



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> <b>Joe Kummerfeld; Brian Spain</b>	<b>Project Number</b> <b>J1013</b>
<b>Project Title</b> <b>In the Blink of an Eye: The Effects of Reading and Working on the Computer on Vision</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to determine if a person blinks less, and therefore vision worsens after reading and working on the computer.</p> <p><b>Methods/Materials</b> Informed consent was obtained from 15 subjects, men and women ranging in age from 10 to 103. Baseline data was obtained which included average number of times each subject blinked and their baseline near vision. A control test was done to see if a person's vision decreased while staring without blinking for thirty seconds. The experimental procedure included counting the number of times a person blinked while reading and working on the computer for two time frames, two minutes and ten minutes, and testing vision immediately after with a Rosenbaum Pocket Vision Screener.</p> <p><b>Results</b> Ten of the fifteen subjects had diminished vision in at least one eye after working for just two minutes on the computer and thirteen of the fifteen had diminished vision after ten minutes of working on the computer. After reading twelve of the fifteen had diminished vision in at least one eye after both two and ten minute intervals. All subjects blinked fewer times per minute while working on the computer for two and ten minute intervals and reading for ten minutes. All but one blinked less while reading for two minutes.</p> <p><b>Conclusions/Discussion</b> The results of the experiment showed conclusively that vision decreased after reading and working on the computer, especially in those subjects that did not blink very often. In the longer time frame there was an even greater decrease in vision. Only those younger subjects who had 20/20 baseline vision did not have a decrease in their vision after reading or working on the computer.</p>	
<b>Summary Statement</b> Our project was designed to prove that computer work and reading may lead to infrequent blinking and decreased vision.	
<b>Help Received</b> Our project was supervised by our science teacher and by our parents.	