

### Laboratory 1- Physiological Instrumentation

Purpose: The purpose of this lab was to orient/familiarize ourselves with lab equipment and to practice determining physiological measurements.

Procedures:

1. Observe the operation of these instruments.
2. Make a concerted effort to recognize and identify each on sight.
3. Understand the application of the “black box” instrumentation to experiments and measurements of human physiological events.
4. Become familiar with the basic metric units of measurement.
5. Learn the basic unit of each measurement.
6. Understand the significance of the prefixes of each unit.
7. Complete the worksheet on page 6 using the following information.
8. Be able to recognize the relative acidity or alkalinity of a solution given its pH.

Results: Linear measurements-

Length of lecture text	27.8 mm	2.70 cm
Width of lecture text	21.5 mm	2.15 cm
Depth of lecture text	0.8 mm	0.08 cm

Volume Measurements- Water in beaker: 50ml → 0.05l

Water from the beaker into a graduated cylinder:  $42\text{ml} \rightarrow 0.042\text{l}$

Mass measurements- Mass of the weight:  $140.65\text{g} \rightarrow 140650\text{mg}$

Water poured into the beaker and state the mass:  $153.61\text{g} \rightarrow 153610\text{mg}$

pH Measurements:

pH Liquid in container A	4	Acidic
pH Liquid in container B	7	Neutral
pH Liquid in container C	9	Alkaline

Time Measurements-

Pulse rate after 15 seconds	14 beats/second	840 beats/minute
Pulse rate after 60 seconds	92 beats/minute	1.53 beats/second
		0.00153 beats/millisecond

Discussion: I think doing this lab as the first one was beneficial because it gave me a review that will help me continue with my studies. It will help me understand and monitor our body's functions and can help provide valuable insights into our health and well-being. Since we do not use the metric system, it is important for us to learn how to use it because it is widely used around the world and promotes consistency in measurements. Knowing how to convert between units and simplify scientific calculations will help me down the road in the medical field and to help others when needed.

Conclusions: In conclusion, when doing the linear measurements, we measured our lecture text in centimeters first and then I multiplied my answers by 10 to convert it into millimeters. For example, the length of my lecture text was 2.78cm and when I multiplied that by 10, I got 27.8mm. I did that for the width of my lecture text and the depth. Secondly, for the volume measurements, we had to convert milliliters into liters by dividing milliliters by 1000 to get it

into liters. For example, when the water was poured it was 50ml, then we divided that volume by 1000 to get 0.05L. Thirdly, for the mass measurements, we had to weigh our beaker in grams and convert it to milligrams and to do that, I had multiplied the mass by 1000. For example, the mass of the beaker was 140.65g and when I multiplied that by 1000, I got 140650mg. Then, we looked at different pH levels with the testing paper and saw pH levels of 4, 7, and 9. Lastly, we determined our pulse rate for 15 seconds and then after 60 seconds. After 15 seconds my partners heart rate was 14 beats/second and then we converted it to beats per minute by multiplying it by 60 and getting 840 beats/minute. After 60 seconds, it was 92 beats/minute and we converted it to 1.53 beats/seconds by dividing it by 60. From there, I divided that number by 60,000 to get 0.00153 beats/millisecond.