

**Dutchtown High School
Science and Engineering Fair (SEF)
Information Night
January 15, 2019**





DHS Science & Engineering Award

rs

2017-2018

Parkaranjot Singh - **1st Honors** – Affordable Autonomous Vehicle System under ROBOTICS and Machines @ DHSEF

- Winner at HCSEF at Heritage Park in McDonough, GA
- Competed at GSEF at UGA in Athens, GA
- Competed at Intel ISEF in Pittsburg, PA.

Jamison Darden - **1st Honors** - Can Using Spoiled Milk in Microbial Fuel Cell Help with Producing Electricity and Cut Down Pollution under ENERGY – CHEMICAL @ DHSEF

- Winner at HCSEF at Heritage Park in McDonough, GA
- Competed at GSEF at UGA Athens, GA



DHS Science & Engineering Award

2016-2017

Asiaka Jones - 1st Honors – Which Type of Paper Makes the Best Speaker?
under Physics & Astronomy @ DHSEF

- 1st Honors at HCSEF at Heritage Park in McDonough, GA
received the Naval Science Award

• **Competed at GSEF at UGA in Athens, GA**

Thien Nguyen & Emmanuel Otoah-Gyasi -> 1st Honors -Stop That Vortex
under Engineering Mechanics @ DHSEF

- 3rd Honors -Engineering Mechanics at HCSEF Heritage Park in McDonough, GA

Chloe Hinton -> 1st Honors - Can You Hear Me Now?
under Materials Science @ DHSEF

- 3rd Honors - Materials Science at HCSEF at Heritage Park in McDonough, GA

Alayna Thurmon & Lily Nguyen -> 1st Honors - Fruity Experience
under Plant Sciences @ DHSEF

- 3rd Honors – Plant Science at HCSEF at Heritage Park in McDonough



DHS Science & Engineering Award

rs

2015-2016

Vraj Patel & Harkaran Randhwa -> **1st Honors** for “QR Code attendance app scanner” in the category of SYSTEMS SOFTWARE at DHSSEF

- **1st Honors** –& INTEL Excellence in Computer Science at HCSEF at Heritage Park in McDonough, GA
- Competed at GSEF at UGA in Athens, GA

Trey Dean & Jaren Taylor -> **1st Honors** - The Generation of Silver Nano Particles from Fruits” under Chemistry @ DHSEF

• **2nd Honors** - at HCSEF @ Heritage Park in McDonough, GA

Taraji Dover & Sunmi Ntuma -> **1st Honors** for Gluten Free vs Gluten Flour under of BIOMEDICAL & HEALTH SCIENCES

• **3rd Honors** - at HCSEF @ Heritage Park in McDonough, GA

Dalia Ottley & Olivia Miller -> **1st Honors** for Brightness of the Rainbow under EARTH & ENVIRONMENTAL SCIENCES

• **3rd Honors** - at HCSEF @ Heritage Park in McDonough, GA

Justin Robinson & Antonio Davis -> **1st Honors** for Reduction of Laptop Heat” MATERIALS SCIENCE



Science & Engineering Fair Hall of

Tushar Mittal

qualified to represent DHS at the

Intel International Science & Engineering Fair

2011

2012

2013

2014

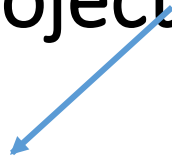
Won over
\$5000
in
scholarships

Currently enrolled at
University of
California -Berkley



Per Henry County Schools policy:

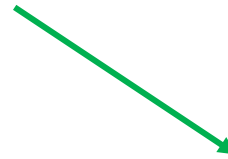
Students enrolled in a Honors level High School science course must complete a science research project.



