

**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 Does Water Temperature Affect Vocal Range?  
Is this a continuation of a previous project?  Yes  No

2. STUDENT'S NAME (Last, First, Middle) Munevar, Bianca

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 10750 Carillon Court, San Diego, 92131

4. Phone (858)- 547- 3842 email bmunevar@san.rr.com

5. School Thurgood Marshall Middle School Grade 8

6. Teacher Mrs. E. 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: Procedures will take place where test subject volunteers can be found.

10. People, companies, etc. providing equipment, materials, workspace: Armin and Janice Munevar are providing equipment and materials.



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

This experiment will determine the difference in vocal range after drinking different temperatures of water. Three different water temperatures will be used in this experiment. There will be cold water, room temperature water, and hot water. The hot water cannot exceed the temperature 125 degrees Fahrenheit and the cold water cannot be below 32 degrees Fahrenheit. Each test subject will have to be within an age range as well because if they are too young, they might not take the testing seriously. The subjects cannot be younger than ten years old and not older than 25 years old.

The procedures for this experiment will include testing each subject's vocal range by having them sing a low note and then the highest note they can produce. The test subject will then repeat the process after drinking cold water, drinking room temperature water, and hot water. The frequency of each note that each subject will sing will be measured on an oscilloscope. The vocal ranges will be determined by subtracting the lower note frequency from the higher note frequency. This will be done for each test subject and then the vocal ranges will be compared for each of the water temperatures. Based on the information from the vocal range evaluation, the water temperature that increases the range the most, if there is one, will be found to help increase the range the most.

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.

Bianca Muniver 9/1/14  
Student Signature/Date

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.

Janice Muniver 9/1/14  
Parent Signature/Date

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.

ESPB/L 9/1/14  
Teacher Signature/Date

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.

hath 9/1/14  
Additional Advisor Signature/Date