



Getting Started: Project Ideas

GSDSEF Student Leadership Board



Agenda

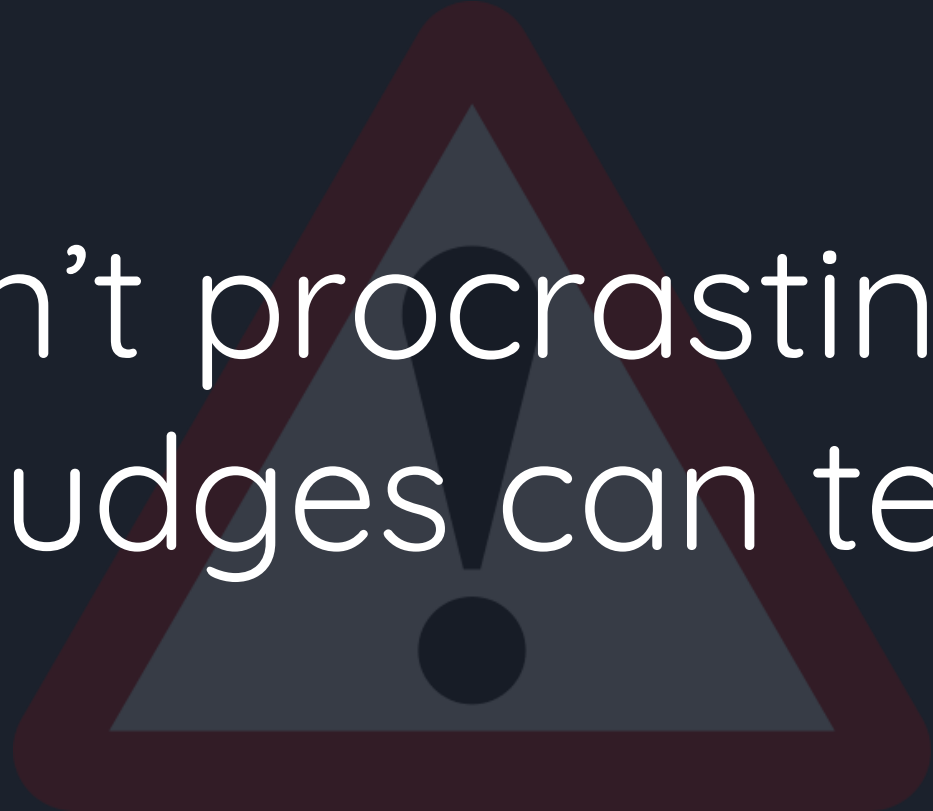
- Tips for getting started
- Important rules and guidelines
- Important components of a project
- Forms, notebooks, etc.
- Peer mentoring

Getting Started





Don't procrastinate!
Judges can tell!





Prompt Yourself With Questions

- What area in STEM are you interested in?
- What scientific questions puzzle you?
- How does x affect y ?
- What problems do you see in the world that you could help fix?
- What is something that really matters to you?

These can be broad or arbitrary!



The 16 Project Categories

- Animal Sciences
- Behavioral and Social Sciences
- Biochemistry
- Chemistry
- Computer Science
- Earth and Planetary Science
- Engineering – Electrical and Mechanical
- Engineering – Energy and Transport
- Engineering – Materials and Bioengineering
- Environmental Sciences and Management
- Mathematical Sciences
- Medicine and Health
- Microbiology
- Physics and Astronomy
- Plant Sciences
- Product Testing/Consumer Science (Junior Division Only)



Additional Tips

- Review winning projects from previous years
 - For middle schoolers, visit previous Broadcom MASTERS projects
 - <https://student.societyforscience.org/2018-top-300-masters>
 - For high schoolers, visit previous Intel ISEF projects
 - <https://abstracts.societyforscience.org/>
- Bounce ideas off your science teachers/advisors, parents, peers



GUIDELINES

- Make sure your experiment is doable
- Check to make sure you have the resources and budget to do it
- Check to make sure you have the resources to do it
- Make sure you can collect data
- NO Gender Comparisons



