



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) James A. Doherty	Project Number J1707
Project Title Evolution of Friendship Groups in the Fourth through Seventh Grades	
Abstract Objectives/Goals How do friendships change as the students get older? Students, as they get older, will develop more people skills. The students who were once outsiders might start to develop friendships with the members of established friendship groups. These friendship groups might get more "open" and friendships among the groups will start to overlap. Methods/Materials I distributed a survey sheet to the 4th through 7th grades along with a class roster of the 4th through 7th grades and asked students to identify who their friends were. I analyzed these results on an Excel spreadsheet using graphs and friendship group detection statistics such as multi-dimensional scaling. Results The results showed that in the 4th grade there are more isolates (23%) than in the 7th grade (15%). The 7th grade has more liaisons (11%) than in the 4th grade (6%). These differences are not statistically significant (Z-Test, $p > .10$). In the 7th grade the friendship groups were clustered more than in any other grade. Also, in the 7th grade the friendship groups overlap more than in any other grade. Conclusions/Discussion My results partly support my hypothesis because the friendship groups did get more open as the students got older. However I did not accept that there were fewer friendship groups as the students got older. This project can help us to determine how friendships and friendship groups change throughout the grades. That is important because people develop skills on how to make friends at an early age. It is also important because it helps us understand how these skills change.	
Summary Statement My project examines how the friendships in the fourth through seventh grades change.	
Help Received my mom, Ms. Beckett, my dad, stepmom, John Gorman, Dr. Ghoneum	