

## Lab report 1

### Units of measurements

#### Purpose:

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.

#### Results:

#### Measurements review-data collection

##### Linear measurements:

1. State the length of a notebook: 280 mm, 28 cm
2. State the width of a notebook: 236 mm, 23.6 cm
3. State the depth of a notebook: 10 mm, 1 cm

##### Volume measurements:

1. Pour some water into a beaker and state the volume:  
75 ML      .075 Liters
2. Pour the water from the beaker into the graduated cylinder and state the volume:  
69 ML      .069 Liters

##### Mass measurements

1. State the mass of the weight: 1300 MG    13 Grams
2. Pour some water into the beaker and state the mass of the liquid in the beaker:  
1800 MG                  18 Grams

##### PH measurements:

1. State the PH of liquid in container "A": PH 3 increasingly acidic.
2. State the PH of liquid in container "B": PH7 neutral.
3. State the PH of liquid in container "C": PH12 increasingly basic.

##### Time measurements:

1. Determine your pulse rate after 15 seconds: 1 beats/second  
60 beats/minute
2. Determine your pulse rate after 60 seconds: 60 beats/minute  
1 beats/minute  
1000 beats/millisecond

#### TAKE-HOME PRACTICE FOR METRIC MEASUREMENTS

1. A table measures 2.9 meters.  
What does it measure in centimeters? 290  
What does it measure in millimeters? 2900

2. A cup on the table holds 800 ml of chocolate milkshake.

How much does it hold in liters? 0.8 Liters

3. The milkshake weighs 463 milligrams.

What does it weigh in grams? .463 grams

4. A straw in the milkshake measures 26 cm.

How long is it in meters? .26 Meters

How long is it in millimeters? 260 ML

5. A pH meter inserted into the milkshake records a pH of 10.

Is this basic or acidic? Basic

What does basic refer to in terms of hydrogen ion concentration? It has a low hydrogen ion concentration and is mostly alkaline and has less grams of H<sup>+</sup>/liter compared to acidic.

What would be considered an acidic range for pH? The PH range of 3 starts to increase and become more acidic and gets more acidic the smaller the number becomes.

6. It takes a 16-year-old 840,000 msec to completely consume the milkshake.

How long is this in seconds? 840 seconds

How long is this in minutes? 14 minutes

#### Discussion:

The linear measurements were pretty easy to solve as they use the millimeters and divide it by 10 and that's how we found the total centimeters as 10 millimeters equals 1 cm made it easy to base it off of. The volume measurements were divided by 100 and that's how we got the total measurements as the milliliters were divided by 100 to find out the number of liters. The mass measurements was the initial number divided by 1000 to find the correct number as the milligrams were divided by 1000 to find the correct amount of grams. The PH measurements were based off the chart in the lab manual to find out how acidic or basic it was. The pulse rate was taken in a 15 second interval and to find a second just divide by 15 and to find a minute just multiply by 4 and for a millisecond just the 1000<sup>th</sup> of a second.

#### Conclusion:

The Lab was mostly about measurements and finding the correct multiplication and division to use to find the correct answer and the PH range was determined on how acidic and how basic it was as the higher the number went, the more alkaline there was and was not acidic compared to a lower number where it started to get acidic and ended up getting very acidic.