**KEEP
CALM**

AND

**DO SOME
SCIENCE**





Updating Old Projects

- More tests/larger data samples for higher reliability
- Take your project to the next step, extend the initial idea
- Real world applications
- If your project is a continuation from a previous year, there needs to be a significant difference

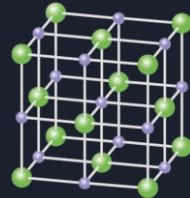
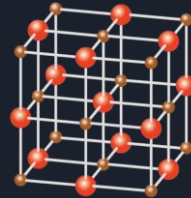
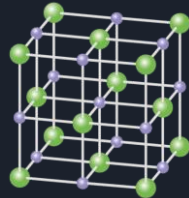
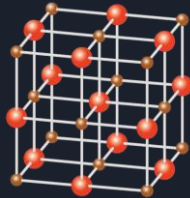
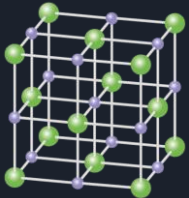


Utilizing the GSDSEF Website

- **gsdsef.org → Students → Student Resources**
 - <https://www.gsdsef.org/students/resources>
- **6 Sections to take you through the whole project development process**
 - Section A: Deciding on what Type of Project: Science, Engineering, Mathematics, or Computer Science
 - Section B: Getting Project Ideas/Designing a Unique Project
 - Section C: Deciding Which Forms are Needed Before Starting a Project
 - Section D: Resources on How to Design and Conduct a Science or Engineering Project
 - Section E: Resources for Background Research/Articles
 - Section F: Publishing Your Project in Scientific Journals

Rules

- If you are planning research involving live vertebrate animals, please check to make sure that you are complying with the California Education Code and the Intel ISEF and GSDSEF Rules and Regulations
- In general, make sure you are complying with all three of the documents above before you start your project





SCIENCE VS ENGINEERING

- Good news! You can submit BOTH to the science fair.
- Scientists create the theories, engineers implement them
- Both work very closely together
- Which side of the spectrum do you want to be on?

HYPOTHESIS/GOAL

- Based on facts, what do you think will happen? What is your solution to the problem you want to solve?
- Is your hypothesis viable? Think through all variables to see.
- Testable with measurable results
- How will you test your hypothesis?
- Will you be able to conduct these tests?



THE ABSTRACT



- Arguably, the most important part of your whole project
- Summarizes your information in ONE page (250 word limit)
- DON'T use any jargon
- You want to hook the reader into reading more about your project
- Think of it as a “quick look” of your project
- Many judges will be looking at this, so keep it concise, but bring across your point clearly
- Generally written AFTER project is completed



MENTORS



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INSTITUTE

- Mentors are always great to have, especially at a young age
- Parents and teachers are great for the Junior Division
- After significant interest is built up in a certain topic, reach out to colleges, universities, and corporations
- DON'T BE SHY!
- Professors like knowing that you know what you are doing

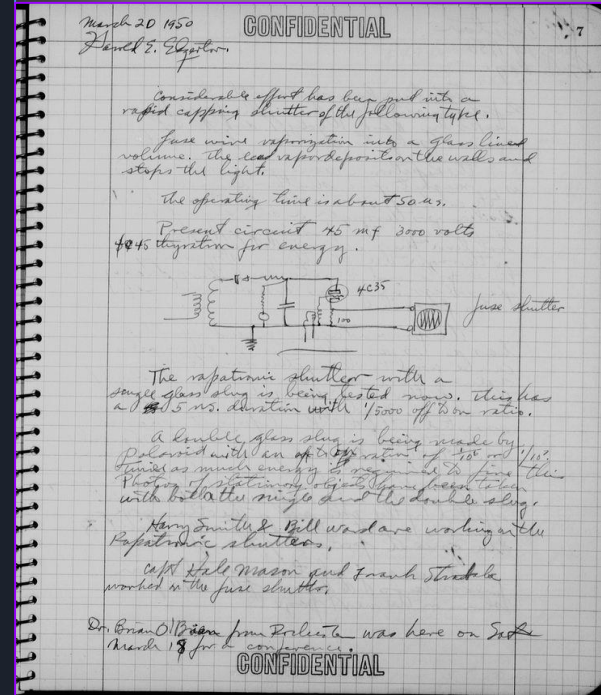


FORMS (extremely important)

