelf of Coke bottles where every other label was a slightly different shade. You even might grab a Pepsi instead. Ron Potesky, vice president of Pantone. Today, the company estimates the total number of printed books to be in the millions. Pantone has a firm grip on the graphics industry and is the most widely used color-matching standard in every country except Japan. It prints really accurately. Outland needed to find a background color for the text pages that would jibe with each of the five or more photographs in the chapter that unite the section. Color is just as important to industrial, interior, and fashion designers; like the graphics industry, they all need a standard. One of the key differences with the fashion and home colors is that they have proper names. What does that vision conjure up for you? The name has to really fit with what the color looks like. Your mouth needs to water and emotionally connect. August saw Pantone beefing up its fashion and home palette with new colorsâ€”bringing the total to 2,â€”all based on gaps in their current guides, what their customers want, and where color trends are heading; for example, deeper blacks and more oranges, yellows, and pinks. Pantone worked with the creative agency Base Design to come up with the campaign for the new fashion and home line. The two companies have collaborated on and off for nearly a decade on branding and advertising initiatives, one of the most major being the Plus series identity. You are recognized by pop culture when Uniqlo stacks its colorful T-shirts like a Pantone chip. So hold on to that, celebrate that, own that. Stay close to what Pantone is and its iconography. The reflections show a custom palette of colors that Pantone chose from the new line. For it was Marsala, a deep, liver-like maroon. To conjure up color of the year, Pantone reads the cultural pulse and picks the color based on that. We speak a language of color. So we see things in color. We can explain things in color. It was about coming up with an answer to the excitement, an answer to the fear, and using color to do that. Take the jewel-toned iMac G3s from The computers announced that Apple was full of energy, new ideas, and nothing like the greige of old computers. Use color right, and you could have a break-out product, assuming the rest of the functionality is there, too. Pantone opened the Color Institute to help designers and brands harness the power of color. Pantone When a company enlists the Institute it gets research-backed advice, color recommendations, and strategy. Cook got his start in the fashion industry at Donna Karan and says consulting could grow even more. And that portion is growing. Cook theorizes that licensing came because the company knew it was on the brink of sale and wanted to pump up its valuation. While the global line of licensed products includes novelties like underwear and cellphone cases, books and cosmeticsâ€”items that are fun and interesting to haveâ€”it also includes products with clever applications. Pantone scrubs have been used to improve hospital care. Nurses, doctors, and technicians cycle through different colors for each day of the week so that patients who have been there for long stays can keep track of time. Instead of fearing or ignoring change, Pantone rolls with the times. It lets users take photos and extracts the colors in the image. In , Pantone developed a swatch book of skin tones with the thinking that photo retouchers would use it to for color correcting. The company

was even contacted by a sperm bank to license the product so donors could beef up profiles with info on skin color. Part of innovating at the brand is making its products more usable. When Pantone first launched its textile matching system, the fabric swatches were flush mounted making it hard to take readings on a spectrometer. The company retooled the card in so the fabric was only attached at the top, allowing it to hang loose at the end, a direct result of Pantone listening to customer feedback. It was a pivotal year for the brand since, up until then, it still primarily thought of itself as a printing-related company. Its efforts center around social media and going to its audiences on Facebook , Instagram , Pinterest , Behance , and Twitter. The brand tracks social media engagement and values the fact that people use Pantone chips as part of their art projects and often posts those images from its community to its official account. One of the trends Pantone has noticed—and really loves—is students decorating their graduation caps with Pantone chips. Indeed, attracting younger audiences that will eventually use Pantone professionally is a key challenge, but the brand seems to be successfully navigating the terrain thanks to its calculated business model and success in becoming internationally synonymous with color in general. Take Michael Kors and Ralph Lauren, two fashion companies whose reputation and value has tanked because of over saturation. But buy a mug, too.

### 5: Why is a universal system of measurement necessary in science? | Socratic

*A universal language is one that can be understood equally well by everyone, regardless of background. Metric is nearly universal, and customary units prevent real world applications of maths from being universally understandable.*

