Name: _____ **Date:** _____ **Period:** ____

Measurement and Conversion Lab

Objectives:

- You make measurements using the metric system and convert between units
- These measurements will encompass mastering the metric ruler, scale, and the graduated cylinder
- You will demonstrate your ability to convert the original measurements to lower and higher values by using dimensional analysis.

Materials:

• Lab paper • metric stick • penny	• graduated cylinders • coins • Book	• Scale • Pen/pencil • Plastic spoon • Small cup

Measurement and conversion lab rubric

Item	POINTS	
Procedure & Data		
1	1 each	3
2	4	4
3	1 each	2
4	1 each	5
5	1 each	3
Correct sigfig	1 each	3
Post Lab		
1	2	2
2	2	2
3 with calculations	2 pt each	26
TOTAL		50

Procedures and Data:

1. What is the metric or SI unit used for measuring
   a. Length _____
   b. Mass _____
   c. Volume _____
2. Write below the 13 metric prefix SYMBOLS from largest to smallest. Below each write what it means in POWERS of 10.

3. Using a **meter stick** or ruler record the following measurements in <u>centimeters</u>. Remember to estimate one more digit than you can see. All measurements taken with a ruler or meter stick should have two decimal places.
   a. Diameter of Penny _____
   b. Height of Lab counter _____
   c. Width of the text book _____
   d. Height of one person in group _____
4. Using an electronic **scale** record the **mass** of the following items.
   a. Mass of Penny _____
   b. Mass of Pencil or Pen _____
   c. Mass of EMPTY graduated cylinder _____
   d. Mass of graduated cylinder with 10 mL of water _____
   e. Mass of water (subtract c & d from above) _____
5. Using the **graduated cylinder** determine the **volume** of water that each of the following can hold. You will need to fill each item to the edge and carefully pour the liquid from the container into the graduated cylinder. All measurements taken with a graduated cylinder should have two decimal places.
   a. Test tube _____
   b. White plastic spoon _____
   c. Small plastic cup _____

Post Lab

1. What sources of error would account for differences in measurement for the same item?

2. Using the mass and volume of water calculate the density of water (SHOW CALCULATION with UNITS)

3. Complete the following conversions using the measurements from above.
   Show your conversion with units on using DIMISINAL ANALYSIS on BACK to receive full credit.

Length:

		(measured value include unit)	**(conversion)**
a)	Diameter of Penny		Km
b)	Height of Lab Counter		Tm
c)	Width of text book		um
d)	Height of one person		Gm

Mass:

		(measured value include unit)	**(conversion)**
e)	Mass of Penny		ng
f)	Mass of pencil or pen		Hg
g)	Mass of EMPTY graduated cylinder		dg
h)	Mass of 10 mL water		Mg

Volume:

		(measured value include unit)	**(conversion)**
i)	Test Tube		L
j)	Plastic Spoon		daL
k)	Small Plastic Cup		pL

Non-Metric Conversion

l)	Time	275,000 seconds	years
m)	Time	14.25 months	seconds

a)	
b)	
c)	
d)	
e)	
f)	
g)	
h)	
i)	
j)	
k)	
l)	
m)	