



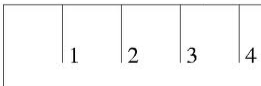
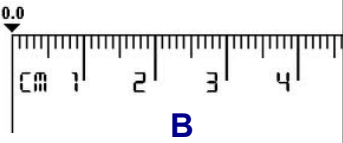
2
Metric System & Length Measurement
Date: Thursday, 9/12/13
OBJECTIVE: I will use the metric system to measure objects' length.
<p>Do Now:</p> <ol style="list-style-type: none"> What is the basic unit of length in the metric system? Which of these rulers would be able to give you the more accurate measurement? WHY?
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>A</p> </div> <div style="text-align: center;">  <p>B</p> </div> </div>

Table of Contents		
Date	Topic	Page #
9/10/13	Observations 3	1
9/12/13	Metric System & Measurement	2

Do Now Review



A



B

Ruler B is MORE PRECISE.

The **precision** of a measurement describes how detailed or exact the measurement is.


English vs. Metric Units

Which is longer?


A. 1 mile or 1 kilometer

B. 1 yard or 1 meter

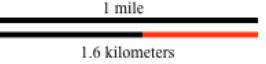
C. 1 inch or 1 centimeter



1 inch = 2.54 centimeters



1 yard = 0.9444 meters



1 mile

1.6 kilometers

Left Image: <http://webbps.lsu.umich.edu/physics/ferlob/controls/imagdemoen.aspx?id=1167>
 Right Image: <http://share.lincolnan.com/5806%20ruler.jpg>


km m Metric Units cm mm

The basic unit of length in the metric system is the **meter** and is represented by a lowercase **m**.

Standard: The **distance** traveled by **light** in absolute vacuum in 1/299,792,458 of a second.

Metric Units

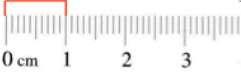
1 Kilometer (km) = 1000 meters
 1 Meter = 100 Centimeters (cm)
 1 Meter = 1000 Millimeters (mm)



Which is larger?

A. 1 meter or 105 centimeters C. 12 centimeters or 102 millimeters
 B. 4 kilometers or 4400 meters D. 1200 millimeters or 1 meter

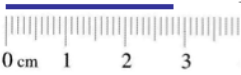
Measuring Length

How many millimeters are in 1 centimeter? 

1 centimeter = _____ millimeters

What is the length of the line below in centimeters? _____ cm

What is the length of the line in millimeters? _____ mm



What is the length of the line to the nearest centimeter? _____ cm

Prefix:	Symbol:	Magnitude:	Meaning (multiply by):
Hepa-	H	10 ²¹	1 000 000 000 000 000 000 000
Exa-	E	10 ¹⁸	1 000 000 000 000 000 000
Peta-	P	10 ¹⁵	1 000 000 000 000 000
Tera-	T	10 ¹²	1 000 000 000 000
Giga-	G	10 ⁹	1 000 000 000
Mega-	M	10 ⁶	1 000 000
Kilo-	K	10 ³	1000
hecto-	h	10 ²	100
deka-	da	10	10
-	-	-	-
deci-	d	10 ⁻¹	0.1
centi-	c	10 ⁻²	0.01
milli-	m	10 ⁻³	0.001
micro-	μ (mu)	10 ⁻⁶	0.000 001
nano-	n	10 ⁻⁹	0.000 000 001
pico-	p	10 ⁻¹²	0.000 000 000 001
femto-	f	10 ⁻¹⁵	0.000 000 000 000 001
atto-	a	10 ⁻¹⁸	0.000 000 000 000 000 001
ento-	e	10 ⁻²¹	0.000 000 000 000 000 000 001

Check-Up

What unit would you use to measure...

(a) The distance from the Atlantic Ocean to the Pacific Ocean?
 (b) The distance a snail travels in a day?
 (c) The length of the school bus?
 (d) The thickness of a tortilla?
 (e) the length of your shoe (heel to toe)?
 (f) The thickness of a jump rope (not length!)?
 (g) Length of a jump rope?

Create a Table in your Notebook:

Object	Measurement
Lab Table Height	
Lab Table Width	
Lab Table Length	
Notebook Length	
Notebook Width	
Notebook Height	

Now, work with your partner to make these measurements.

Object	Measurement
Lab Table Height	
Lab Table Width	
Lab Table Length	
Notebook Length	
Notebook Width	
Notebook Height	

Let's check our results...

Object	Measurement
Lab Table Height	
Lab Table Width	
Lab Table Length	
Notebook Length	
Notebook Width	
Notebook Height	