



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Kelsey J. Pearson	Project Number J1123
Project Title Water, More Water, Still More Water	
Objectives/Goals We are in the middle of a severe water crisis. This is an experiment to establish whether there is a simple relationship between three environmental factors: temperature, humidity, and length of day, and the amount of water required to maintain grass at a constant moisture level. If a simple relationship is established, it will have important implications for water management.	
Abstract Methods/Materials The basic materials used were a plastic bin, soil, sod, water, and a scale measuring kilograms of weight. The method was to determine the water content in the soil and sod in order to establish a controlled water weight. The sod was then set outside and weighed daily, recording the water lost and adding water to restore the control weight. The environmental data was continually downloaded from a weather station located five miles from the test site. I completed a total of three experiments including two failures. The 3rd trial was performed between 11/21/08 to 2/13/09.	
Results The collected data was evaluated using Excel pivot tables to consolidate the environmental data and Excel graph charts to evaluate a variety of relationships. My graphs demonstrated a predictable but non-uniform relationship that was easily calculated from the environmental factors to maintain a constant moisture in the grass, while standard sprinkler systems provide a constant volume of water.	
Conclusions/Discussion The experiment shows that a simple relationship exists between two environmental factors and water lost from grass. From my results, I concluded that humidity is inversely proportional and temperature had a weak proportional relationship to water loss. Length of day was inconclusive because my test period wasn't long enough. I believe a more economical and cost-effective approach for water conservation can be achieved with common sprinkler systems by integrating inexpensive temperature and humidity sensors. This example could lead to a continuation of my project for effectiveness.	
Summary Statement This project is about water conservation.	
Help Received My mother guided me the with research, support and revising my report; my dad taught me how to make a pivot table and helped with the data tables and graphs; Mr. Cornell for putting up will all my questions.	