

**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 Comparing the Effects of Natural and Chemical Oil Dispersants on Brine Shrimp
Is this a continuation of a previous project? Yes No

2. STUDENT'S NAME (Last, First, Middle) Rao, Ananya, Jay

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 12195 Fidelio Way, San Diego, CA 92131

4. Phone 858-695-9453 email ananya.rao@outlook.com

5. School Marshall Middle School Grade 8

6. Teacher Mrs. Elaine 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: At student's residence

10. People, companies, etc. providing equipment, materials, workspace: None

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

Oil pollution is one of the increasing environmental hazards in the world. Oil dispersants are commonly used to clean up oil spills. This raises an important question: do oil dispersants really help the marine ecosystem to recover from an oil spill?

Recent research has shown that chemical oil dispersants, though effective at cleaning up oil spills on the surface, may have a negative impact on marine organisms that live under the surface. Research projects have started to examine the possibility of using natural oil dispersants as a better alternative to chemicals. This experiment is a continuation of a previous year's Science Fair project that demonstrated that diesel oil had a negative effect on the hatching and survival of brine shrimp, even at very low concentrations. Brine shrimp are an important part of the marine food web and are valuable research organisms, since they are relatively easy to hatch and grow.

This experiment will compare the effects of natural and chemical oil dispersants at concentrations of 10 mg/L to 100 mg/L on the survival rates of brine shrimp. The goals are to find the lowest concentration of chemical oil dispersants that has a significant impact on the survival of the test organisms, and to demonstrate that natural oil dispersants are a better alternative to chemical oil dispersants. This experiment hopes to show that efforts to prevent oil pollution along with the use of less harmful chemicals in the cleanup effort will lead to healthier marine ecosystems.

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

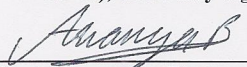
*Continue to next page for required Signatures

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.

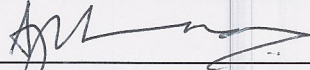
SENIOR DIVISION: GSDSEF forms meet the requirements of California law; therefore, all Senior Division students agree that, should they be selected to compete at the 2015 *Intel International Science and Engineering Fair (Intel ISEF)*, when they sign all required *Intel ISEF* forms they will predate them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

 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.

 (JAY SURYAMURTHY) 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*.

 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.

Additional Advisor Signature/Date