Laboratory Report 1
ORIENTATION

Student _____

Lab Instructor _____

1. LABORATORY PROCEDURES AND BIOLOGICAL TERMS

a. Describe how you are to prepare for each laboratory session.

Read the assigned exercise to understand objectives, new terms, background information, and procedures.

Label and color-code the figures. Complete the items on the lab report regarding background information.

b. Using Appendix A, indicate the literal meaning of the following terms.

Biology **Study of life**

Morphology **Study of form or shape**

Unicellular **Pertaining to a single cell**

Leukocyte **White cell**

Organelle **Tiny organ**

Gastric **Pertaining to the stomach**

Pathology **Study of disease**

Dermatitis **Inflammation of the skin**

Osteocyte **Bone cell**

Hypodermic **Pertaining to below the skin**

Pseudoscience **False science**

Intercellular **Pertaining to between the cells**

Extracellular **Pertaining to the outside of a cell**

c. Using Appendix A, construct terms with the following literal meanings.

Study of tissues **Histology**

Within a cell **Intracellular**

Large molecule **Macromolecule**

2. MEASUREMENTS

a. Indicate the name and value of these metric symbols.

Symbol	*Name of Unit*	*Value of Unit*
km	**Kilometer**	**1,000 meters**
ml	**Milliliter**	**0.001 liter**
mg	**Milligram**	**0.001 gram**
cm	**Centimeter**	**0.01 meter**
mm	**Millimeter**	**0.001 meter**
μg	**Microgram**	**0.000001 gram**

b. Indicate the diameter of a penny in the following units.

19 mm **1.9** cm **0.019** m **0.76** in.

c. Indicate the weight of a 250-ml beaker in the following units.

_____ g _____ mg _____ oz

d. List the steps that you used to determine the weight of 20 ml of water.

1. **Weigh empty beaker.**
2. **Weigh beaker plus 20 ml water.**
3. **Subtract weight of beaker from weight of beaker plus water.**
4. _____

e. Indicate the weight of 20 ml of water. **20** g

f. A physician directs a patient to take 1 g of vitamin C each day. How many 250-mg tablets must be taken each day? **4**

g. Normal body temperature is 37ºC (98.6ºF). If a patient's temperature is 38.5ºC, what is the temperature in degrees Fahrenheit? **101.3º** F

h. The U.S. National Research Council recommends that adults eat 0.8 g of protein daily per kilogram of body weight. What is the minimum number of grams of protein that should be eaten by a man weighing 185 pounds?

67.3 g

What is your weight? _____ lb; _____ kg

What should be your minimum protein intake? _____ g

j. If the ground beef in a 1/4-lb hamburger contains 20% protein and 25% fat, indicate the grams of

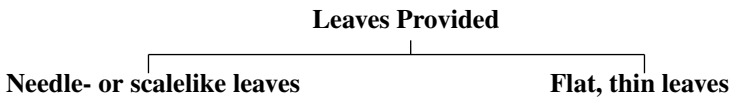
fat **28.4** g

protein **22.7** g

3. OBSERVATIONS

a. Examine the leaves provided in the laboratory and construct a dichotomous key based on their characteristics. To help you get started, first separate the leaves into two groups: (1) needle- or scalelike leaves and (2) flat, thin leaves as shown on the next page. Use the next page for the development of your key.

b. After you have completed your key, describe how you approached the problem and the steps or process that you used to construct your key.



4. SCIENTIFIC INQUIRY

a. What form of scientific inquiry led to the generalization that all organisms are composed of cells?

Observational science.

b. Why is a control group important in an experiment? **It provides the basis for assessing the effect of the independent variable.**

c. What would you conclude if 23 mice in the experimental group had heart attacks or coronary artery disease?

Exercise does not reduce the risk of heart attacks or coronary artery disease.

d. State a key question that the results of the experiment triggers in your mind.

e. State a hypothesis and prediction based on your key question.

Hypothesis:

Prediction:

f. Describe how you would test this hypothesis in a controlled experiment.