



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

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| <b>Name(s)</b><br>Christian Inglehart  | <b>Project Number</b><br><br>33895 |
| <b>Project Title</b><br>The Monty Hall Problem   |                                    |
| <b>Abstract</b><br><b>Objectives/Goals</b><br>The purpose of this statistical math model is to prove or disprove whether choices in the classic Monty Hall Problem game are statistically the 33.3% -don't switch doors win / 66.6% - switch door win prediction in one school of thought or the 50%/50% choice-no choice prediction some claim to make.<br><b>Methods/Materials</b><br>Basically what I did was to create an experimental model to examine the results of these choices. Rows of plastic cups were set up to simulate the doors of the game with a Hotwheel car under one of three cups. A choice was made in each trial and an objective host removed a known #door# with no car prize. In one trial I stayed with the original choice and recorded a win or loss. In the other trial, I was offered a choice to switch and always made a switch to the other offered door, and again recorded results.<br><b>Results</b><br>My results in the first trial of not making a switch to the offered door indicated results near the predicted 33.3% / 66.6% of 35% / 65%. However, in the second trial of always making the switch to the other offered simulated door, my results exceeded the predicted results of 33.3% / 66.6% with 20% / 80% losses and wins respectively.<br><b>Conclusions/Discussion</b><br>My conclusions are that switching doors does indeed make a significant statistical difference in wins and losses in the Monty Hall Problem. I have also concluded that though one experimental trial was very close to the predicted results, the other trial (though proving successful experimentally) may require more points of data in the trial run to statistically produce results closer to the predicted results. |                                    |
| <b>Summary Statement</b><br>This math project statistically examines "door selection" in the classic "Let's Make a Deal" game program.   |                                    |
| <b>Help Received</b>   |                                    |