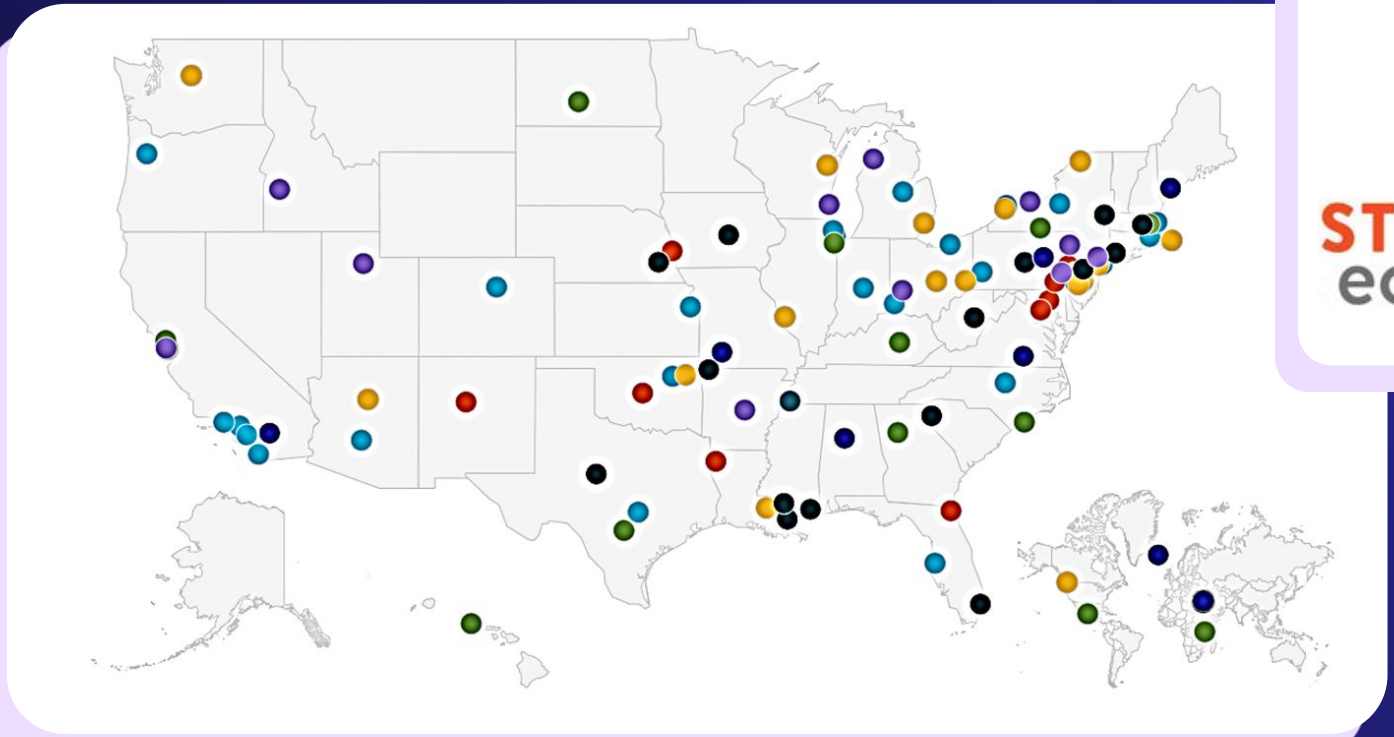
STATE OF STEM in FRSD

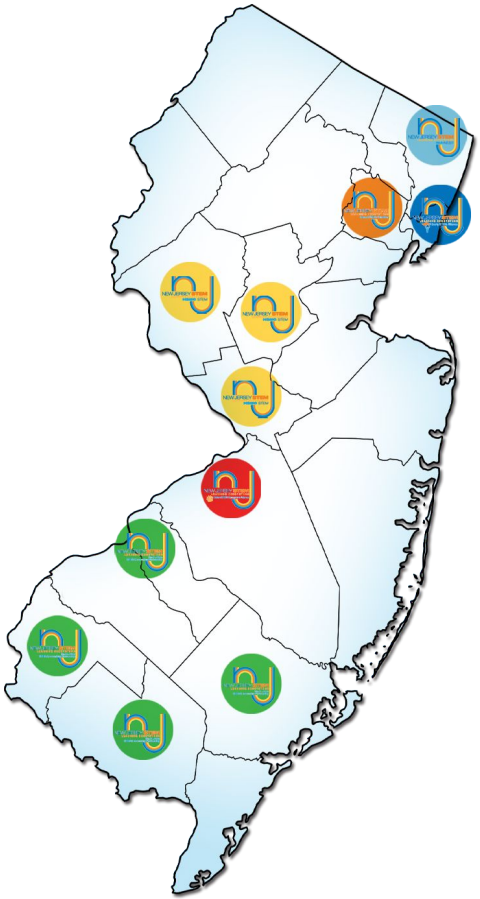
Updates, Accomplishments, and Next Steps.

