Name: **Period:**

Must show your calculations by factor label method to receive credit on a separate sheet of paper.

Metric Measurement Lab

Objectives:

- You will learn to make measurements using the metric system.
- These measurements will encompass mastering the metric ruler, gram scale, and the graduated cylinder, and thermometer.
- You will demonstrate your ability to convert the original measurements to lower and higher values by moving the decimal point the correct number of places in the proper direction.

Materials:

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- Lab paper
- metric stick
- Glassware: graduated cylinders, beaker
- coins
- Book, coin
- Gram Scale
- Thermometer

Procedures and Data:

1. **Linear Measure**

Diameter of Penny	_____**M.**	_____**cm.**	_____**mm.**	_____**km.**
Height of lab counter	_____**M.**	_____**cm.**	_____**mm.**	_____**km.**
Width of the Textbook	_____**M.**	_____**cm.**	_____**mm.**	_____**km.**
Length of the Room	_____**M.**	_____**cm**	_____**mm.**	_____**km.**

2. Mass/Weight

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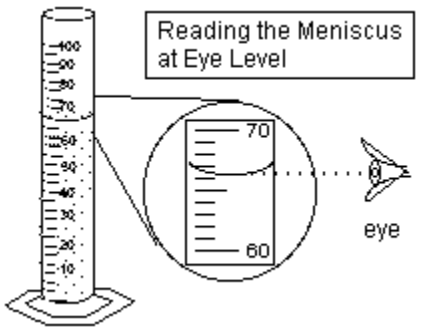
Mass of coin	_____**g.**	_____**cg.**	_____**mg.**	_____**kg.**
Mass of dollar	_____**g.**	_____**cg.**	_____**mg.**	_____**kg.**
Mass of empty 10 ml graduated cylinder	_____**g.**	_____**cg.**	_____**mg.**	_____**kg.**
Mass of graduated cylinder with 10 ml water				
Mass of 10 ml water				

2a. What is the difference between weight and mass?

2b. Why are they used synonymously on Earth?

3. Volume (of liquids)



Volume of the purple liquid	**_____L.**	**_____**		
Volume of water	**_____L.**	**_____cl.**	**_____ml.**	
Volume of the bottle _____	**_____L.**	**_____cl.**	**_____ml.**	

3a. What is a meniscus? Why is it necessary to know about it when measuring liquids?

Summary:

1. What is the metric SI unit used for measuring length? _____.

2. The metric prefix denoting 1000X is _____.

3. If you are changing M to cm. what direction do you move the decimal point? _____

4. How many times larger is a centigram then a milligram? _____.

5. What is the metric value for mass? _____

6. What is the metric value for length or distance? _____

7. What is the prefix value for 100X? _____

8. What is the prefix value for 1/100? _____

9. If we are moving from a large value to a small value, we move the decimal point to the _____.

10. If we are moving the decimal point to the right we are moving from a _____ value to a _____ value.

11. What sources of error would account for differences in measurement of the same thing?