

	Maximum Points	Score
I. INTRODUCTION (28 points)		
Must include background about photosynthesis and chlorophyll:		
a. Role of photosynthesis in ecosystem	3	
b. Types of organisms that perform photosynthesis and overall equation for photosynthesis	3	
c. How does photosynthesis fit into carbon cycle	4	
d. What is chlorophyll, where is it located and what is its role in capturing light energy	4	
e. Fate of the light energy if energy is needed right away and fate if it will be stored for later use.	6	
f. The experimental question & hypothesis for each of the 2 problems: A (wavelength & absorbance) and C (role of CO ₂ in photosynthesis)	8	
II. MATERIALS AND METHODS (10 points)		
Materials and Methods: <u>passive voice</u> , <u>past tense</u> and in paragraph form. Put A and B together (isolation of chlorophyll and wavelength versus absorbance); put C (CO ₂ in photosynthesis) in separate paragraph.	10	
III. RESULTS (20 points) Describe your results <u>in words</u> comparing the absorbance of light by chlorophyll at the three wavelengths and CO ₂ experiment.		
a. Graphs & Tables: Table 1 (title; data organized properly); Figure 1 (correct type of graph, appropriate scales, both axes properly labeled and a title); Table 2 (title).	8	
b. Describe the graph of your data (Figure 1) & table of data (Table 1).	5	
c. Describe the results for the 3 test tubes with Elodea (Table 2).	7	
IV. DISCUSSION (37 points)		
a. Explain your results for both part B and C. What was expected? Did the results match your expectation? If your results are not what you expected, offer explanations. Answer this for both part B and C.	11	
a. Answer these questions in paragraph form for part B: Why is chlorophyll green? Why do your results make sense, given the color of chlorophyll? What do the green color and your results mean for the wavelengths of light used by chlorophyll in photosynthesis? What are other pigments in plants other than chlorophyll? Why is it advantageous to have more pigments than just chlorophyll? Would plants grow if you only gave them a green light source? Why or why not?	13	
b. Answer these questions in paragraph form for part C: What do yellow bromthymol and blue bromthymol indicate? Why did the solution turn green/blue for the tube with Elodea and light, and not for the other 2 tubes? What is the fate of the CO ₂ removed from the liquid by the Elodea? Describe the controls used in this experiment. Explain why each was necessary.	13	
V. FORMAT (5 points)		
a. Report was typed, double-spaced and stapled	1	
b. Each section labeled (Introduction, etc.)	2	
c. Rubric stapled to the front of the report	2	
TOTAL	100	