BIOL 1408 ONLINE PRACTICAL 1 REVIEW AND EXAM PREPARATION VERIFIED TIPS

General Tips

- Studying consistently over a period of days is much more effective than pulling an all-nighter before the practical.
- There are lists of learning objectives at the beginning of each lab to help guide you to important concepts.
- Review Module videos.
- Review your graded lab worksheets.
- You will not be asked to "run" experiments. You should be able to interpret results (graphs), identify lab equipment, and understand scientific concepts covered in lab.
- The Unit 1 metric conversion chart will NOT be provided on the practical. You must memorize this.

Measurement Lab

1. Explain what metric unit is used to measure volume, length, mass, and temperature. Litre, meter, kilogram, Celsius

2. Know how to convert between metric units with the same base (move the decimal).

   0.013 deciliters= 1,300,000 nanoliters

   480,000 micrometers= .048 decameters

   King Henry Doesn't [Usually] Drink Chocolate

   Milk kilo- hecto- deka- [unit] deci- centi- milli-

1 kilometer = 10 hectometers = 100 dekameters = [1000 meters] = 10 000 decimeters = 100 000 centimeters = 1 000 000 millimeters

Alternatively, we have:

1 milliliter = 0.1 centiliters = 0.01 deciliters = [0.001 liters] = 0.000 1 dekaliters = 0.000 01 hectoliters = 0.000 001 kiloliters

3. Know the metric prefixes, their abbreviations, and how much of the base unit they represent. T-Tera- 10^12
   G- Giga- 10^9 M-
   Mega- 10^6 k- Kilo-
   10^3 h- hecto- 10^2
   da- Deka- 10^1 meters,
   liters, grams- 10^0 d-
   deci- 10^-1 c- centi-
   10^-2 m- milli- 10^-3
   u(kindof)- micro- 10^-6
   n- nano- 10^-9 p- pico-
   10^-12

4. Know how to appropriately measure length using rulers and meter sticks.
   Decide which unit of **measure** you want to read the **measurements** in. Then, line that side of the **meter stick** up with whatever you're **measuring**. Once that's done, shift the **meter stick** as needed so that the "zero" mark on the **meter stick** lines up with the point where you want the **measurement** to start

5. Know how to calculate the area of a 2-D object

6. Convert between mass and volume (1g=1ml=1cc) of water at standard conditions.

   freezing: 0 C = 32 F

   Room Temperature: 21.1 C = 70 F

   Body Temperature: 37 C = 98.6 F

   Boiling: 100 C = 212 F

   1 cc = 1 ml

   1 ml = 1 g

   1 liter = 1 kg

   1 dm^3 = 1 liter

   50 ml of water weighs 50 g

   3 liters of water equals 3 kg

   1 liter = 1000 ml

7. Know what the approximate mL equivalent is for a teaspoon, Tablespoon and cup.

   4.929 ml/tsp, 14.786ml/tsb, 237 ml/cup

8. Draw/Define meniscus.

   When measuring the volume of a liquid in a graduated cylinder, you will observe a "meniscus."

   The meniscus is the curved upper surface of a liquid in a tube. You measure the liquid/volume from the bottom of the curve (which is in the middle) of the meniscus.

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9. Identify all lab equipment used in Unit 1.

Graduated Cylinder

Beaker

Erlenmeyer Flask

Triple Beam Balance

Digital Balance/Scale

Graduated Pipette (Pipette)

Weigh Boat

Hot/Stir Plate

Stir Bar

Pipette Pump

Beaker Tongs

Test Tube Tongs

10. Understand if something should be measured in grams or kg. Light items in g heavy items in kg

11. Describe how to convert from Fahrenheit to Celsius and how to convert from Celsius to Fahrenheit. (I will provide the formulas; you will need to know which formula to use and how to use it)

(0**°C** × 9/5) + 32 = 32**°F**

(32**°F** − 32) × 5/9 = 0**°C**

F to C

1. F-32

2. Multiply by 5

3. Divide by 9

C to F

1. C x 9

2. Divide by 5

3. Add 32

12. Recognize what Celsius degrees correspond to body temperature, freezing water, boiling water and room temperature.

13. Understand in a graph what is found on the x and y axis.
14. Write numbers in scientific notation.
    0.000554433= 5.54433 x 10^-4
    457430= 4.57430 x 10^5

15. Take a number in scientific notation and write in expanded form.
    9.11 x 10^-4= 0.000911
    8.992233 x 10^6= 8992233

<u>Scientific Method Lab</u>

1. Know the steps of the scientific method.
   Observe ---> hypothesize ---> experiment ---> analyze/conclude

2. Differentiate between hypothesis and “best guesses”.