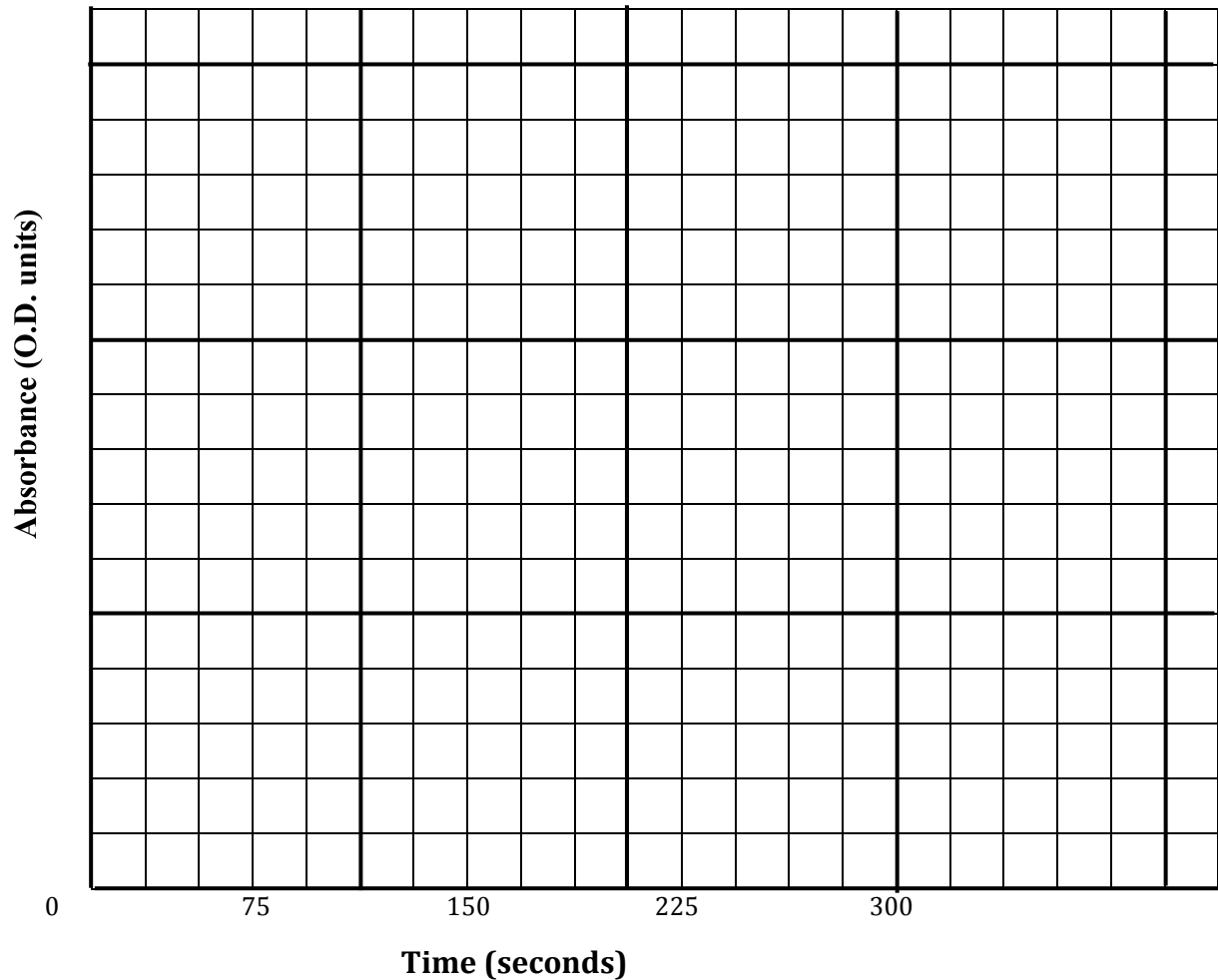


Photosynthesis Worksheet. **Due at the start of your next lab.**

Name _____ GSI & Sect # _____ Station # _____

1. Present the results of your four experiments with chloroplast extract in one graph. Plot the absorbance of DCPIP against time.



2. a. Calculate the rate of DCPIP reduction (= rate of absorbance change) for methyl amine, DCMU, and the light control (use only the decreasing part of the curve for your calculations). Include units.

i) RATE LIGHT

ii) RATE METHYL AMINE

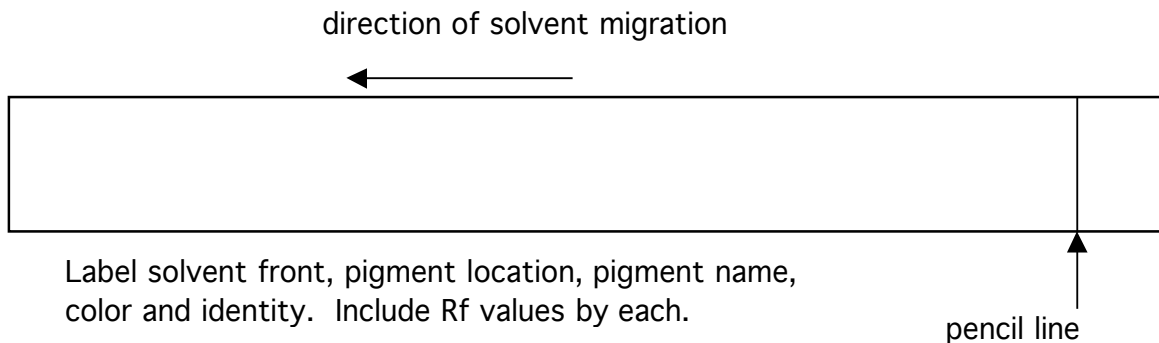
iii) RATE DCMU

b. What is the mechanism underlying DCMU? What is the mechanism underlying methyl amine?

3. What is the purpose of the dark control? What is the purpose of the light control? (What are you checking in both cases?) Explain.

Worksheet continued on the backside.

4. Indicate your results for the chromatography. Include the R_f values for all 3 carotenoid bands and for Chlorophyll a and Chlorophyll b



How might the R_f values indicate chemical differences between Chlorophyll a and b, and the various caretenoids?

5. Calculate the rate of oxygen evolution (moles O₂ evolved per minute) for the light control. To do this, choose the largest linear segment, but decreasing part of your graph and calculate the rate of change in absorbance. One mole of O₂ is equivalent to 19,000 absorbance units. **Show your work** in the space provided

6. What results would you predict if both DCMU and Methylamine had been added at the same time? Explain.

7. How much NADP⁺ is being reduced, relative to the DCPIP, in the light under your conditions? Less, about the same, or more? Explain your answer.

8. What was the color of fluorescence of the UV irradiated acetone extracted chloroplast pigments?

9. Graph the absorption spectrum for your crude pigment extract (like fig. 4 on p. 123, your data is on p. 128).

10) Indicate your transformation results. Record the number and color of isolated colonies or lawns on your plates as well as on the two control plates.

	LB Plate	LB/AMP/X Gal
Your #		
Control: No plasmid DNA		
Control: pBLU		