CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
J0335

Project Title
Making Sense of Amazing Hamsters

Abstract

Objectives/Goals
Can learning time of a maze be reduced by adding stimuli related to the senses of sight, sound, touch, or smell, and if this is true, then which sense will be the most effective? My project is important because it studies the learning process and shows how stimuli can speed up this process.

Methods/Materials
I constructed five different mazes and tested 6 hamsters. Maze #1 was used to determine a learning curve for each hamster from which I chose the control hamsters. Maze #2(Sight) included block markers at each correct turn. Maze #3 (Sound) a bell was rung at each correct turn. Maze #4 (Touch) included clear glue drops along the correct path. Maze #5 (Smell) included a peppermint odor along the correct path. I kept track of total time, time per trial, and the number or wrong turns.

Results
Maze #1 established two control hamsters, one female, one male. Maze #2 (Sight) the hamsters ran 20% faster total time, 7% faster per trial, and made 30% fewer wrong turns. Maze #3 (Sound) the bell distracted the hamsters. Maze #4 (Touch) had mixed results - the controls ran 1.8% faster, but there was no difference in wrong turns. Maze #5 (Smell) most effective - 19% faster total time, 29% faster time per trial, and 50% fewer wrong turns.

Conclusions/Discussion
My hypothesis was correct. Learning time was enhanced by adding stimuli relating to smell. The sight stimuli was the second most efective. It is interesting to note that each hamster made great imporvement in their maze running ability. My research discussed that keeping a hamster in a stimulating environment can increase their number of brain cells. I believe that running these mazes every night has increased their brain. This explains the steady increase in ability for each of the hamsters. Hamsters really are amazing!

Summary Statement
My project uses hamsters mastering a maze to study the learning process and tries to determine which stimuli relating to the senses can be most effective in speeding up this process.

Help Received
Grandfather used electric saw to construct maze pieces.