



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Ryan A. McCormick	Project Number J1405
Project Title A-Maze-Ing Rat Senses	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project is to determine whether the absence of light will effect the time it takes a trained rat to navigate its way through a maze.</p> <p>Methods/Materials Materials used: 1. 3 male rats # common house rat # Rattus Norvegicus; 2. 1 Maze # 4# x 4# x 6#; 3. 1 quart of flat black paint; 4. paint brush; 5. 1 4# x 4# sheet of plywood; 6. 40 board feet of 1# x 6# wood; 7. 1 rat cage with bottle and mini igloo; 8. nails Method and Procedure used: 1. Train rats to run maze in the light; a. Guide them along with your hand; b. Reward them by giving them cheese and putting them in their cage; c. Repeat until they can do it alone # 4 to 6 times daily; 2. Train rats to run maze in the dark; a. Use same procedures as in step one; 3. Run them while recording time in the light # 5 times each; 4. Run them while recording time in the dark # 5 times each; 5. Compare running times</p> <p>Results Average times for each rat in the dark and in the light: Rat #1 Light: :34.57 Dark: :27.45 Rat #2 Light: :47.56 Dark: :33.53 Rat #3 Light: :45.70 Dark: :24.14 Raw Data for all three rats: Rat #1 Light: 1:10.69; :37.97; :29.12; :05.68; :29.40 Dark: :09.41; :28.97; :19.19; :26.82; :52.88 Rat #2 Light: :59.79; 1:00.03; :29.12; :57.13; :31.71; Dark: :35.84; :35.25; :47.63; :20.22; :28.69 Rat #3 Light: :32.19; 1:11.75; :43.09; :37.31; :44.16; Dark: :19.32; :19.75; :24.37; :25.37; :31.91</p> <p>Conclusions/Discussion In my hypothesis I predicted that the three rats would run faster through the maze in the dark because I thought since rats have poor eyesight they would not use their eyesight to navigate, that it is distracting to them. Therefore, instead of using their eyesight, the rats would use their touch and smell. My data showed that when all three of the rats ran through the maze in the dark they did so faster than in the light. The average time combined for all three rats to run through the maze in the light was :42.61 seconds, and the average time in the dark was :28.37. I was not surprised that the results supported my hypothesis because my background research indicated that rats don't rely on their vision to navigate, rats would possibly navigate better without their vision. My results show that rat #3 went :21.56 seconds faster in the dark trials than he did in the light trials. This is a significant result supporting my hypothesis. All of the averages showed that they ran faster in the dark than in the light.</p>	
Summary Statement The goal of my project is to determine whether the absence of light effects the time it takes a trained rat to navigate its way through a maze.	
Help Received Mother and Father helped care and initially train the rats. Father and Grandfather helped build the maze. Mother helped type report.	