Presented by Ralph Losanno - May 22, 2023

INTERNATIONAL STEM ECOSYSTEMS

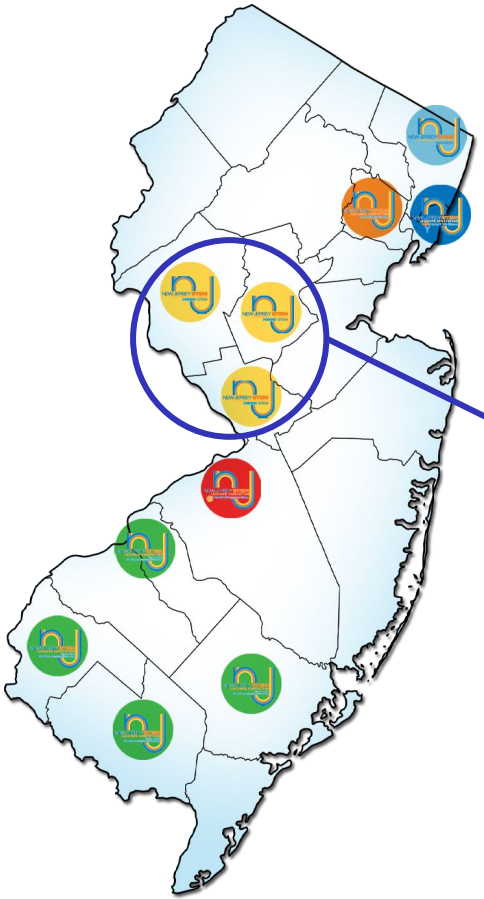


STEM ecosystems



NEW JERSEY STEM PATHWAYS NETWORK

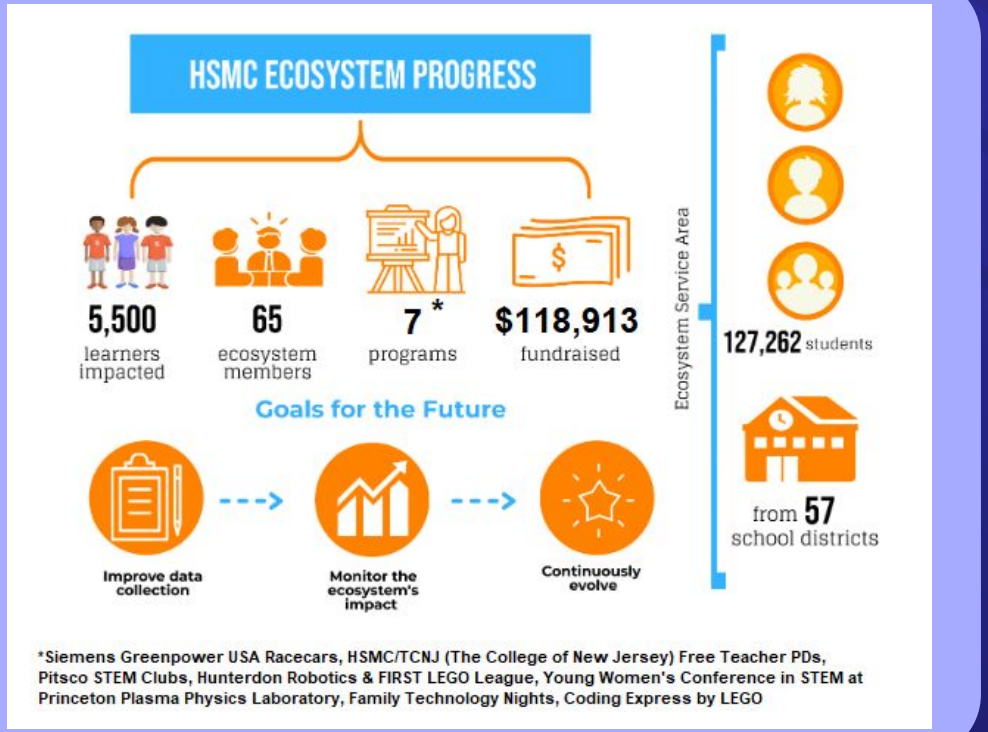
NEW JERSEY STEM PATHWAYS NETWORK



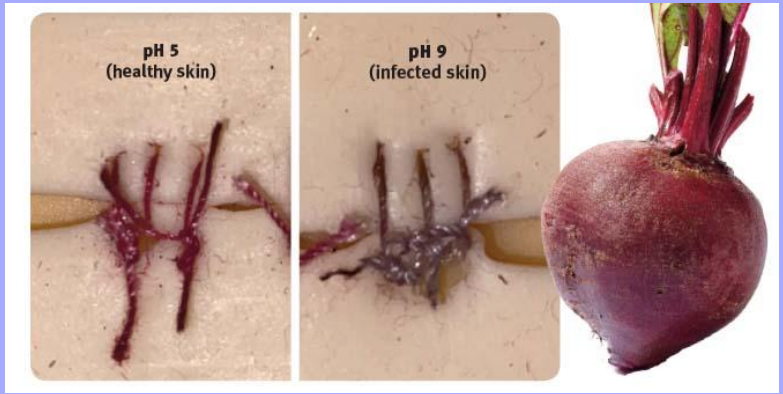
NEW JERSEY STEM
LEARNING ECOSYSTEMS
HSMC STEM

HSMC STEM ECOSYSTEM

HSMC STEM ECOSYSTEM SNAPSHOT



Why STEM?



