



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Sarah R. Wadsworth	Project Number S1430
Project Title How Do the Physical Characteristics of Human Hair Vary After Immersion in a Variety of Readily Obtainable Substances?	
Abstract Objectives/Goals The objective is to observe how different substances affect human hair after prolonged emersion. By doing so, I will determine which substances cause damage to human hair. I will observe the physical appearance, flexibility and investigate if sunlight plays a major role. Methods/Materials I gathered samples from a human, and tested the samples by emersing them in readily obtainable household substances. After emersion the samples were airdried, and then half of the samples were placed in the sunlight for a specified amount of time. I the observed all of the samples under a microscope for physical damage. I developed a tool that measured angles of bending to determine flexibility. Results During my observations I realized that basic substances were more harmful to human hair samples than acidic substances. Bleach caused extreme physical damage to the hair, even before exposure to sunlight. The majority of the substances did affect the appearaces but did not seem to affect the flexibility of the hair. Exposure to sunlight after emersion did not seem to greatly affect the appearance or flexibility, either. Conclusions/Discussion The higher pH substances damaged the hair samples more than the lower pH substances. Further damage is caused by exposure to sunlight.	
Summary Statement I tested how a variety of readily attainable household substances affect human hair after prolonged emersion and exposure to sunlight.	
Help Received Mr. Mike Wadsworth helped organize materials and data collection and microscope pictures.	