



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Radhika Verma	Project Number 35541
Project Title The Impact of Age and Gender on Vocal Ranges	
Objectives/Goals The objective of this project is to find the impact of age and gender on vocal ranges. Abstract Methods/Materials In this trial, people of different genders and age groups were tested. The number of people tested was 120, fifteen boys and fifteen girls in ages 7-9, ages 13-18, ages 25-35, and ages 40+. They were tested by having to sing specific notes that were played on a keyboard. They sang notes starting from C4 and sang higher and higher until they couldn't sing the notes comfortably. That final note was marked on a data table, along with their age and gender. If the subject was under 18, they were given a permission slip to get signed by their parent/guardian. Results The girls and the boys ages 7-9 sang between six and twelve notes (A4-G5). The girls ages 13-18 ranged between thirteen and nineteen notes (A5-G6) while the boys of this age group sang between eight and sixteen notes (A5-D6). The women 25-35 sang between eleven and seventeen notes (F5-E6), while the men sang in the range of six and twelve notes (A4-G5). 40+ women sang in the range of ten and seventeen notes (E5-E6), the men sang between two and six notes (D4-A4). Nineteen, or D6, was the highest note someone sang up to. The lowest note was 2, or D4. Conclusions/Discussion On average the 13-18 year old girls sang the highest. The second highest was the category women ages 25-35 and 40+ women, next, the 13-18 year old boys then the 25-35 year old men, after, the 7-8 year old boys and girls, who sang the same, and last, the 40+ men, who sang the lowest. In conclusion, the girls ages 13-18 have the highest vocal ranges and the 40+ men have the lowest.	
Summary Statement This project can help determine who has the highest vocal range and who has the lowest, by comparing different ages and genders.	
Help Received Katherine Girvin, my mentor and choir director at Marshall Middle School taught me about music. My Mom and Dad helped by driving me places for testing.	