- Complete the required forms!
 - **PROJECT PROPOSAL FORM: ALL** projects required to have this form
 - Special Forms: Animal, Human Subject, Hazards, Tissues
- All forms are linked under the Participation tab in the GSDSEF website: www.gsdsef.org
- Discuss your project with your teachers, parents, and mentors

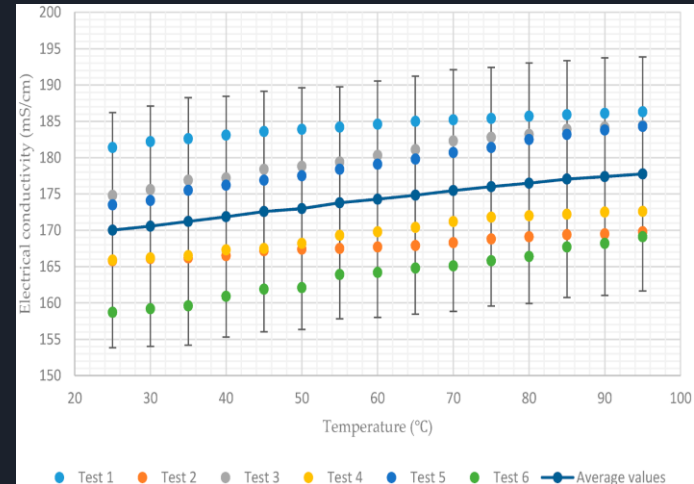
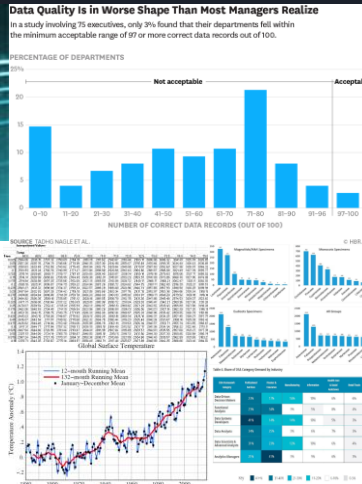
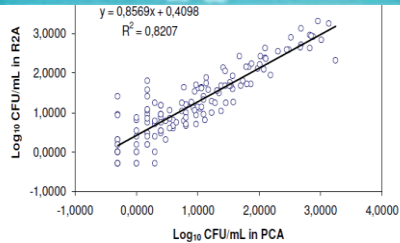
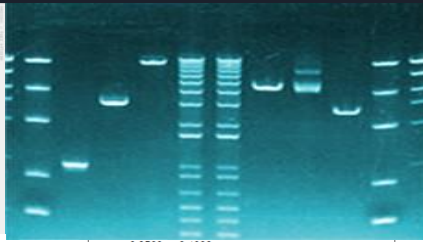
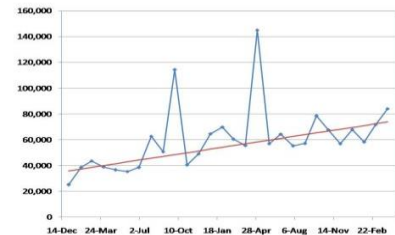
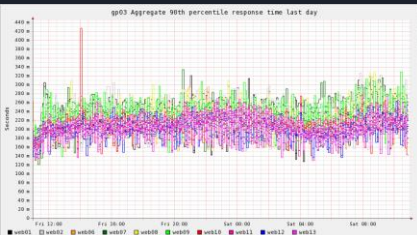
BEGINNING A SCIENCE NOTEBOOK

- Everyone needs one!
- First thing judge looks at, so it's important it is neat and organized.
- Example can be found on <http://www.gsdsef.org/wp-content/uploads/2013/10/GSDSEF-Sample-Notebook-rev-for-2018.pdf-.pdf>
- Take pictures, save **ALL** data



A Note on Data, and its Importance

- Data is the most important and valuable thing to have at a science fair.
 - Judges LOVE it!
- Multiple trials, organization, and systematic data collection show that you understand the experiment you performed.





WORKSHOP 2:

EXPERIMENTATION AND RESULTS

Date: November 17th 9-
10:30am, 11-12:30pm

Location: SDCOE

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