



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Miriam C. Glicksberg	Project Number J0313
Project Title Is Relative Pitch Inherited?	
Abstract Objectives/Goals My objective is to determine if relative pitch, our ability to sing in tune, is an inherited behavior, or if it is due to environmental or random factors. Methods/Materials Informed consent was obtained from 41 individuals from 8 families. Each person sang a simple tune three times, holding 10 notes long enough for me to measure the pitch electronically. I converted the notes into number values, and made graphs for each family using the data normalized to the expected notes for good singing. I identified five singing patterns and examined the families for similarities. I also looked at whether good singers had more music lessons than bad singers. Results Singing patterns were not random within families. Good and bad singing ability did not correlate with music lessons. Assuming that bad singing is inherited as a single Mendelian trait, I ruled out autosomal dominant, X-linked dominant and X-linked recessive inheritance patterns. Conclusions/Discussion The data suggest that the behavior known as relative pitch is likely to be genetic. I tested whether bad singing fits any simple Mendelian inheritance models, and found that it might be inherited as an autosomal recessive trait.	
Summary Statement I discovered that families have specific ways of singing out of tune, and that genetics is more important than environment for this behavior.	
Help Received Mother taught me genetics and computer use; cousin loaned me electronic pitch indicator.	