



**CALIFORNIA STATE SCIENCE FAIR  
2004 PROJECT SUMMARY**

<b>Name(s)</b> <b>James D. Nelson</b>	<b>Project Number</b> <b>S0319</b>
<b>Project Title</b> <b>The Effect of Altered Spelling and Grammatical Structure on the Reading Speed of Adult Males</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> My objective was to determine the visual process predominantly used by adult readers.</p> <p><b>Methods/Materials</b> Five poems by Pablo Neruda were selected and translated from Spanish to English. Each was adjusted to contain exactly 140 words in 20 lines. All five poems were then given to pre-test subjects, which were not involved in the experimental testing, to ensure all of the poems had the same average reading time of 40 seconds. One poem was altered to test trigger shapes, one to test word order, one to test inner word spelling, and one to test word recognition. One poem was left as it was at this point, and used as the control. These five poems were then issued to each of ten test subjects. Each subject read each poem one at a time, and was timed in doing so. This was done with a standard sports stopwatch. The completion times for each poem and test subject were recorded. The test subjects were anonymous.</p> <p><b>Results</b> The poem testing inner word spelling had the largest increase in reading time. This shows that the letter order within words is important, and the first and last letters of each word are not the only letters recognized by the human mind. The poem testing trigger shapes had a moderate increase in reading time. Trigger shapes, therefore, are used by the human mind in reading, but this is not a significant psychological mechanism. The poem testing word order held only a negligible change in reading time. The order of words is not, therefore, significant in reading. The poem testing word recognition had a large increase in reading time. Word recognition is not only used by readers, but is significantly important in being able to mentally process text.</p> <p><b>Conclusions/Discussion</b> The hypothesis concerning word triggers and word order was correct. The hypothesis about trigger shapes and inner word spelling were incorrect. Word recognition was found to be the most important visual process used by adult readers. This allows us insight into how the human mind reads, and could additionally serve in the creation of lesson plans concerning child literacy.</p>	
<b>Summary Statement</b> This project explores the psychology of reading through the visual processes used by adult readers.	
<b>Help Received</b> Ten anonymous test subjects and ten anonymous pre-test subjects aided in the collection of data.	