CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY

Name(s)
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Project Number
S2412

Project Title
Mazed and Confused

Abstract

Objectives/Goals
This project determines, with the supplementation of numerical data, ants# capacity to acquire new knowledge by attempting to train them to memorize the layout of a miniature maze.

Methods/Materials
With the maze layout remaining constant (independent variable), two groups of 15 Harvester ants each underwent 15 consecutive #maze-runs,# and their completion times for each one were recorded (dependent variable). Sugar was placed in the same exact corner for each trial, the #finish# corner, and the ants were dropped into the same corner for each maze run as well.

Results
Despite ants# incredible versatility, as well as numerous trial runs, I hypothesized that the ants wouldn#t be able to memorize the maze#s layout and thus run progressively faster completion times. My experimental results supported my hypothesis, because there was no discernable pattern of change in completion times over the course of the 15 trials.

Conclusions/Discussion
Mazed and Confused provides insights into the mental capacity and behavioral patterns of the harvester ant, one of California#s most costly agricultural pests. With a more extensive and definite understanding of the little menaces, we can better develop more effective and more eco-friendly methods of controlling them, which will maximize food production and limit the necessity to use environmentally damaging pesticides in agriculture.

Summary Statement
This project provides insight into ants' mental capacities by training a group of them to memorize the layout of a maze.

Help Received
Mother helped gather materials.