

Laboratory 1- Physiological Instrumentation

1A:

Purpose: Become familiar with the instruments used in the lab.

Procedure:

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.

Result:

The standard order of events when using electronic instrumentation is:

Biological event, input transducer/ electrode, amplifier, and output transducer. These tools are used to collect electrical impulses and conduct those impulses onto an amplifier that allows you to see a clear image of the output. The black box is an instrument used in the lab that has multiple uses such as getting and projecting pulses, and EKGs.

Conclusion:

The instruments used in this section of the lab are understood, and ready to be used in future labs.

1B:

Purpose: Learn and understand the metric system along with conversions and prefixes.

Procedure:

1. Become familiar with the basic metric units of measure.
2. Learn the basic unit of each measurement.
3. Understand the significance of the prefixes of each unit.
4. Complete the worksheet on page 6 using the following information.

Result:

Refer to attached photo.

MEASUREMENT REVIEW - DATA COLLECTION

Linear Measurements

1. State the length of your lecture text: 239.0 mm 23.90 cm
2. State the width of your lecture text: 236.0 mm 23.60 cm
3. State the depth of your lecture text: 8.0 mm 0.0080 cm

Volume Measurements

1. Pour some water in the beaker and state the volume:
100 ml 0.10 liters (l)
2. Pour the water from the beaker into a graduated cylinder and state the volume:
95 ml 0.0950 liters

Mass Measurements

1. State the mass of the weight: 10.000.0 mg 10.0 g
2. Pour some water into the beaker and state the mass of the liquid in the beaker:
1819.0
18.19 mg 18.19 g

pH Measurements

1. State the pH of the liquid in container "A": 5
2. State the pH of the liquid in container "B": 7
3. State the pH of the liquid in container "C": 9

Time Measurements

1. Determine your pulse rate after 15 seconds: 1.4 beats/second
84 beats/ minute
2. Determine your pulse rate after 60 seconds: 77 beats/ minute
1.28 beats/ second
 1.28×10^{-3} beats/ millisecond

Conclusion:

The metric system is a system of measurement with different lengths of measurement indicated by powers of 10 that correspond with prefixes. These measurements can be easily converted by moving the decimal left or right in respect to the differences in powers.