

## OTHER REASONS TO MOVE TO THE METRIC SYSTEM

- Metrics is the world's common language of measurement
  - With modern technology, it is a smaller world now
  - Only the United States, Liberia, and Myanmar do not use metrics
- Trade and Commerce:
  - Other countries do not want to buy our products unless they are made in metric size—our trade and commerce will be hurt!
    - If other countries don't buy our goods, we will lose jobs
    - Companies that make goods will have their expenses go down when they run only one projection line (for metrics only)
    - European Union has banned all imported non-metric goods after 2009! They are an important part of our international trade
  - Sporting events use metrics (think diving, skiing, marathons, and the Tour de France as examples)

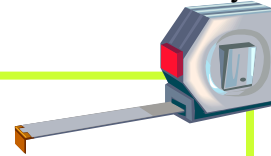
List courtesy of Metric Methods SM

[www.metricmethods.com/metricmoments.html](http://www.metricmethods.com/metricmoments.html)

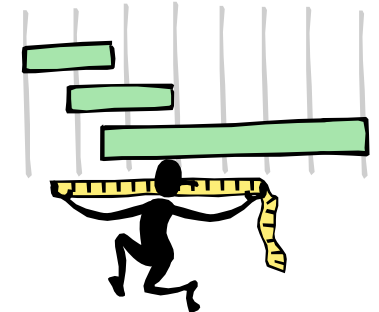
## WE ALREADY USE METRICS—WHAT'S THE FIX??

We are more metric than we think! We already use metrics when we:

- buy 0.5 and 0.7 mm pencil leads
- buy 35 mm camera film
- buy 2 liter bottles of soft drinks and water
- look at the labels on retail goods and imported items
- watch the Olympics
- buy a car or car parts
- buy a computer based on speeds in megahertz
- buy skis
- play VCR tapes
- read scientific pages, such as NASA
- buy light bulbs (watts, volts, and lumens are SI units)
- shop for computer cables (lengths now normally given in meters)
- look at one side of almost any ruler (30 cm or 12 inch)
- read sizes on many baking pans and casserole dishes
- count fat and fiber intakes in grams
- watch sodium intake in milligrams
- look at nutrition labels on food
- calculate Body Mass Index (BMI)
- have body temperature taken (most doctors and hospitals now use metric thermometers)
- read metric road signs in some states
- travel outside the United States
- meet foreign tourists
- decide whether to use the regular (120 mm) or mini (80 mm) CDs to record on
- use 90 mm computer disks
- shop for computer cables (lengths now normally given in meters)
- look at one side of almost any ruler (30 cm or 12 inch)



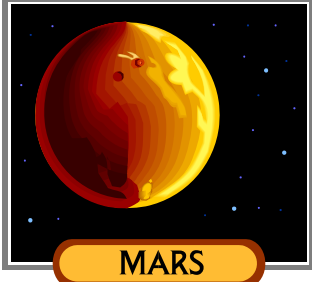
## LET'S MAKE THE MOVE TO METRICS



Group 2  
Period 5

## WHY DO WE NEED TO KNOW METRICS?

On September 23rd, 1999 the Mars Climate Orbiter was lost in space. \$125 million dollars



was spent on this piece of equipment—\$125 million dollars down the tubes.

Why was this spacecraft “lost in space”? The one and only reason was because of the engineers who worked on it. What was the misunderstanding? Navigation engineers from an outside agency delivered their numbers using the English measurement system instead of using metrics, which all the other engineers used. Mission specifications required metric measurements to be used, but the Lockheed Martin group sent their navigational measurements in English units. Because of this, the changes that were made to the spacecrafts trajectory were 4.4 greater than the Jet Propulsion Lab thought, resulting in it being presumable destroyed.

If everyone on that team consistently used the metrics system, this wouldn't have happened. If a system of checks and balances

was in place, this also would not have happened. That was a glaring mistake that cost a lot of money. Money that could have been used in other ways for the good of the people of the United States.

Virtually all countries around the world use the International System of units (SI), sometimes known as the "modern metric system." Scientists and engineers now require their work to be conducted only in these units.

*It makes a difference if you use “inches” or “centimeters”—and one reason was the story just told.*

### METRICS IS EASY TO USE

Let's think about this. We were taught math using the base-10 system. Metrics follows this system. Let's look at length (most common units are in color):

Kilo	Hecto	Deca	Base Unit <i>Meter</i>	Deca	Centi	Milli
1000	100	10	1	1/10	1/100	1/1000
<b>km</b>	<b>hm</b>	<b>dam</b>	<b>m</b>	<b>dm</b>	<b>cm</b>	<b>mm</b>

## THE EVERYDAY METRIC SYSTEM

Length:

- 1,000 millimeters = 1 meter
- 100 centimeters = 1 meter
- 1,000 meters = 1 kilometer

Mass

- 1,000 milligrams = 1 gram
- 1,000 grams = 1 kilogram

Volume

- 1,000 milliliters = 1 liter

Do you see a pattern here?

So now let's take the following test to see why the decimal system is easier to use:

Add each column to find the totals.

Which system would you rather add?

English Units	Metric Units
1 yard, 2 feet, 3 1/4 inches	1.607 meters
1 foot, 11 3/16 inches	0.589 meters
2 feet, 5 1/2 inches	0.749 meters
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