LOVE IT OR LEAVE IT

Five cups per acre

The compelling case for metric

One of the nice things about having an elementary school-age daughter is that you get to refresh your own basic skills and knowledge—times tables, geometry, the difference between adverbs and adjectives, and so on.

Plus, you get to show off how smart you are—unless you've moved from Holland to the United States and are suddenly required to teach your child the "standard" measurement system. In that case, the bubble of parental infallibility is likely to deflate several years prematurely.

For those who've grown up using the metric system, with its easy-to-remember increments of 10, the standard method is truly perplexing. The basic unit of standard is probably the inch, which equals 2.54 centimeters and is divided into units that are expressed as fractions—1/16, 1/8, 1/4 etc.

Try doing some precise handy work in standard, and sooner or later you'll face the unenviable task of adding, say, 5/16" to 9/64".

But that's only the beginning. There are 12 inches in a foot, three feet in a yard and—are you ready—1,760 yards in a mile. The steps of 12 inches and three feet seem somewhat logical because both can be divided by three, but the figure of 1,760 appears to be completely arbitrary.

A gallon (3.78541178 liters) is inconveniently divided into four quarts, eight pints, 16 cups and 128 ounces, while cooks must wrestle with teaspoons and tablespoons.

Did you know there are 256 tablespoons or 768 teaspoons in each gallon? Convert it to metric and you get a baffling 67.6280454 tablespoons and 202.884136 teaspoons per liter.

And then there are units that sound vaguely familiar but turn out to be something completely different. You might expect a U.S. ton, better known as a short ton, to equal 1,000 pounds, much like the metric

ton comprises 1,000 kilos. But instead it's two thousand pounds, or 907 kg.

Water strangely freezes at 32 degrees in the United States, but few people can tell you at which temperature it will boil (212 F). And while most Americans would think of 80 degrees as an agreeable forecast, the same temperature would be considered life-threatening in Europe. No wonder Americans are generally less concerned about climate change than Europeans are; the predicted rise in global surface temperatures this century, between 1.1 and 6.4 degrees, sounds a lot less menacing in Fahrenheit than it does in Celsius.

Unfortunately, the conversion from Fahrenheit to Celsius is difficult to work out without the assistance of a pocket calculator. You must subtract 32 and multiply the result by five ninths. Under this bizarre formula, 40 degrees Fahrenheit becomes about 4.4 degrees Celsius, but -40 remains -40.

Consistently inconsistent

Now some might argue that because the standard system requires greater mathematical aptitude, it must be more "intelligent." There is some truth to that—but only in the same way that Chinese characters are superior to the Roman alphabet. Learning Chinese is an intellectual feat, but why memorize 4,000-plus characters when you can organize your language in 26 letters? As every engineer knows, the simplest solutions are usually best.

> Even *within* the standard measurement system, the various units don't work together smoothly.

The biggest challenge in coming to terms with U.S. measurements, however, is that, in some instances, Americans *do* use metric. The destructive power of America's nuclear arsenal, for example, is calculated in kilotons—perhaps because it's more effective to intimidate your enemy in a language he understands.

In the medical field, too, metric is pretty much, well, standard. When Trudi gave birth to our oldest daughter in 2001, I became increasingly alarmed about the implausible dilation of her cervix. To my surprise—and relief—the nurse turned out to be measuring in centimeters, not inches.

But switching back and forth between two systems introduces room for error, as NASA found to its chagrin in 1999. The space agency lost a Mars orbiter that year because one engineering team

11.28 km boots

used "English" units of measurements while another used metric to calculate a key spacecraft operation. The $125 million probe missed its target and is said to be circling the sun now.

Even within the standard measurement system, the various units don't work together smoothly. A bag of lawn fertilizer typically comes with a chart to help the user decide how much he will need. Problem is, the chart indicates coverage in square feet, while the size of real estate in America is usually expressed in decimals of acres. The information that a given quantity of fertilizer will cover 5,000 square feet is of no help when your plot is "0.52 acres."

I looked up the definition of acre in the dictionary, hoping that it would equal a neat 10,000 or 100,000 square feet, or some other figure I could easily work with. Alas, it turned out to be an unhelpful 43,560 square feet, which meant I would need 4.53024 bags to cover my lawn.

Time to move on

For the sake of readability, I've resisted writing *standard* in quotation marks—but I am tempted. Much like the word *world* in the baseball World Series, standard is a misnomer resulting from a big country's tendency to confuse the concepts *international* and *nationwide*.

According to the online encyclopedia, *Wikipedia*, the only countries aside from the U.S. to use the standard system are Myanmar and Liberia. While this odd trio makes for a nice Axis of Obstinacy, it can hardly lay claim to having the *standard* measurement system

The rest of the world has sensibly converted to metric, although England—which, as America's former colonial master, bears much responsibility for the standard mess—continues to hold

out with some odd measurements of its own. Twenty stone sounds like a reasonable bodyweight—until you realize it equals 127 kg!

So why does the standard system persist? Myanmar is an international outcast that will march to its own drumbeat come hell or high water, while Liberia was founded by freed American slaves who simply kept the system they had become acquainted with during their time in captivity. In America's case, I suspect the country's sense of exceptionalism causes it to cling to its inches and cups, much like it delights in ripping up international treaties or insists on letting "football" players use their hands. It probably doesn't help that the metric system is largely a French invention. The meter was conceived in the 1790s as one ten millionth of the distance from the equator to the North Pole along a meridian through Paris. In 1984, the Geneva Conference on Weights

Oops

Do not call him a baboon

and Measures—another francophone outfit—redefined the meter as the distance light travels, in a vacuum, in 1/299,792,458 seconds. If the benchmark meridian had run through Washington DC instead of Paris, the world's most powerful country might just be measuring its might in meters. But then again, it's probably more fun to be an 800-pound gorilla than a 363.64-kg baboon.

Of course, converting from one measurement system to another is a daunting undertaking, comparable in scope with switching to a single currency. And it would be hideously expensive. Replacing traffic signs alone would cost many millions, although it would also generate welcome employment in a time of crisis. A new target for the next batch of stimulus money perhaps?

In the meantime, I am left struggling to assist my daughter with her homework. That's partially my own fault: a poorly adjusted immigrant, I've actively resisted learning standard measurements. Rebelliousness is only part of the story, though. I am all for acquiring new skills and knowledge—provided that it simplifies my life. For example, I've happily abandoned the awkward Dutch way of telling time. Instead of confusing my wife by informing her that it's "10 before half past one," I now say "one-twenty," American-style.

Learning takes time and effort, however, so there has to be a compelling reason to do so. Unlike the American way of telling time, the standard measurement system doesn't represent progress. Ounces and pounds sound like units that might have been used on the *Heksenwaag*, a weighing device deployed by the Dutch Inquisition to determine whether its victims were witches. If a suspect was found to have an unusually low body weight, she was either burnt alive or—if she "confessed"—strangled and burnt.

Death by fire is of course a cruel punishment for innocent old ladies. But for the dreadful standard measurement system, it would almost be a fate too kind.

—Taco Tuinstra