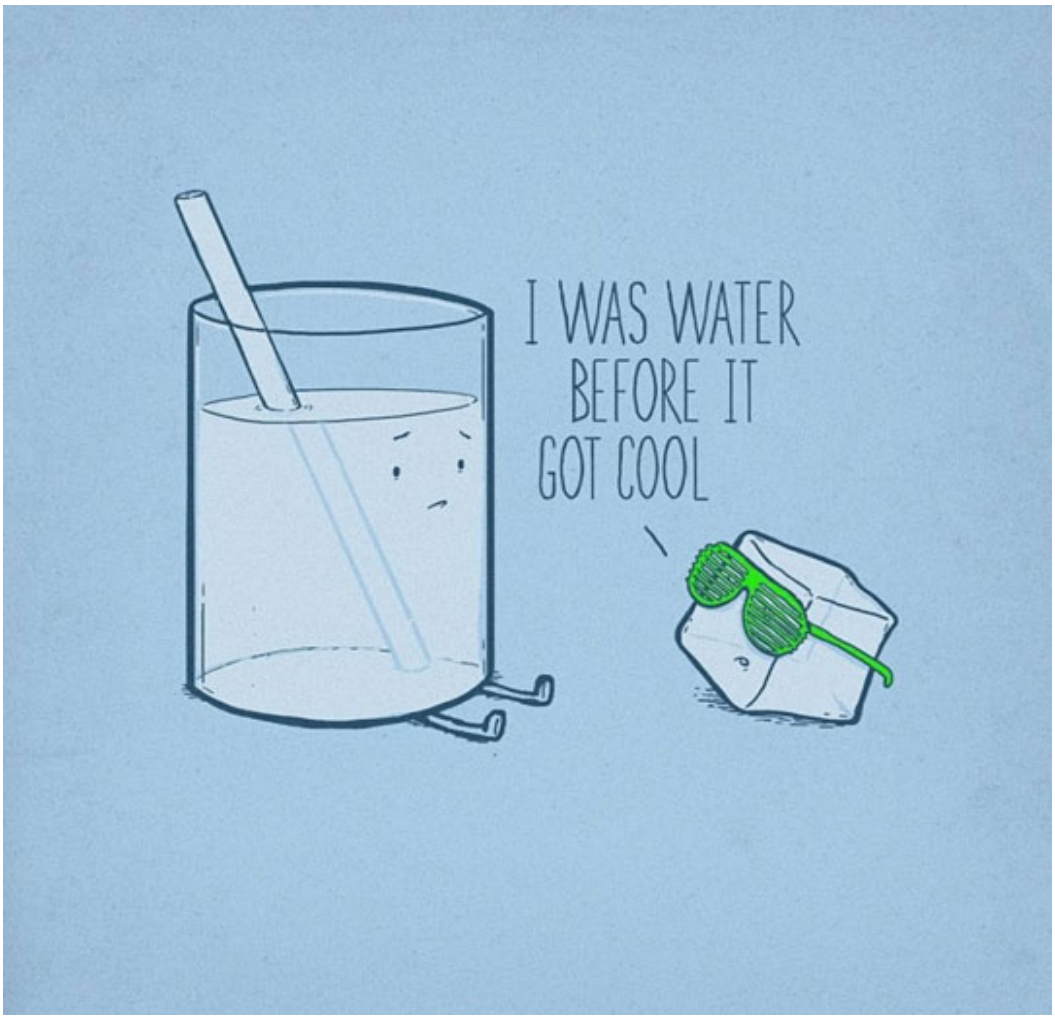
Name_____

GVC Science Dept.

Course: Science 10F

Intro to Lab Skills

Day 2: WaterWorld Lab



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Introduction

The main purpose of the ***WaterWorld Lab*** is to continue working with basic lab techniques and skills. In this lab you will practice using scientific notation, measuring volume of a liquid, identifying common lab equipment, graphing data, and reviewing lab safety.

Materials

Materials for this lab include:

1. Rubber Stopper	2. Graduated Cylinders (3 sizes)	3. Electronic Balance	4. Beakers of liquid	5. Pipette	6. Erlenmeyer Flask
					7. Goggles

Procedure

Part A: In this section, you will review conversions from the last lab.

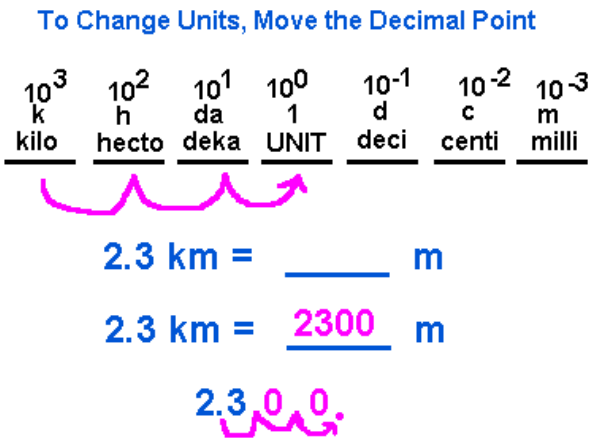
Complete each of the following, using the information you learned in the ***Sandman Lab***.

