



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

Name(s) Morgan P. Buss	Project Number J0503
Project Title What Affects the Rate of Enzyme-Catalyzed Reactions?	
Abstract Objectives/Goals My objective was to determine how variations in temperature would change the rate of an enzyme-catalyzed reaction. I hypothesized that an increase in temperature would speed up the reaction. Methods/Materials Using varying temperature water baths, a distilled water and hydrogen peroxide solution, was brought to four different temperatures. Filter disks, soaked in the enzyme catalase, extracted from potatoes, were dropped into the hydrogen peroxide solution. Reaction time was determined by the time it took the disks to float back to the surface of the solution, propelled by the byproduct of the reaction, oxygen bubbles. Results The reaction that occurred at the highest temperature was faster than the other cooler temperatures in all four trials. On the other hand, the coolest temperature solution finished the slowest in all of the trials. Conclusions/Discussion I concluded that the temperature of an enzyme-catalyzed reaction has a large effect on the speed at which the reaction occurs, and that the higher the temperature, the faster the reaction happens.	
Summary Statement My project was designed to test whether temperature affects the rate at which the enzyme, catalase, reacts to a hydrogen peroxide solution, creating oxygen as a by-product.	
Help Received Mother took pictures and helped with timer; Dad got my supplies; Mrs. Darrow loaned me triple-beam balance and filter paper.	