



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Anna Z. Baney	Project Number S1802
Project Title Investigating UVA Radiation on the Chemical Properties of Sunscreen	
Abstract Objectives/Goals The objective of this experiment was to investigate the new and developing studies of UVA radiation protection. The goal for this experiment is to promote educational study on radiation, chemicals in ingredients, and causes for skin cancer. Methods/Materials The apparatus required for this experiment included an aluminum tube, seran wrap, 60 watt black light bulb, light fixture, infrared camera, 3/4 teaspoon measurement, stopwatch, wooden stick, duct tape, and a rubber glove. The testing products are: (S1) OceanPotion SPORT XTREME Sunblock SPF 30, (S2) Pacific Sun Sport Sunscreen Lotion SPF 48, (3) Coppertone Sunscreen Lotion SPF 50, (4) Pacific Sun SPORT Sunscreen Spray SPF 30, and (5) CLINIQUE: even better SPF 20. To begin testing take first test sample by using rubber glove to evenly spread # of a teaspoon of sample on left side of the seran wrap. Next evenly spread # of a teaspoon of another sample, on the right. Place wooden divider in between the samples. Next turn on light fixture a after ten minutes turn off light fixture. Repeat this same process with different samples. Results Sunscreen products containing the ingredients Zinc Oxide and Avobenzone showed the best results in UVA radiation protection. Chemically absorbing ingredients had warmer temperatures than physically blocking chemicals. Zinc oxide, a physical blocker for UVA radiation was found the most reliable ingredient in all sunscreen products. Conclusions/Discussion This experiment concluded which ingredients affect the capability of the sunscreens performance to resisting UVA rays. Specific ingredients such as oxybenzone showed to have varying results that could have been altered by inactive ingredients in the product. Overall, my hypothesis was proved to be correct and temperatures dropped in sunscreens with chemical blocker ingredients. The ingredients of the sunscreen are an important role in determining the outcome of this experiment. This was shown through the results.	
Summary Statement In order to prevent DNA damage caused by harmful UVA rays the chemical properties of UV protecting ingredients were examined	
Help Received Dennis Baney for aid in infrared camera use.	