



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Grace M. Resnik	Project Number 33964
Project Title Get the Red Out!	
<p align="center">Abstract</p> <p>Objectives/Goals The purpose of my experiment was to determine if people with lighter colored eyes get red-eye more frequently than people with darker colored eyes. I believe that if the pupil diameter is larger, then the relative red-eye will be greater; if the eye color is lighter then the relative red-eye will be greater and if the subject's age is lower (16 and under) then the frequency of red-eyes will be greater.</p> <p>Methods/Materials Pen/pencil, camera, charger, printer, computer, lined paper, notebook, metric ruler, meter stick, labels.</p> <p>Take photographs of 25 subjects' eyes. Measure pupil diameter indoors and outdoors. Take photos outside between 4:15 and 5:00 p.m. Inside photos will be taken with bright light and dim light. Print photos and record results. Chart results based on eye color, pupil diameter and age.</p> <p>Results The data supports my hypothesis that lighter colored eyes have a greater amount of relative red eye than brown colored eyes. 46% of the subjects that had red-eye had light eyes. Only 13% of the brown eyed subjects had any red-eye present. While pupil diameter does play a role in the amount of relative red eye, the results were not consistent enough to support my hypothesis in this area. All red-eye was present in pupils at a diameter of 4mm or higher, but not all large pupils had red-eye. Lastly, it was not able to be determined if age plays a role in the frequency of red-eye found in younger participants. The results for the younger group and older group were equal. Relative red-eye was only present in photos taken indoors, with dim lighting conditions.</p> <p>Conclusions/Discussion Pupil diameter affects the Relative red-eye number, but the results are inconsistent. Most red-eye did occur at large pupil diameters, but not all large pupils had red eye. This was true for both light and dark colored eyes. My results did not prove that age affects red-eye. Both young and old subjects had equal amounts of red-eye. Overall, more participants with light colored eyes had instances of relative red eye than brown eyed participants. In support of my hypothesis, higher numbers of relative red-eye were recorded for light colored eyes. Location did not play a role in my results, as no photos taken outside had any presence of red-eye. The amount of light had a direct effect on pupil diameter, therefore all instances of red-eye occurred in the photos taken inside, under dim light.</p>	
Summary Statement My project evaluates the frequency of red-eye in photographs based on eye color, age and the level of light available.	
Help Received I had someone hold the metric ruler while I took the photographs.	