

**Rubi Rodriguez**

**Lab 1-Phys Instrumentation**

**August 21,2023**

**Purpose:** *The purpose of this lab is for us to become familiar with the physiologist's "tools of the trade" observe the operation of the black box as well as becoming familiar with the basic metric units of measure and learn the basic unit of measurement.*

**Procedures:** *#1) Become familiar with the basic metric unit of measure.*

*#2) Understand the application of the "black box" and how it measures the physiological events*

*#3) Become familiar with basic metric units of measure*

*#4) Learn the basic unit of each measurement*

**Results:** *The linear measurement of the pencil I measured also measures the length as 182 mm in which it converts into 18.2cm (about twice the length of the long edge of a credit card). The width 12mm converting into 1cm and the depth was 10mm in which it converts to 1 cm as well. Next, we did some volume measurement in which we had to pour water into a beaker. We poured water into the beaker and stated the volume at 100ml converting into 0.1 liters. So, then we poured the water from the beaker into the graduated cylinder and stated the volume measuring at 80ml and converted that to 0.08 liters. During the mass measurement the mass of the weight was 190,830mg which converted to 190.83g. We then measured the pH measurement liquid in containers A,B & C. In liquid A it was level 4PH, in container B it was 7ph and in container C it was level 9ph. We were able to determine the rate after 60 seconds. My pulse rate was 86 beats per minute than converting into 21 bps and 698 beats per milliseconds.*

**Discussion:** During the linear measurement I was able to convert the MM to CM by multiplying by 1000. Then, during the volume measurements I was able to convert ML to LITERS by dividing them by 1000. During mass measurements I was able to convert the G to MG by multiplying by 1000. Lastly in time measurement by dividing the 86 bpm by 4 it gave us 21 beats per second.

**Conclusion:** In conclusion, during the lab I was able to see how the black box works and the wave lengths are able to measure the pulse rate. I was also able to see how it operates. I also became familiar with the basic unit of measurement and was able to put them to use during the lab.