CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY

Name(s)
Matthew McLoon

Project Number
22638

Project Title
Sensory Reaction Time Differentials

Abstract

Objectives/Goals
The goal of this project was to determine which of the three senses-- sight, hearing, or touch--produces the quickest reactions in humans. My hypothesis was that the sense of sight would produce the quickest reactions.

Methods/Materials
I tested thirty subjects on a testing device. The device held a suspended ruler and the test subjects attempted to catch the ruler quickly after it dropped based upon a stimulation of one of their senses (which occurred simultaneously with the ruler dropping). When the subject grabbed the ruler, I recorded the closest metric measurement to where the subject caught the ruler. The subjects wore headphones when they took the test for sight, a blindfold for the sound test, and both a blindfold and headphones for the touch test. To build my testing device, I used wood, pipe, doorbell devices, a transformer and wires.

Results
I rejected my hypothesis because my test results showed that the subjects reacted quicker using the sense of hearing. The lowest average test results (that is, the quickest reactions) came during sound testing with results averaging 11.63 centimeters. Second fastest was touch, which averaged 17.50 centimeters. Sight was last, averaging 24.16 centimeters.

Conclusions/Discussion
Overall, the results from testing all of the subjects were similar, but I was wrong in my estimate of which sense would produce the quickest reactions. Hearing produced the quickest reactions: 96.7% of people tested reacted most quickly relying on the sense of hearing. 86.7% of the subjects reacted more quickly when relying on the sense of touch, as compared to the sense of sight. This may have importance in a number of public safety applications such as the use of sounds for traffic warnings.

Summary Statement
My project tests whether there are differences in human reaction times when they are stimulated using the separate senses of sight, hearing and touch.

Help Received
Parents helped me gather materials and build the testing device and with graphs and board design.