



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Chiara Maruggi	Project Number J1320
Project Title Does the Sun Intensity Affect the pH in Water?	
Abstract Objectives/Goals The objective of my project is to see if the sun intensity affects the pH of waters containing green algae. My hypothesis is that, due to the process of photosynthesis, the pH of such waters would be higher when the sun is shining then when it is not. Methods/Materials To collect the data used for my project, I utilized a pH meter, which recorded both the temperature and the pH. I conducted the sampling in a mudflat containing green algae, at different times and with different sun intensities. The data was then reported in a table and plotted on a graph. Results The values of the pH measured at different times and different sun exposures do not show a variation that correlates with the sun intensity. Therefore, the results are not supporting the hypothesis formulated for this research. During my experiment I have also monitored water temperature. The data collected, presented in the graph, does not show a clear relationship between temperature and pH that could support a new hypothesis. Conclusions/Discussion As mentioned in the analysis of the results, the experiment does not support the hypothesis for this research. Scientifically speaking this means that, under the broad assumptions of this research, the hypothesis is not true. The possible causes for these different results are: 1.The chemical variations inducted by photosynthesis are very small, and therefore the effect on the pH is not measurable in a time interval as short as the one used for this experiment. A possible suggestion for a follow up research is to increase the amount of time between each measurement to 30 minutes, and instead of making the measurements during a partially cloudy day, sample the pH during the day and the night. (For example start the sampling at 2.00 pm and continue to sample every 30 minutes until 12.00 am.) 2.The chemical variations inducted by photosynthesis could be offset by other chemical reactions that take place in a pond, therefore, the net result of the photosynthesis reaction on the pH would become null or not relevant. This second hypothesis needs to be further studied before another experiment takes place, due to the need of finding out the different reactions that happen in a pond of water.	
Summary Statement My project is about discovering the dependency of the pH in water on external factors such as the sun intensity.	
Help Received My Father helped me research about my topic and areas of study; my Mother helped me set up my board; Geo-chemist, Dr. Eleanora Robbins supervised me while I carried my experiments using her pH meter; Mrs. Hilde Van Den Bergh helped me find my mentor (Dr. Eleanora Robbins); my Brother took pictures	