There are thousands of languages in the world today. Besides English, you might already speak Spanish and you know that different countries speak their own languages. But within a country, there can still be tribes in remote areas that speak a language of their own. These people need a translator who knows both languages in order to communicate with the world outside their village. We have no idea how many languages have been spoken in the history of civilization. Archaeologists continue to find artifacts of lost civilizations from thousands of years ago. Consider Egyptian hieroglyphics where the Egyptians used pictures instead of letters as their written language. Archaeologists are still trying to decipher what these pictures mean. The Romans left us writings in their language, which is Latin. One interesting fact about Latin is that no one really knows how to pronounce the words like the Romans did. Throughout history every separate group of people have devised their own language. Perhaps some day, everyone on earth will speak a common language. But the title above claims that math is the only true universal language! How can that be? Right now you should know about two ways to represent numbers, as Roman numerals and as Arabic numbers. Plus, people in other countries use different symbols for numbers. With all these different symbols, how can math be a universal language? Math is a universal language because the principles and foundations of math are the same everywhere around the world. The concept of 20 items is the same no matter where you are in the world. And, what about geometry? A circle is always a circle and its circumference is always calculated the same way no matter where you are in the world. The same holds true for any other geometric figure like triangles, squares or rectangles. We like to visit other countries to experience new scenery, new foods and a different culture. There is a great deal of cultural diversity in the world that we can enjoy and celebrate. But math is one thing that is common to everyone. Different countries use different units of measurement; for example, the United States and the United Kingdom use inches and feet while the rest of Europe uses metric measurements of centimeters and meters. But no matter what the units are, everyone must measure the house that they are building. Houses everywhere, whether they are square, rectangular or round, are built using the same mathematical equations. The principles of probability are the same everywhere as well. The chance of rain in Guatemala might be greater than the chance of rain in the Sahara desert but probability works the same way. People around the world have different genetics but the probability of passing on genes to their children follows the same mathematical formulas. It is easy to see that no matter how diverse different cultures are, math is one common language across the world. Take a few minutes to make a list of other ways that math is the universal language.

## 6: Why Is Math the Only True Universal Language?

*The Universal Language* This minute film traces the history of Esperanto, an artificial language that was created in the late 1800s by a Polish eye doctor who believed that if everyone in the world spoke a common tongue, we could overcome racism and war.

At present, there is no clear consensus on which criteria to use. Using a relative normative approach, some researchers establish a percentile criterion. For example, all students scoring below the 25th percentile may be considered at risk. According to Torgesen, a "potential problem with such a normative approach is that, by definition, there will always be students who fall in the lowest quartile and thus will always appear to be at risk, regardless of their performance level" (p. 10). Absolute performance levels or benchmarks. For example, 3rd-grade students who read fewer than 70 words correct per minute at the beginning of the school year may be considered to be at risk. In addition to cut-scores for normative and benchmark approaches, performance standards for severity of academic difficulty and level of risk have been used in research on screening measures. According to a review by Jenkins et al. The use of these additional criteria greatly affects the proportion of students identified as at risk. Severity criterion as unsatisfactory. Severity criterion as very unsatisfactory. When the goal of the universal screening measure is to find the students with the most severe academic deficits, very unsatisfactory appears to be the better criterion. This criterion finds the lowest performers, those suspected of having a learning disability. Universal screening measures often specify a level of risk for failing to meet a later criterion. For example, a screening measure could classify a student as at some risk or as at high risk for not meeting the standard. When Does Tier 2 Begin? Once a student has been designated at risk by one or more screening measures, the next step is to establish when more intensive Tier 2 interventions will begin. Two methods have emerged from the literature: In the direct method, results of a one-time universal screening measure determine Tier 2 status. For example, in the work of Vellutino et al. In both studies, the rationale for this decision was that at-risk students should not be delayed in receiving interventions due to further observation and progress monitoring. A limitation to this method is that it assumes a high level of accuracy for identifying true positives, based on one administration of the screening measure. In the progress-monitoring method, all at-risk students determined by screening measures are monitored for an additional amount of time before they receive Tier 2 interventions. Because entry into Tier 2 is determined by dual-discrepancy. This method provides more reliable assessment of progress than a "one-shot" assessment; however, it delays interventions for students in need of the most help. Length of follow-up progress monitoring varies in the literature. For instance, Compton, Fuchs, Fuchs, and Bryant used weekly progress monitoring for 5 weeks to determine Tier 2 eligibility. In contrast, Speece and Case used monthly progress monitoring over a 6-month period to determine Tier 2 eligibility. There is conflicting research evidence as to the preference of the direct or progress-monitoring method. For instance, Compton et al. With no clear consensus, choice of method is ultimately a local school district preference. Conclusion and Directions for Future Research Universal screening is paramount in identifying students at risk for academic difficulty in an RTI model. Correct identification of at-risk students is especially important so the right students receive appropriate tiered interventions. Unfortunately, based on the different conventions of cut-scores, severity, and levels of risk, it is very difficult to generalize percentages of at-risk students across measures and samples. This makes comparison of screening measures extremely difficult. As an education professional, it is imperative to understand how different combinations of cut-scores, severity, and risk will affect the number of identified at-risk students. Additional research efforts and comparisons across screening approaches using common validation criteria are needed to determine the precision of individual measurement tools in identifying at-risk students. In addition, more research is needed to investigate the accuracy of screening approaches used in identifying student difficulties in content areas other than reading. Application of a three-tiered response to intervention model for instructional planning, decision making, and the identification of children in need of services. Journal of Psychoeducational Assessment, 23, 1-12. Response to intervention as a framework for the prevention and identification of learning disabilities: Which comes first,

