

BIO 120 Lab Review Sheet--Practical Exam #1

Fall 2003

Useful web sites

<http://www.nku.edu/~biosci/> (click on "Courses" then click on "Pictorial Review..." under BIO 120L)

<http://www.nku.edu/~dahlem/> (click on "BIO 120 Laboratory," look under "Laboratory Reviews")

Remember, this is only a review sheet. Review the quizzes, quiz emails and lab exercises, too!

- 1. Introduction to the scientific method:** Know the "steps" of the scientific method. Know the difference between a null and an alternate hypothesis. What is a random sample? A blind experiment? What is a mean? What does the standard error of the mean tell you about adequate sample size and variability? What is the difference between an independent and a dependent variable? What is replication? When you design an experiment, what kinds of things must you be careful about in your design? If the standard errors of two groups make possible an overlap of means, what does that tell you about whether you should accept or reject your hypothesis?
- 2. Nature trail:** Know the meanings of the terms on the handout. Know the difference between primary and secondary succession. Know examples of the major plants in each ecosystem we examined. What are the different levels of a food web? What is detritus? Phytoplankton? Zooplankton? Etc.? Why can we find fossils in this area?
- 3. Molecules of life:** Know the molecules for which the tests were run--simple sugars, starch, proteins, lipids. Know what testing reagents we used for each test--Benedict's, etc. Know the color changes which indicate a positive test. Know the terms emulsifier, hydrophobic, monomer, polymer, etc. What are the major characteristics of the molecules of life, such as carbohydrates? Understand the relationships between melting times and lipid structure.
- 4. Microscope:** Know the parts of the microscope and their functions. Know how to calculate the total magnification using each lens. What is resolution? What does parfocal mean? How do you focus for both eyes? How do you control light? Review the microscope check list. How does a dissecting scope differ from a regular compound microscope?
- 5. Cells & tissues:** What cell structures were visible under the microscope when you looked at onion epithelial cells? *Elodea*? How were they similar/different? What is the function of a chloroplast? What are some differences between plant and animal cells? What did the cheek and blood cells look like? What tissues did we see in the tongue slide? Can you identify them?
- 6. Enzymes:** What is an enzyme? Substrate? What specific examples of each did you use in the lab? What were the end products of the reaction? Know under what conditions enzymes work most efficiently (pH, temperature, concentration, etc.). What is denaturation? What was the function of water in the experiment? How did you measure the rate and duration of the reaction? How does a graph look for each experiment?
- 7. Photosynthesis and Respiration:** Know the general equations for photosynthesis, aerobic respiration and fermentation. What was the function of the potassium bicarbonate in the *Elodea* experiment? When you measured the rate of photosynthesis, what moved the blue dye? How did you measure the effect of exercise on aerobic respiration? What was the function of the phenolphthalein? Sodium hydroxide? What were you measuring when you blew into the pH-adjusted water? Know the raw materials and products **well**.