CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
Kevin T. Gunderson

Project Number
S1204

Project Title
The Light of Incidence: Does It Affect Mental Acuity?

Abstract

Objectives/Goals
This project was designed to determine if there is significant difference in the time of reaction rate between colors by taking two sets of tests, one reading and one multiplication. The objective of this project was to discover if a significant difference exists when different colored text are compared to the black control text

Methods/Materials
Each subject began my experiment by taking a Farnsworth 0-15 color test and a seeing eye chart test to determine the functionability of the subject's eye. Once the subject had completed both tests, I led them to the area were the testing was performed. First I measured the time it took for each subject to complete each reading test on the computer, four in all. Next I measured the time it took for each subject to complete four different multiplication tests. For each test subject I varied the order in which I administered each test by using my test order sheet. In my experiment I used a Farnsworth 0-15 color test, a seeing eye chart, 2 stopwatches, a computer, 385 sheets of paper, printer ink, pens and pencils, proper lighting, and a room with a desk and chair

Results
In my experiment, I discovered that none of my tests proved significant difference compared to the control test. What this means is that compared to the black tests, no other test was significantly faster. However, by comparring color tests to other color tests, i did prove significant difference in the times in which it took to complete the tests. This was the green reading compared to blue reading test, with a p value of .05 supporting that it is significantly faster to read in green compared to blue.

Conclusions/Discussion
My results did support my hypothesis in believing that the reaction rate of green would be faster than blue, due to the fact that a human contains more green recepting cones in their eyes than any other color. Cones that recieve blue light are least promenant in the eye, backing up my resutls. Future directions in which a can take this project include doing more testing in different shades of a color compared to different shades of the same color. With the knowledge of my results, any text that is written in blue can be changed to green to ensure fater and more complete reading of the test

Summary Statement
Determining if our eyes process information faster when basic visual tasks appear in different colors

Help Received
Used lab equipment owned by the Napa Eye Care Center; Instructed by Dr. Kerr