



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Ben G. Gammage	Project Number J0311
Project Title The Least Obvious Choice: Modified Rock-Paper-Scissors as a Testing Ground for the Human Mind	
Abstract Objectives/Goals My objective was to determine whether, in a two-player zero-sum contest, a player would choose a seemingly more powerful strategy, or select a less obvious strategy, recommended by game theory, in an attempt to outwit an opponent. And which strategy would prove more fruitful? Methods/Materials I created a game based on rock-paper-scissors by adding point values, making some options worth more points than others. I then obtained informed consent from pairs of people aged 13 or older. I read each of the players the rules from a prepared rulesheet. Then, each pair played normal rock-paper-scissors 25-30 times, and two different versions of my modified rock-paper-scissors game 25-30 times each. Results For each modified rock-paper-scissors game, the choice with the greatest point value was played most often. Also, the winners of each modified rock-paper-scissors game, on average, played the choice with the greatest value the most often and the other two choices fairly equally. The losers in each modified rock-paper-scissors game played, on average, each of the strategies fairly equally. Conclusions/Discussion I thought that people would more frequently play the choices worth fewer points to defeat their opponent's strategy or strategies. This was based on my understanding of game theory and my experience with games. My results did not support my hypothesis. People seemed to jump automatically to the strategies worth more points. They focussed on the more obvious, seemingly more powerful, tried and true strategies rather than attempting to play mind games with their opponents.	
Summary Statement In a two-player zero-sum contest, will a player choose a seemingly more powerful strategy, or select a less obvious strategy in an attempt to trick the opponent?	
Help Received Parents drove me around; father helped me glue papers to my posterboard; game theory teachers (Chris Stapel and Andy Niedermaier) at Johns Hopkins CTY sparked my interest in game theory.	