



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

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Project Title Goldfish	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Goldfish: the most common pond fish. With all of the many variations is this fish as dumb as commonly perceived? No, new studies have shown that goldfish possess the power to tell time, develop a routine and have a memory of up to three months. In our experiment, we are trying to determine whether or not this new information is correct.</p> <p>Methods/Materials Materials: Three Goldfish, Plexiglass, Exactoknife, Spray Paint, Fish Food, Three Container for fish, One Container for maze. Procedure: Show fish one color and feed them. Show fish another color and don't do anything. Do this three times a day. Put them through a maze after a week. Copy Results. Do this for three more weeks.</p> <p>Results The goldfish Yohan, who was trained to associate blue with reward and choose it in the maze, chose blue 75% of the time and chose yellow the other 25% of the time. Paprika, who was trained to choose yellow, chose yellow 37.5% of the time and choose blue the other 62.5% of the time. Joe, our control, or the fish who was not shown either of the colors at all before going into the maze chose blue 35% of the time and yellow 62.5% of the time.</p> <p>Conclusions/Discussion Our science experiment had varying results on the different fish. Color association seemed to work on Yohan who choose the correct color 75% of the time. It however, did not work on Paprika, who seemed to develop an aversion to the color she was trained to associate with rewards. This could be for varying reasons, either she was scared of the color, or she just liked blue better, for both Yohan and Paprika choose blue the most. However, Joe discourages that theory because he chose yellow more than blue with no training. Both Yohan and Paprika did better with time and repetition and on their lost run-through Yohan and Paprika chose the correct color 100% of the time.</p>	
Summary Statement We trained goldfish to associate color with good and bad.	
Help Received	