



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Nick J. Famiglietti	Project Number J1210
Project Title Can a Computer Accurately Simulate Rolling Dice?	
Objectives/Goals My question is, "Can a Computer Accurately Simulate Rolling a Dice?"	
Abstract	
Methods/Materials <ol style="list-style-type: none">1. Notebook, pencil or pen (to record results)3. 1 six-sided die4. Flat area such as tabletop minimum of 1m by 1m5. Computer6. Psuedo-random number generator capable of generating a random number from 1 to 6 100 times	
I rolled a die and recorded the result 100 times in a table in my notebook, then went to my computer and ran the pseudo-random number generator (which generates a number from 1 to 6 100 times) and recorded those results as well. I repeated this cycle 3 times, then averaged how many times in 100 each number appeared, and created a graph with that data.	
Results <p>Averages of how many times each face appeared (after 3 trials of 100 rolls each): >Human - 1: 14.3, 2: 17.6, 3: 14.3, 4: 19.3, 5: 15.3, 6: 19 >Computer - 1: 17.6, 2: 18, 3: 15.6, 4: 15, 5: 17.6, 6: 16</p>	
Conclusions/Discussion <p>If you were to plot the above data in a graph, the bars would not be the same height. But we are dealing with true randomness here, and so exact sameness doesn't occur. The numbers compensate for each other; the computer rolled 1 more than I did, but I rolled 4 more than the computer. So yes, I think that my hypothesis is correct and that a computer can accurately simulate rolling a dice. Random number generators are used all the time # they would have to be accurate. The generator I wrote is just a single example of one.</p>	
Summary Statement <p>My experiment was to find out if a computer could accurately simulate rolling one six-sided die.</p>	
Help Received <p>My mother and father helped me come up with original idea.</p>	