

GREATER SAN DIEGO SCIENCE & ENGINEERING FAIR (GSDSEF)
PROJECT PROPOSAL/SIGNATURE* FORM (GSDSEF-1, 2015)

This form must be completed and signed prior to starting project work. It must be placed in the student's notebook with an ABSTRACT OF THE PROJECT for the GSDSEF Screening Fair. (Use the "Tab" key to move from line to line)

1. Project Title The Impact of Age and Gender on Vocal Ranges

Is this a continuation of a previous project? Yes No

2. STUDENT'S NAME (Last, First, Middle) Verma, Radhika

2a. Partner's Name (for Senior Division 2 person projects only) _____

EACH SENIOR DIVISION PARTNER MUST SUBMIT A SEPARATE PROJECT PROPOSAL FORM.

3. Address, City, Zip 10597 Stony Ridge Way, San Diego, CA, 92131

4. Phone (858)-549-4180 email radha.verma2001@gmail.com

5. School Thurgood Marshall Middle School Grade 8th

6. Teacher Mrs. Gillum

7. This project involves (check all that apply):

- Live Vertebrate Animals (GSDSEF-2, 2015)
- Humans as subjects, helpers, or interviewees (GSDSEF-3, 2015)
- Hazardous Substances (anything that could cause injury) (GSDSEF-4, 2015)
 - Chemicals
 - Infectious Agents
 - Bacteria, Fungi and/or Molds
 - Mutagenic Agents
 - Carcinogenic Agents
 - Teratogenic Agents
- Human or Other Vertebrate Tissue (GSDSEF-5, 2015)

8. WHERE REQUIRED (see #7 above), the following supplemental forms must be completed and included with the project proposal form (CHECK ALL THAT APPLY):

- Certification of Humane Treatment of Live Vertebrate Animals (GSDSEF-2, 2015)
- Certification of Compliance of Research Involving Humans (GSDSEF-3, 2015)
- Certification of Hazards Control (GSDSEF-4, 2015)
- Certification of Vertebrate Tissue Source & Safety (GSDSEF-5, 2015)

9. Location where experimental procedures will take place: The San Diego area

10. People, companies, etc. providing equipment, materials, workspace: The app 'Pitch Analyzer' by Ting

Wang and the app 'Virtuoso' from PeterB

11. Describe, in 200 – 250 words, the planned project/experiment and the procedures to be used:

The research and experimenting is being done to show how much gender and age affect vocal ranges. Vocal ranges are the lowest to the highest notes that a person can easily sing without straining their voice. Different objectives, including the size and the pull of the vocal cords, determine the pitch of the sound a person makes and how much they vibrate. By changing some of these things people can change their pitch when they sing, giving them more of a variety of notes. There is just one thing that cannot be changed, the length of their vocal chords.

This study is aimed to analyze the difference in voice ranges based on age and gender effects to have a normal voice range profile of men and women of four varied age groups, 7-9 year olds, 13-18 year olds, 25-35 year old adults, and 40+ year old adults. There will be a total of eight groups including the genders, 15 people in each category. There are going to be a total number of 120 individuals tested. All participants are practiced singers.

The app 'Pitch Analyzer' by Ting Wang and the app 'Virtuoso' from PeterB are going to be used as tools. The number of notes the participants hit will be measured. The subjects will be asked to sing the note that was played on the piano app, Virtuoso, by singing "la" or "ah". Their note is going to be tested by the Pitch Analyzer app.

Just before the screening fair, attach a 200-250 word ABSTRACT of your project to this form.

*Continue to next page for required Signatures

GREATER SAN DIEGO SCIENCE & ENGINEERING FAIR
(GSDSEF) PROJECT PROPOSAL/SIGNATURE FORM (GSDSEF-1, 2015)

REQUIRED SIGNATURES:

Student:

I have read the *Rules and Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR and certify that my project complies with them. I understand that failure to meet the terms of these rules and regulations will result in the disqualification of my project.

SENIOR DIVISION: GSDSEF forms meet the requirements of California law; therefore, all Senior Division students agree that, should they be selected to compete at the 2015 Intel International Science and Engineering Fair (Intel ISEF), when they sign all required Intel ISEF forms they will predate them to agree with the date on this form.


Student Signature/Date

09-01-2014

Parent/Guardian:

I am aware of all potential safety hazards connected with this project, approve the precautions being taken to ensure my student's safety and will, when appropriate, provide guidance and/or supervision. I understand that failure to comply with *Rules and Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR will result in the disqualification of the project.


Parent Signature/Date

09-01-2014

Teacher:


I approved this project prior to the student beginning work on it and verified that it complies with the *Rules And Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR. Any concerns about the project's design, appropriateness, safety, or legality were submitted to the GSDSEF Scientific Review Committee (SRC) for approval prior to allowing the student to proceed. I understand that failure to comply with the Fair's *Rules And Regulations* will result in the disqualification of the project. I will provide all needed supervision (other than that specified on other included forms) and will ensure that this proposal and all required supplemental forms are included in the student's notebook at the screening fair. I will have the student, if invited to apply for entrance to the GSDSEF, submit all SRC requested certification forms with their *2015 Application for Entrance*.


Teacher Signature/Date

9-1-14

Additional Advisor (if required)

When certification forms (GSDSEF 2, 3, 4 or 5, 2015) are signed by someone in addition to the science teacher, a signature here ensures that the procedures described on these forms will be followed.


Additional Advisor Signature/Date

9/01/14