



CALIFORNIA STATE SCIENCE FAIR

2015 PROJECT SUMMARY

Name(s) Grace E. Thompson	Project Number S2214
Project Title Goldfish Pattern Learning	
Objectives/Goals The objective of this project was to determine if, in a period of thirty days, goldfish will learn a pattern they must swim through to get food. The hypothesis was that, in a period of thirty days, goldfish will learn a pattern they must swim through to get food.	
Abstract Methods/Materials A maze was constructed from several pieces of plexiglass and submerged in water in a fish tank. Forty five goldfish were then tested over a thirty day period to determine if they would learn the pattern of this maze when motivated by food. On day one of testing goldfish were individually placed into the start of the maze at the same time that food was placed in the end of the maze. The time it took for the fish to complete the maze and the number of wrong turns they made were recorded as data. On days two through twenty nine the fish were individually guided through the maze with a plexiglass paddle; food was placed in the end of the maze as they started it on days two through ten, but not placed in the end of the maze until the fish had reached it on days eleven through twenty nine. On day thirty the procedure from day one was repeated with each fish; however, the food was not placed in the end of the maze until the fish reached it. The time it took for the fish to complete the maze and the number of wrong turns they made were again recorded as data. The data from day thirty was compared with that from day one to determine if the goldfish had learned the pattern of the maze.	
Results Results show that, in a period of thirty days, goldfish will not learn a pattern they must swim through to get food. A few fish did show improvement in one or both categories of observation; however, most did not. In addition, while the average time it took for a goldfish to complete the maze did decrease by a slight margin, the average number of wrong turns made by a goldfish increased by 60%, demonstrating that the goldfish had not learned the pattern of the maze.	
Conclusions/Discussion In a period of thirty days goldfish will not learn a pattern they must swim through to get food. Some individuals showed improvement in both categories of observation indicating that perhaps given a longer test period they would have in fact learned the pattern of the maze; however, these fish are the minority of the sample tested, and in the given thirty day test period no goldfish successfully learned the pattern of the maze they needed to swim through to get food.	
Summary Statement This project is about the ability of goldfish to learn and recall patterns.	
Help Received Employee at Lowe's hardware cut plexiglass into the pieces used to construct the maze.	