

## Metric Units and Conversions

### Is the US a metric country? Should it be?

- Read the articles on [www.activelylearn.com](http://www.activelylearn.com)
- Take notes with these two questions in mind.
- Tomorrow: Mini-socratic seminar. Provide evidence for your statements from the article you read.
  - What information from the article did you find most valuable/interesting/useful?
- Short video: Only Metric Road--CNN

## SI—Système international d'unités

- Units are standardized in order to reduce confusion when scientists are communicating data using these units.
- Units (symbols) AND prefixes for the units are standardized
- Supplementary Unit: a unit that is not metric (SI), but is used regularly in physics:
  - Radian: the angle subtended by an arc of a circle having the same length as the radius
  - Used as an alternative to the degree measurement for angles

## Fundamental Units

- Those quantities that are so basic that all other quantities need to be expressed in terms of them.

## Metric Fundamental Units

Physical Quantity	Unit Name	Unit Symbol
Mass	kilogram	kg
Length	meter	m
Time	second	s
Electric Current	ampere	A
Temperature	kelvin	K
Amount of Substance	mole	mol
Luminous Intensity	candela	cd

## Kilogram (kg)

- Defined by a physical object (for now)
- The mass equal to the mass of the international prototype of the kilogram kept at the Bureau International des Poids et Mesures at Sèvres, near Paris.**
- Think, turn and share: Why might this be a problem?
- Video: World's Roundest Object—posted online (watch on your own)



Photo from:  
<http://physics.nist.gov/cuu/Units/kilogram.html>

## Other Definitions of Fundamental Units

- **HW:** In your textbook, Read pages 2-4 to get the rest of the definitions for the other 6 fundamental units **and** the explanation for when to use capital letters and why.

## Derived Units

- **Derived Units:** those units that are formed through the combination of two or more fundamental units.
  - **Examples:**
  - $\text{m s}^{-1}$  (the more proper way to write m/s)
  - $\text{kg} \cdot \text{m}^{-3}$

## Reminders:

- Register for WebAssign
- First WA assignment:
  - 1—Metrics and Measurements. WILL be graded for correctness. Not necessary to show work, but if you are having trouble, it is highly, highly recommended.—
  - **Friday, 7:25 AM**