



# CALIFORNIA STATE SCIENCE FAIR

## 2015 PROJECT SUMMARY

<b>Name(s)</b> <b>Radhika Verma</b>	<b>Project Number</b> <b>J1224</b>
<b>Project Title</b> <b>The Impact of Age and Gender on Vocal Ranges</b>	
<b>Objectives/Goals</b> The objective of this project is to find the impact of age and gender on vocal ranges.	
<b>Abstract</b> <b>Methods/Materials</b> 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.	
<b>Results</b> 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.	
<b>Conclusions/Discussion</b> 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.	
<b>Summary Statement</b> This project can help determine who has the highest vocal range and who has the lowest, by comparing different ages and genders.	
<b>Help Received</b> 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.	