Laboratory 6
Photosynthesis
Student Tip Sheet

Introduction
This laboratory will demonstrate several aspects of photosynthesis. These sections actually demonstrate opposite processes of oxygen production and consumption that are required for life, as we know it, to continue on our planet. The recycling of metabolic requirements and waste products of plants and animals shows the relationship and interdependence that each of us has upon other living beings. Also, the introduction discusses two reactions that take place in photosynthesis. Keep them in mind and know that what you read as "light-independent" can also simply be called the "dark reaction." In addition, refer to your text for a diagram of the chloroplast including the stroma, thylakoid, and grana.

Plant Pigments
This introductory information is self-explanatory, but please refer to # 3 in the instructions in this section. It should read " Remove the pre-marked chromatography paper strip from the tube and place it onto a paper towel." Repeat this procedure several times to assure the best results.
Make certain any work you do with ether be performed under a fume hood. If you are unsure how to operate the hood, please ask for assistance.

Role of White Light
A bit of explanation:
The experiment calls for you to measure the rate of photosynthesis initially using white light. Follow the setup directions carefully. Also, please make certain that you understand why each of the steps in the process is necessary. The initial measurement called the net photosynthesis records the sum of the gas production during the required 10 minutes. Remember that not only is photosynthesis producing oxygen but, also, aerobic respiration is taking place simultaneously. Therefore, oxygen is being consumed by respiration *and* at the same time oxygen is being produced by photosynthesis. You must add back the amount of oxygen that the respiration used. That is why you are instructed to add this initial reading ("net") and the second reading, taken with the foil covering, to yield the ("gross").

Measuring photosynthesis can many times give inconsistent results in spite of your best efforts to follow directions carefully. Assuming that your setup and technique are correct, record your data as you measure it. After tabulating hundreds of test results, the averages are surprisingly consistent, in spite of occasional high or low values. It is important that you remember the theories demonstrated in these exercises and understand the experimental design, rather than the actual numerical test results.

Review any available resources for clarification, such as CD-ROMs, suggested by your instructor.