



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> Sean C. Purcell	<b>Project Number</b> <b>J1628</b>
<b>Project Title</b> <b>The Effect of Distance and Angle on Red Eye in Digital Flash Photography</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The purpose of this study was to manipulate angle and distance in digital flash photography to prevent or reduce red eye. I hypothesized that angle and distance would both affect red eye reduction in a positive manner, meaning that by shooting photographs at an angle and taking them from further distances, red eye can be significantly reduced. <b>Methods/Materials</b> The procedure involved taking pictures (with a Nikon CoolPix 4600 digital camera) at different distances and angles from a stationary subject and measuring the percentage of red eye apparent in each digitally enlarged photograph. A low average percentage represented angles and distances that affected red eye in a positive way, by reducing it. <b>Results</b> Results showed that at three feet from the subject and at a 90 degree angle, red eye was the least apparent, averaging in at 58%. However, when the angle was manipulated to 45 degrees at three feet, once again, red eye was the least apparent, averaging in at 58%. <b>Conclusions/Discussion</b> I concluded that there was little difference between the four distances at both angles, with the experimental averages ranging from 70% to 56% with a mere 14% difference. Furthermore, I conclude that by conducting further testing at a large range of angles and distances, more significant results may be found. Overall this experiment shows how angle and distance affect red eye in digital flash photography in both positive and negative ways.	
<b>Summary Statement</b> In my project, I studied the effect of distance and photographic angle on red eye reduction in digital flash photography; thus enabling photographers an easy alternative to expensive, complicated, and unnatural software correction.	
<b>Help Received</b> My sister served as my subject.	