1) 52 daL = _____ L

2) 17 mg = _____ cg

3) 364 g = _____ hg

4) 892 mL = _____ cL



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Part B: Scientific notation explanation with examples will be shown, together with some questions to attempt.

Review of Scientific Notation

Scientific notation provides a place to hold the zeroes that come after a whole number or before a fraction. The number 100,000,000 for example, takes up a lot of room and takes time to write out, while 108 is much more efficient.

Though we think of zero as having no value, zeroes can make a number much bigger or smaller. Think about the difference between 10 dollars and 100 dollars. Even one zero can make a big difference in the value of the number. In the same way, 0.1 (one-tenth) of a government budget is much more than 0.01 (one-hundredth) of the budget.

The small number to the right of the 10 in scientific notation is called the exponent. Note that a negative exponent indicates that the number is a fraction (less than one).

The line below shows the equivalent values of decimal notation (the way we write numbers usually, like "1,000 dollars") and scientific notation (103 dollars). For numbers smaller than one, the fraction is given as well.

	smaller			bigger		
Fraction	1/100	1/10				
Decimal notation	0.01	0.1	1	10	100	1,000
Scientific notation	10^{-2}	10^{-1}	10^{0}	10^{1}	10^{2}	10^{3}

Practicing Scientific Notation

Write out the decimal equivalent (regular form) of the following numbers that are in scientific notation.

Section A: Model: $10^{1} = 10$

1) 10^{2} = _____

2) 10^{4} = _____

3) 10^{7} = _____

4) 10^{-2} = _____

5) 10^{-5} = _____

6) 10^{0} = _____

Section B: Model: $2 \times 10^{2} = 200$

7) 3×10^{2} = _____

8) 7×10^{4} = _____

9) 2.4×10^{3} = _____

10) 6×10^{-3} = _____

11) 900×10^{-2} = _____

12) 4×10^{-6} = _____

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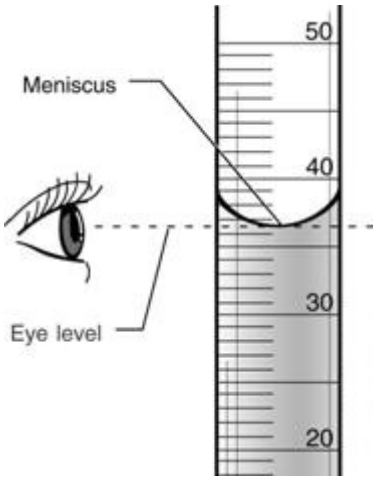
Part C: In this section, you will accurately measure and record the volume of liquid substances.

Measuring the volume of a liquid using a graduated cylinder.

a. Depending on the volume to be measured, you will need to use a small, medium or large graduated cylinder.
b. Each graduated cylinder has lines on it signifying the units that are used on the cylinder.
c. When measuring a water based solution, always measure from the lowest point or the bottom of the meniscus. Also make sure the graduated cylinder is on a level surface (table or counter) and get down to eye level with the liquid to get an accurate measurement.
d. Measure out 2.4 mL in the small graduated cylinder.
e. Measure out 25 mL in the large graduated cylinder.
f. Measure out 0.150 L in a graduated cylinder

0.150 L = _____ mL



Part D: In this section, you are required to create a graph (on the graph paper provided). The graph must follow the instructions below, and be based on the data provided below.

Graphing Checklist:

- Title (appropriate with Data being graphed)
- Axis labels with quantities and units (x and y axis)
- The scale along each axis is chosen to spread out the plotted points on the page.
- Consistent intervals (distance between axis labels, eg. 2, 4, 6, 8)
- On a line graph, remember to connect the points, and on a curve ensure that your curve is drawn smoothly.

Top 10 snowiest winters in Winnipeg (since 1873)

1.	1955-56	252.6 cm
2.	1915-16	216.7 cm
3.	1996-97	213.4 cm
4.	1909-10	212.8 cm
5.	1965-66	212.6 cm
6.	1919-20	211.8 cm
7.	1949-50	201.9 cm
8.	1893-94	194.0 cm
9.	1906-07	193.5 cm
10.	1935-36	184.3 cm

Part E: Continue working on the ***Lab Safety Assessment***.

Name_____