CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)
Lyndsey J. Marsh

Project Number
S1208

Project Title
Treasured Memories: A Test of Horse Cognitive Memory

Abstract

Objectives/Goals
There were four horses in both groups. I designed the experiment with three buckets identical to each other. Carrots were placed in one of the buckets. One horse was tested at a time and every horse was tested each day. In the control group, I took each horse and lead them to the corral. I turned the horse facing away from the buckets. From there it turned to face three black buckets. The horse then walked up to one of the buckets and the choice was recorded. In the experimental group, I lead the horse to the correct bucket and allowed them to recognize the contents and investigate. From there I faced the horse away from the buckets. I allowed this experimental group to choose a bucket and recorded their choice.

Methods/Materials
Basic Procedure: Set up three black buckets evenly spaced apart from one another. Place cut up carrots (enough carrots to cover the bottom of the bucket) in one bucket at random (left, middle, or right). Lead horse into corral/lunging arena and turn them facing away from buckets. Remove lead rope. Record bucket chosen. Test Procedure: Set up three black buckets evenly spaced apart from one another. Place cut up carrots (enough buckets to cover bottom of bucket)in one bucket at random (left, middle, or right). Lead horse into corral/lunging arena and walk them to correct bucket. Allow horse to eat a few carrots before turning them away from buckets. Remove lead rope. Record bucket chosen.

Results
Muddy only choose the correct bucket once. Poznan chose the correct bucket twice. Otter chose the correct bucket twice. Maka was the oldest horse in the experiment and was wrong every time. Tantine chose the correct bucket all twenty times. Tux chose the correct bucket every time. Jack chose the correct bucket eighteen times. Annie chose the correct bucket seventeen times. She made no hesitation in choosing a bucket, and if incorrect would quickly inspect the next closest bucket.

Conclusions/Discussion
I found during testing that when the horses were shown what the correct bucket was, they would choose the correct bucket. I also discovered during testing that the brain capabilities of the different aged horses seemed to be different. In conclusion, the experimental group showed a higher level of accuracy when shown the correct bucket. The horses shown the correct bucket chose the correct choice and proved that they have cognitive memory.

Summary Statement
The project is about finding evidence as to if horses show they have cognitive memory.

Help Received
Mother helped with board; Dr. Malhotra helped revise; Horse owners lent horses; Laura Day lent property