identification or intervention? Essays in honor of James M. Croix River education district model: Incorporating systems-level organization and a multi-tiered problem-solving process for intervention delivery. The science and practice of assessment and intervention pp. The Idaho results-based model: Implementing response to intervention statewide. Selecting at-risk readers in first grade for early identification: A two-year longitudinal study of decision rules and procedures. *Journal of Educational Psychology*, 98, â€” Examining classroom behavior support in second grade. *Exceptional Children*, 73, â€” A blueprint for practitioners, policymakers, and parents. *Teaching Exceptional Children*, 38, 57â€” Mathematics screening and progress monitoring at first grade: Implications for responsiveness to intervention. Considerations for evaluating universal screening assessments. *Journal of School Psychology*, 42, â€” Service delivery for response to intervention: Core components and directions for future research. *School Psychology Review*, 36, â€” The importance of decision making utility of a continuum of fluency-based indicators of foundational reading skills for third grade high stakes outcomes. *Scientific Studies of Reading*, 5, â€” Implementing response to intervention: Conceptual and empirical issues related to developing a response-to-intervention framework. Retrieved May 26, , from <http://> Candidate measures for screening at-risk students. Retrieved May 15, , from <http://> Screening for at-risk readers in a response to intervention framework. High versus low implementation of instructional support teams: A case for maintaining program fidelity. *Remedial and Special Education*, 20, â€” Problem-solving model for decision making with high-incidence disabilities: Monitoring response to general education instruction. Tiers of intervention in kindergarten through third grade. *Journal of Learning Disabilities*, 38, â€” The Illinois flexible service delivery model: A problem-solving model initiative. *Assessment in special and inclusive education* 10th ed. Hitting the moving target known as reading development: Some thoughts on screening children for secondary interventions. *Journal of Learning Disabilities*, 38, An alternative approach to identifying early reading disability. *Journal of Educational Psychology*, 93, â€” Fidelity of problem-solving implementation and relationship to student performance. *School Psychology Review*, 29, â€” Individual differences in response to early interventions in reading: The lingering problem of treatment resisters. A multi-year evaluation of the effects of a response to intervention RTI model on identification of children for special education. *Journal of School Psychology*, 45, â€” *Exceptional Children*, 69, â€” Cognitive profiles of difficult-to-remediate and readily remediated poor readers: Early intervention as a vehicle for distinguishing between cognitive and experimental deficits as basic causes of specific reading disability. *Journal of Educational Psychology*, 88, â€” Woodcock Reading Mastery Testâ€”Revised.

## 7: John Wilkins - Wikipedia

*Math is a universal language because the principles and foundations of math are the same everywhere around the world. Ten plus ten equals twenty if you write it as Arabic numerals  $10 + 10 = 20$  or Roman numerals  $X + X = XX$ .*

