



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> <b>Josiah L. Luna</b>	<b>Project Number</b>  31053
<b>Project Title</b> <b>Age and Eyesight</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to test the eye's ability to focus at close range and determine how it relates to a person's age.</p> <p><b>Methods/Materials</b> Created questionnaire for survey. Interviewed 100 subjects to test Hofstetter's Equation. Asked each subject to fill out questionnaire. Asked each subject to take off corrective lenses. Measured the distance from eyes to focus three times for each subject using a Near Point Accommodation Ruler. Entered data into spread sheet. Evaluated results for possible trends. Used Hofstetter's Equation as the control. The independent variable is age. The dependent variable is the distance needed to focus, measured in centimeters.</p> <p>Materials used were a near point accommodation ruler, subjects for the study, a clipboard, pen, and forms to collect data.</p> <p><b>Results</b> In the end, younger subjects were able to focus on a nearer point than older subjects. The data showed that the degeneration of the human eye followed a parabolic pattern. The mathematical relationship between age and eyesight breaks down after the age of 57.</p> <p><b>Conclusions/Discussion</b> There is a predictable relationship between age and eyesight. Hofstetter's Rule accurately predicted near point accommodation until the age of 57. At that point, vision is unpredictable. So, my hypothesis was both right and wrong. It was correct for people under the age of 57, but incorrect for older subjects.</p>	
<b>Summary Statement</b> My experiment shows the relationship between age and the ability of the human eye to focus at close distance.	
<b>Help Received</b> Father helped format Excel spreadsheet; Mother helped paint board; optomitrist answered some questions I had about getting started.	