Honors Biology

Ms. Harris

Ms. McCullan



Honors Chemistry

Mrs. Mital

Mr. Venukadasula



DHS Science & Engineering Fair Team

Team members

Mr. Adams

Mr. Fitz

Ms. Harris

Ms. McCullan

Mrs. Mital

Mr. Venukadasula

Areas of Expertise

Anatomy / Physiology

Biology / Life Sciences

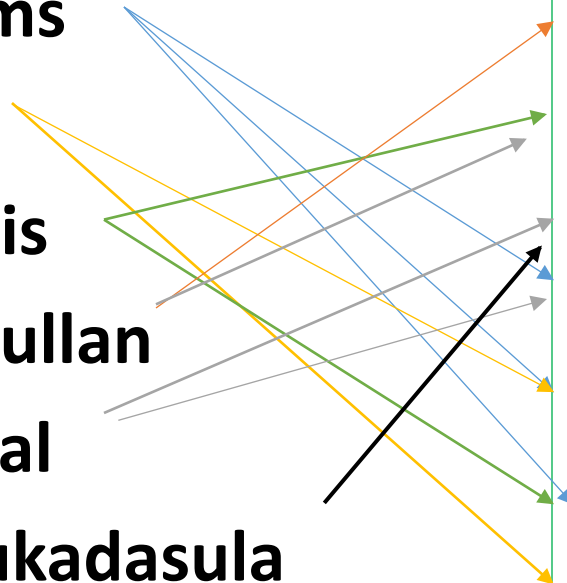
Chemistry

Earth & Space Science

Engineering

Environmental Science

Physics





DHS Science & Engineering Fair Team

DHS Science & Engineering Fair Team members meet weekly to review:

- **Topic submitted from that week**
- **Research Plans submitted that week**

Students are welcome to consult with other Science Fair Team members regarding their topics and research plans.

- **CTAE teachers also have expertise specific to the your topic**



Science & Engineering Fair Research Projects



ARE:

Research driven

Experimentally-based

Controlled

Test single independent
variable

Measurable

Long term

Answers to real needs or
concerns



ARE NOT:

“Google-able”

