CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
J1408

Project Title
How Mice Habitats Affect Cognitive Skills

Abstract

Objectives/Goals
My goal for this project was to study how four groups of mice habitats would affect their cognitive skills. I also sought to determine what, and how much they would learn in a short period of time.

Methods/Materials
All the cages consisted of basic materials* and both male and female mice, three in each cage. Cages one and two were made of a transparent plexiglass material with small openings intended for ventilation located on the top and sides of these cages. Cages three and four were made of metal wire bars with small openings between the bars that enclosed the cage, but cage three#s bars were set apart a little wider than cage four. Cages one through four were put in the order of the lowest stimuli to the highest, with cage one containing the least of the stimuli. After six weeks, the mice were put into a maze that I constructed out of a prefabricated maze kit. After I constructed the maze, I mixed the mice food with brown sugar, and then placed it at the end of the maze. The purpose of mixing the brown sugar in with their food was to entice the mice to travel through the maze as quickly as possible.

*Basic Materials=water, food, bedding

Results
My theory was that the mice in cage four, which contained the most stimuli, and with their continued time improvement through the maze, they would become most capable of completing the maze in the shortest period of time. In fact, cage three contained the mice that learned the fastest. I discovered this happened because when I was picking out cages I did not consider that cage three with small wire bars would act as an extra unwanted stimuli. Unbeknownst to me, the mice would eventually want to squeeze through the bars as a way to escape the confinements of the cage. Due to these daily occurrences, the bars were what changed the results, giving them an education in obstacles.

Conclusions/Discussion
Even though my hypothesis was not fully supported by the evidence, if I had planned the actual layout better, I believe the data would have had a more favorable outcome. If I do this project again I would put the mice in cages made from the same enclosure materials, instead of using both wire and plexiglass cages. I would test the mouse#s cognitive skills prior to exposing them to their new environments, to get a definitive answer to my curiosity of how habitats affect their cognitive skills.

Summary Statement
My project was to see if the more stimulus added to an environment would effect how mice comprehend, respond, and how their instinctive skills are affected.

Help Received
Ms. Persky, Mrs. Parrenas, Mr Rodecker, and my mom and step-dad.