CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY

Name(s)
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Project Number
34005

Project Title
Speedsolving a Rubik's Cube: Which Algorithms First?

Abstract

Objectives/Goals
Certain algorithms for orienting and permuting the unsolved portion of a Rubik#s Cube will come up more frequently than others, and learning those will decrease my average solve time.

Methods/Materials
I scrambled the cube using computer-generated software. I solved the first two layers of the cube, stopped, and recorded the algorithm(s) I would use to solve the last layer of the cube in a spreadsheet. I then solved the last layer of the cube. I repeated this process 9 more times per weekday for 10 weeks, for a total of 500 solves. Every weekend, I did 10 speedsolves and calculated my average solve time.

Results
Yes, some algorithms are used more frequently, and learning those did decrease my average solve time by approximately 10 seconds, or about 33%.

Conclusions/Discussion
While my results did support my hypothesis, two other complications arose during the testing period. The first is a tendency towards what I would call personal bias, or unconsciously looking for certain patterns first during a typical solve. The other issue is, obviously, that doing 500+ solves over 10 weeks definitely decreased my average time in and of itself.

Summary Statement
Using pattern recognition and algorithms to decrease my solve time on a Rubik's Cube

Help Received
Mother helped record timed solves into spreadsheet