Library /internet – based
term papers

Short term

Brand comparisons

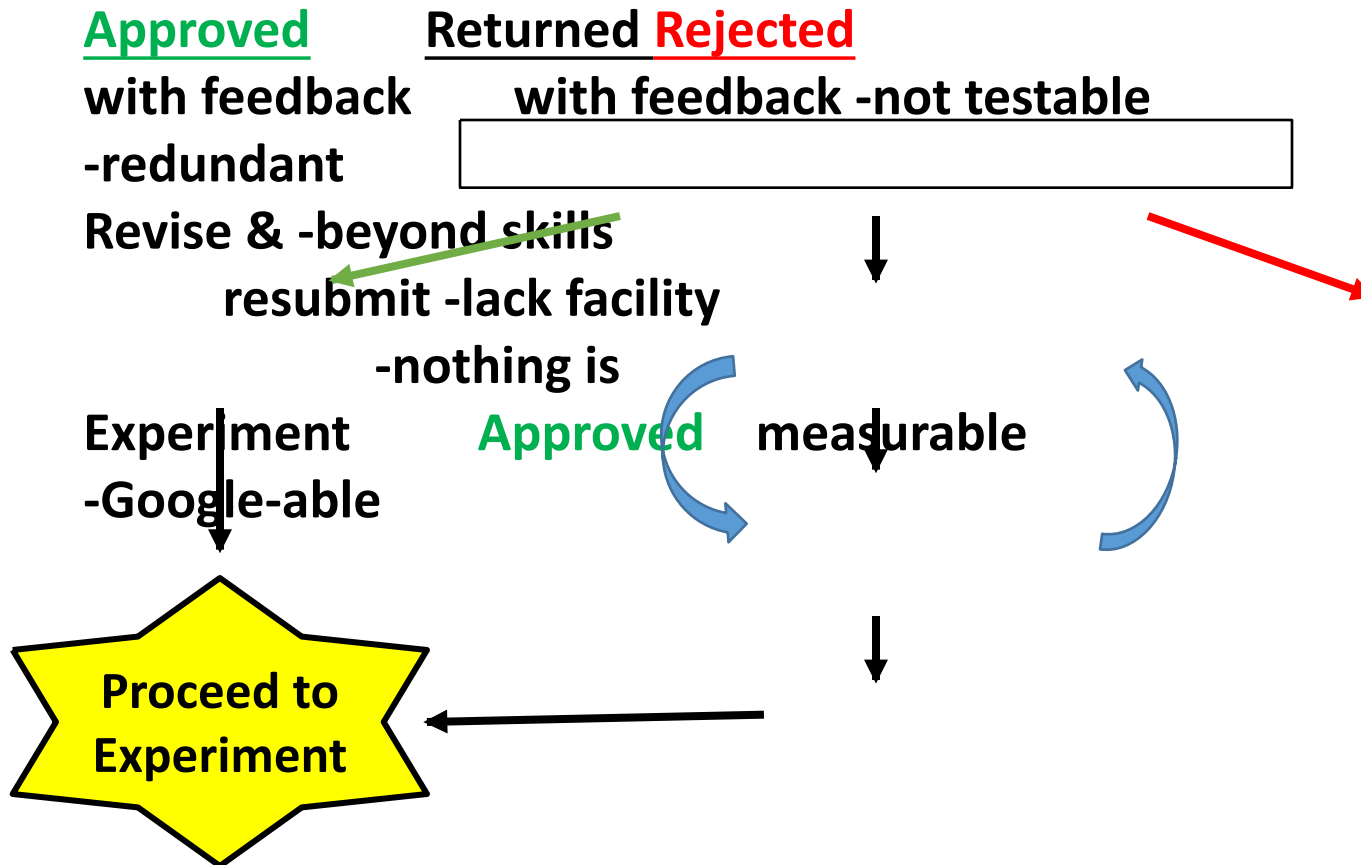
Redundant -> been
done before

Ex. Build a volcano or
model rocket



Process of Topic Approval for Science & Engineering Research Projects

- Topics / Research Plans may be

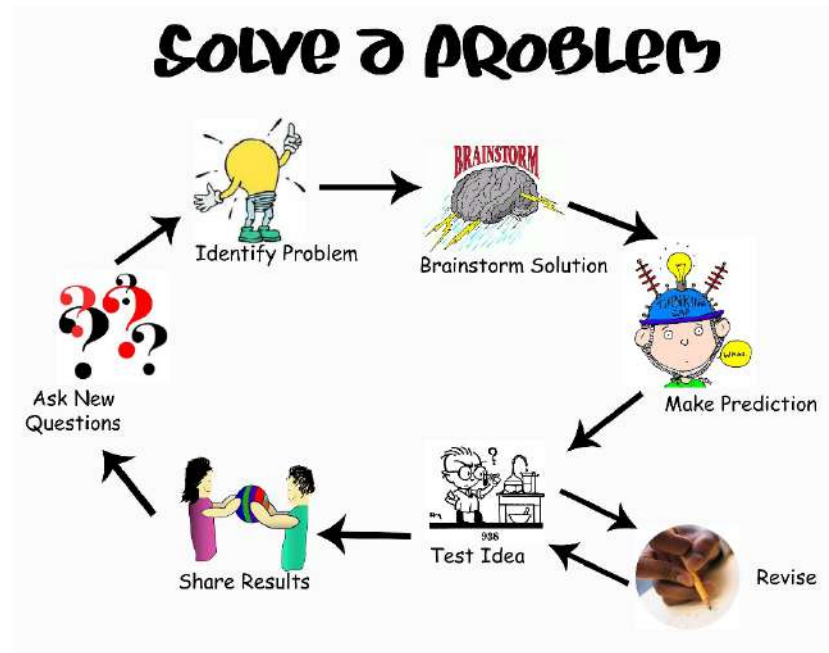
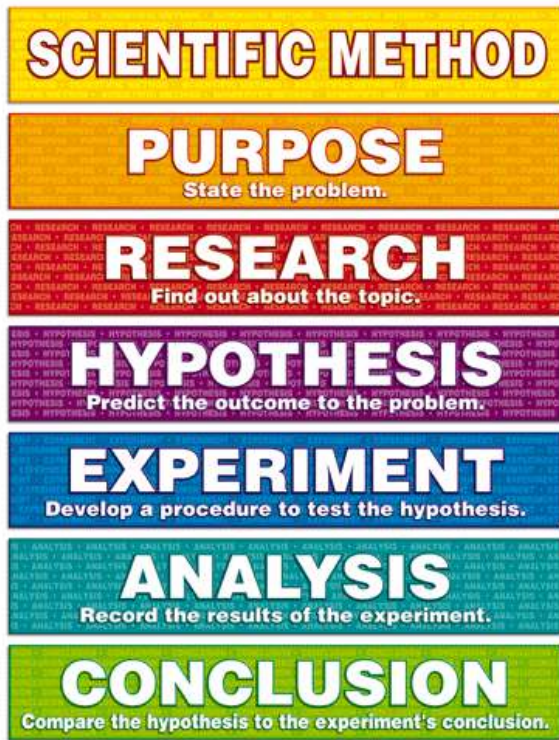




