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Laboratory 1 – Physiological Instrumentation  
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**Purpose** – For us to be able to accurately get measurements of physiological parameters it is required the proper use of the instruments and tools and the knowledge of using them to get the different measurements and results. Laboratory 1, the Physiological Instrumentation introduces a few of the different tools we will be using and how to get measurements data from these specific instruments. We used a ruler, beaker, a graduated cylinder, pH strips, and other liquids. The lab introduces units of measurements and how to convert the different measurements to other types of units.

**Procedures** – There are many different procedures that were done in this lab. The first procedure of this lab was to get familiarized with the instruments and know how to use them. The second procedure was to become familiar with the basic metric units of measurements and know how to use them. In the linear measurements we had to measure the length, width, and depth of a textbook/object in mm with a ruler and converted those measurements into cm. In the volume measurements section of the lab, we poured water into a beaker and stated the volume in ml and converted it into liters, then we poured the same water from the beaker into a graduated cylinder and stated the volume in ml and converted it into liters. In the mass measurements section of the lab, we got the mass weight of a beaker/object using a scale in grams and converted it into mg. After that we had to pour some water into the beaker and state the mass liquid in the beaker in grams. To get the mass of the liquid we had to subtract the weight of the liquid in the beaker from the empty weight of the beaker and that is how we got the mass of the liquid only, we then converted the mass in grams to mg. In the pH measurements section, we had to use a pH strip or in other words the litmus test to get the pH level of three different types of liquids. We poured the liquid into tubes, we put the pH strip in the liquid and looked at the color of the strip and matched it to get each liquid's pH balance to determine if the liquids were more acidic or basic. In the time measurements part of the lab, we had to time our pulse rate for fifteen seconds and from that number we figured out how many beats per minute. We then used the “black box” that was mentioned in page two of the lab manual to determine our pulse rate for sixty seconds and convert that number into beats per second and lastly beats per millisecond.

## **Results –**

### **Linear Measurements table:**

1. State the length of your lecture text:	27.3 mm	2.73 cm
2. State the width of your lecture text:	21.5 mm	2.15 cm
3. State the depth of your lecture text:	.5 mm	0.05 cm

### **Volume Measurements table:**

Beaker With Water (same)	Graduated Cylinder with water (same)
100 ml	89 ml
0.1 liters	0.089 liters

#### Mass Measurements table

Beaker	Beaker With Liquid	Liquid
117,950 mg	208,000 mg	90,050 mg
117.95 g	208.00 g	<u>90.05 g</u>

#### pH Measurements

Liquid "A"	Liquid "B"	Liquid "C"
4	7	9
Acidic	Basic	Basic

#### Time Measurements table

Pulse Rate 15 seconds	Pulse Rate 60 seconds
16 beats/second	64 beats/minute
64 beats/minute	16 beats/second
	16,000 beats/millisecond

**Discussion** – For laboratory 1 I understood the all five assignments. For the linear measurements it had us turn mm into cm which you move the decimal to the left once or divide the number you got by ten. For the second experiment we figured out that in one liter there are 1,000 milliliters which you divide the number you got by 1,000. At first, I was a little confused on getting the mass measurement of liquid in the beaker but then I remembered you have to subtract the mass of the beaker and the mass of liquid in the beaker which made a big difference in numbers. For our pH measurements I found it really interesting how the strips worked and how the different substances are acidic, and some are just basic. The lab consisted of basic math, more like algebra or also basic chemistry math. In my last chemistry class, I took we did a lot of moving decimals to get the answer we needed, in algebra we did a lot of dividing and multiplying decimals and converting. An experimental error that may have existed was the time

measurement experiment, we could have measured our pulse wrong and a way to reducing those errors is by using the “black box” that measures your pulse accurately if your not sure of your own measurement.

**Conclusion-** All in all, the physiological instruments lab requires the proper use of a few instruments that help us get different measurements and results. The physiological measurements involve the measurements of different chemical and physical parameters. Laboratory 1 was a very good refresher on starting the class. We started off with simple math and moving decimals; we worked with a few instruments that we have seen and used before like rulers, beakers, graduated cylinders, and pH strips. This lab was a big help to me. We started off as converting mm into cm and grams into mg which material that we will need to know in the future. This lab introduces units of measurements and how to convert the different measurements to other types of units.