History of measurement A unit of measurement is a standardised quantity of a physical property, used as a factor to express occurring quantities of that property. Units of measurement were among the earliest tools invented by humans. Primitive societies needed rudimentary measures for many tasks: The earliest known uniform systems of measurement seem to have all been created sometime in the 4th and 3rd millennia BC among the ancient peoples of Mesopotamia , Egypt and the Indus Valley , and perhaps also Elam in Persia as well. Weights and measures are mentioned in the Bible Leviticus It is a commandment to be honest and have fair measures. In the Magna Carta of The Great Charter with the seal of King John , put before him by the Barons of England, King John agreed in Clause 35 "There shall be one measure of wine throughout our whole realm, and one measure of ale and one measure of corn"namely, the London quart;and one width of dyed and russet and hauberk cloths"namely, two ells below the selvage However, the United States is the only industrialized country that has not yet completely converted to the Metric System. The systematic effort to develop a universally acceptable system of units dates back to when the French National Assembly charged the French Academy of Sciences to come up such a unit system. This system was the precursor to the metric system which was quickly developed in France but did not take on universal acceptance until when The Metric Convention Treaty was signed by 17 nations. As a result, units of measure could vary not only from location to location, but from person to person. Metric systems of units have evolved since the adoption of the original metric system in France in The current international standard metric system is the International System of Units abbreviated to SI. An important feature of modern systems is standardization. Each unit has a universally recognized size. An example of metrication in when Tuscany became part of modern Italy ex. Imperial units were mostly used in the British Commonwealth and the former British Empire. US customary units are still the main system of measurement used in the United States despite Congress having legally authorised metric measure on 28 July Systems of units based on these are called natural units. Similar to natural units, atomic units au are a convenient system of units of measurement used in atomic physics. Also a great number of unusual and non-standard units may be encountered. Legal control of weights and measures[ edit ] To reduce the incidence of retail fraud, many national statutes have standard definitions of weights and measures that may be used hence "statute measure" , and these are verified by legal officers. Informal comparison to familiar concepts[ edit ] Main article: List of unusual units of measurement In informal settings, a quantity may be described as multiples of that of a familiar entity, which can be easier to contextualise than a value in a formal unit system. For instance, a publication may describe an area in a foreign country as a number of multiples of the area of a region local to the readership. The propensity for certain concepts to be used frequently can give rise to loosely defined "systems" of units. There are seven SI base units. All other SI units can be derived from these base units. For most quantities a unit is necessary to communicate values of that physical quantity. For example, conveying to someone a particular length without using some sort of unit is impossible, because a length cannot be described without a reference used to make sense of the value given. But not all quantities require a unit of their own. Using physical laws, units of quantities can be expressed as combinations of units of other quantities. Thus only a small set of units is required. These units are taken as the base units. Other units are derived units. Derived units are a matter of convenience, as they can be expressed in terms of basic units. Which units are considered base units is a matter of choice. The base units of SI are actually not the smallest set possible. Smaller sets have been defined. For example, there are unit sets in which the electric and magnetic field have the same unit. Calculations with units of measurement[ edit ] Units as dimensions[ edit ] Any value of a physical quantity is expressed as a comparison to a unit of that quantity. For example, the value of a physical quantity  $Z$  is expressed as the product of a unit  $[Z]$  and a numerical factor:

### 8: Is there a universal measure word in English? - English Language & Usage Stack Exchange

*a collection of compatible, related units that can be used to measure such quantities as length, mass, weight, or volume  
cubit one of the earliest units of measurement based on the length of a person's arm from the elbow to the top of the middle finger.*

### 9: Unit of measurement - Wikipedia

*The need to use images and imagery in language in schools, and to recognize and measure such aptitudes are discussed. Tests of imagination are presented, and the San Francisco Art Institute Study of predictors of ability in art illustrates methods and implications for measurement of creativity in.*

*Be Complete Leaders Guide Tide Tables 1998: West Coast of North and South America, Including the Hawaiian Islands Beautiful gems from American writers and the lives and portraits of our favorite authors Post-Cold War security issues in the Asia-Pacific region Ahfs Drug Information 2006 (Ahfs Drug Information) Puttagunta suresh kumar books Math concepts everyone should know Travel guide sofia bulgaria Growing Up in East LA, from the LifeStories for Kids(TM Series What would emma do eileen cook Polish journal of food and nutrition sciences Chinese society in the age of Confucius (1000-250 BC) Range of motion as the focus of teaching the overhand throwing pattern to children Rich church, poor church Study Guide for Medical-Surgical Nursing Clinical Management for Positive Outcomes The Dhammapada or Path of the Law Jim wendler 5 3 1 Playing Chord Progressions Stay close to mama Fundamentals of human resources management 4th edition The mourning muse of Thestylis When I consider thy heavens. Mirza ghalib shayari book Story of Marie-Antoinette. Swimming against the mainstream : examining cultural assumptions in the classroom Kristy Garcia Sambhog thi samadhi taraf by osho Childrens views about fostering systems Child-life in Italy Cheetahs, the swift hunters Competitiveness of the European city and the role of urban management in improving the citys performance Scrapbooks Set B (Scrapbooks of America) Agreement restrictions Kings and assassins V. 2. The algebraic theory of spinors and Clifford algebras. Handbook of parametric and nonparametric statistical procedures 2nd edition Securities law and virtual worlds Jazz Standards from Great Songwriters The government intervenes New poems from the bell-branch Husn e muslim book*