Science & Engineering Fair – Research Project Types

Scientific Process

Engineering Design





Scientific Process

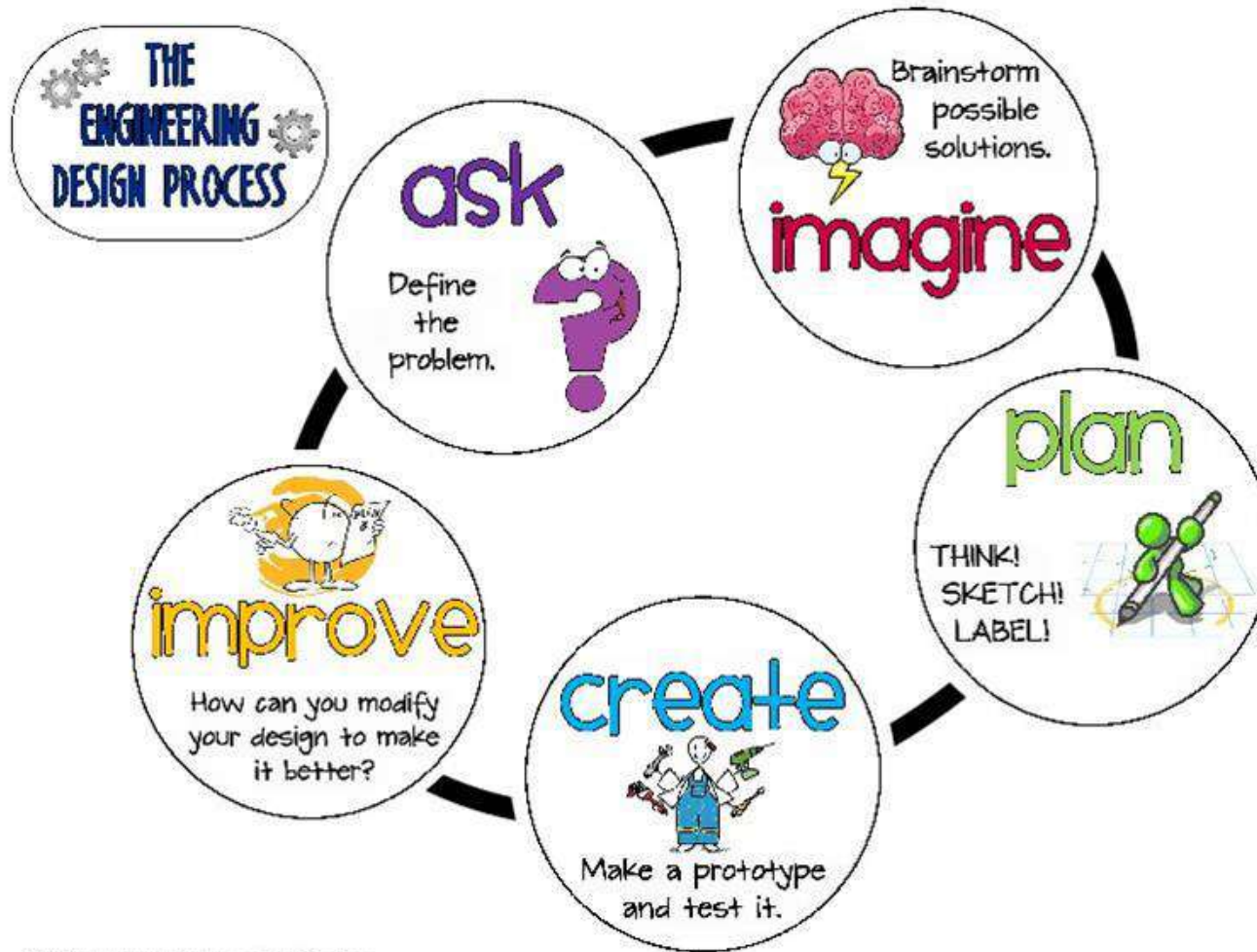


- Question-what are you investigating scientifically?
- Hypothesis- proposed answer to the question based on research.
- Background- info that explains how student derived at hypothesis/research review of literature / listing sources
- Materials- list all the things you need for experiment
- Procedures- steps you took to find the answer and test hypothesis
- Data & Results- should be measurable
- Results- summarize observations, data analysis
- Conclusions- do the results support or reject the hypothesis





Engineering Design Process





e Research Project Timeline

- **Topic selection** first submission -> **January 16, 2019.**
- **Research Plan** is due within **2 weeks of topic approval.**
- **Annotated Bibliography** -> **February 26, 2019.**
- **SRC/IRB Form 1B** deadline is **March 5, 2019** for projects requiring District level SRC committee approval prior to experimentation
- **Log Book** check by **March 28, 2019**
- Completed **Research Project** due by **April 9, 2019**
- **Class Presentations** -> **April 10-11, 2019**



will I compete in the DHSSEF?

Fall 2018 students competed at the DHSSEF in December 2018

Spring 2019 students selected will compete with **Fall 2019 students** at the DHSSEF in December, 2019.



How do I begin?

How do I choose a topic?

Here are some **simple questions** to start you off!

- Is there something in the world you would like to see made better?
- Is there something causing you concern in your life? How about around the world?
- Is there a way to make something safer?
- Is there a way to make something easier?
- Is there a way to turn something negative (wastes, etc) into something positive or useful?



Display Ideas:

Make your project stand out from the crowd!

- Cover trifold board with fabric or paint backboard
- Use foam board instead of construction paper
- Type all parts and proofread
- Add photographs of the process
- Add 3-D effects (picture frames, shelves, rods that are attached and can spin or move)
- Place title above the middle section to save room for process





Friendly Reminders

- ▶ Use the online [ISEF Form Wizard](#) tool!
- ▶ If you use **live animals** as part of your research, it requires **special permission and a veterinarian's release form**.
- ▶ Any project that involves **human subjects** – **INCLUDING SURVEYS** – requires a Form 4: Human Participants and Informed Consent Form
- ▶ Photographs that show you testing the question or following your procedures are a GREAT idea, but be careful. **Do NOT show pictures of your face**. Judging has to be unbiased and you need to remain anonymous for fairness.
- ▶ **Please DO NOT PROCRASTINATE!** 😊



Science & Engineering Fair Rules, Forms & Websites

- ▶ <https://ruleswizard.societyforscience.org/>
 - ▶ Rules Wizard for ISEF -
- ▶ <https://student.societyforscience.org/overview-forms-and-dates>
 - ▶ ISEF rules and forms information
- ▶ <https://student.societyforscience.org/intel-isef-forms>
 - ▶ ISEF rules and forms information
- ▶ <https://schoolwires.henry.k12.ga.us/Page/66034>
 - ▶ DHS Science Fair Website (DHS Website/Academics/Science Tab)
- ▶ <https://schoolwires.henry.k12.ga.us/Page/79010>
 - ▶ Henry Co Science & Engineering Fair -> Heritage Park, McDonough -January 23, 2019
- ▶ <https://www.georgiacenter.uga.edu/youth/academic-special-programs/georgia-science-and-engineering-fair>
 - ▶ Georgia Science & Engineering Fair -> UGA, Athens, GA - March 28-30, 2019
- ▶ <https://student.societyforscience.org/intel-isef>
 - ▶ Intel ISEF -> Phoenix, AZ – May 12-17, 2019