



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Christian V. Lucero	Project Number J1022
Project Title Blinded by the Light?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals One day I was outside in the pool and I came inside to get a snack out of the pantry. It took some time for my eyes to adjust. This made me curious as to the why the eye takes so long to adjust in the darkness when it adjusts to light in an instant. My experiment tested the adjustment time of the human eye when coming from sunlight to a dark room compared to the adjustment time when coming from artificial lighting to a dark room. I believed that when coming from outside and being in the sun the human eye would take longer to adjust to the darkness compared to coming from dimmer artificial lighting. I also hypothesized that age would be a factor in the adjustment time. I speculated that it would take older subjects longer for their eyes to adjust to the darkness.</p> <p>Methods/Materials I tested two different age groups of participants: fifteen years old and younger and forty years old and older. I used a light meter to measure the brightness of daylight (outdoor light), artificial light (indoor light), and the dark room. I recorded the time it took subjects to identify a letter in the dark. I used four letters; G, W, R, and B.</p> <p>Results The results of my testing were that it took three times longer for the eye to adjust when coming from the sunlight to a dark room than when coming in from artificial lighting. The time to adjust for subjects 40 years and older was on average 36% longer than for the younger subjects.</p> <p>Conclusions/Discussion According to my tests, it took much longer to adapt to darkness when transitioning from outside light (a sunlit environment) than when coming in from artificial lighting (indoor lighting). Older subjects took significantly longer to adjust to darkness than younger subjects, but the impact of bright light (sunlight) affected adaptation time to darkness far more than age.</p>	
Summary Statement My project compared the time subjects took to adapt to darkness for older versus younger subjects when transitioning from sunlight versus transitioning from indoor lighting.	
Help Received My parents and teacher who helped with all of their wonderful help, support, and input; The test subjects for allowing me to test them	