“I think innovation goes back to your childhood, like creating a new game to play on the playground…

I stand by the idea that I stumbled into STEM by way of intellectual curiosity. Be curious, because that will afford you so many opportunities.”

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HSMC Grants Received

The Kentfields Foundation

Awarded 2022

$10,000

NJ STEM PATHWAYS Network

Awarded 2023

$18,144

NJ STEM Strategic Advisory Board

Awarded 2023

$30,769

ORISE: Mission Possible

Awarded 2023

$60,000

TOTAL RECEIVED

$118,913

Additional $2,000 STEM mini-grants were awarded by the New Jersey STEM Pathways network each year since 2018.

HSMC Grants Received

The Kentfields Foundation

$10,000

Purchase a Greenpower USA Racecar kit, tools and materials, and racing helmet and gloves, for J.P. Case Middle School.

GreenpowerUSA
INSPIRING INNOVATION

HSMC Grants Received

NJ STEM Strategic Advisory Board

$30,769

Sustain the Engineering Challenge lessons for RFIS students.

Purchase materials K-4 Family Tech Nights.

Purchase materials to open the FAD STEM lab.

HSMC Grants Received

NJ STEM PATHWAYS Network

$18,144

Purchase additional Greenpower USA Racecar kits for East Amwell School and two other neighboring school districts.

Form New Jersey's first Greenpower USA racing cohort for local competitions.

HSMC Grants Received

ORISE: Mission Possible

$60,000

Receive STEM technology and educational tools to begin the opening of K-4 STEM labs.

Francis A. Desmares will have the first FRSD STEM lab.

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Goal of GreenpowerUSA

To advance the understanding of STEM topics and inspire innovation in young people through the immersive experience of designing, building, and racing electric-powered vehicles.

GreenpowerUSA
INSPIRING INNOVATION

Goal of GreenpowerUSA

Students understand the engineering design cycle of projects created in the real world from requirements to prototype and test.

Students learn about design and modeling through the use of CAD software such as Siemens' Solid Edge.

GreenpowerUSA
INSPIRING INNOVATION

Build Days

Frame Build

Facilities & Maintenance

TEST DRIVE!

"Woah! This is amazing!"

"Do a figure eight."

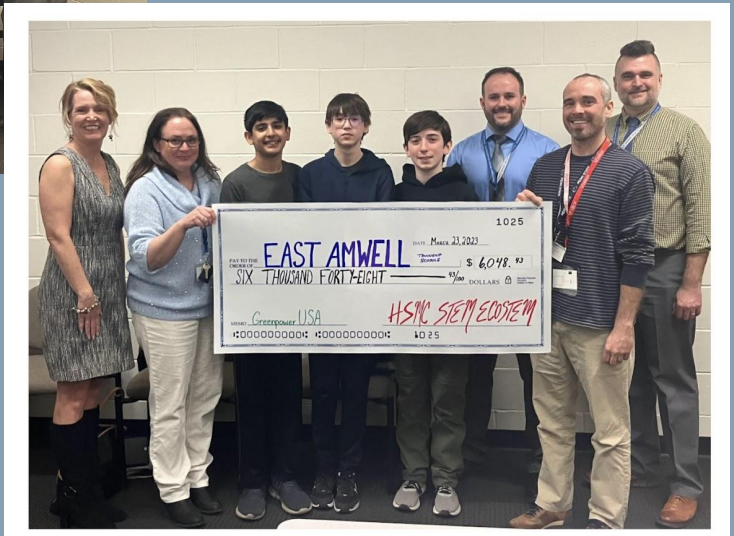
"Woohoo! Well done on the curve."

Next Steps for J.P. Case

Build a new race car, secure sponsors, race neighboring districts.

Host the regional racing competition.

East Amwell will be a JPC racing partner.



GreenpowerUSA
INSPIRING INNOVATION


Match in the Pitch
Goblinface
ALLEN
ELEMENTARY


822
Walmart


000
00
Cougar Strong
Racing
Walmart

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ORISE

The Oak Ridge Institute for Science and Education is a U.S. Department of Energy & C.I.A. asset focused on STEM workforce development.

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

CENTRAL INTELLIGENCE AGENCY

MISSION:POSSIBLE
Operation Advance Technology

ORISE

A primary goal of STEAM education is to prepare students for future careers which will require problem-solving skills, self-exploration, and perseverance.

ORISE

The mission is to help improve science, technology, engineering, art and math (STEAM) education in schools.
This competition awards five winners with
$60,000 each in advanced technology equipment.

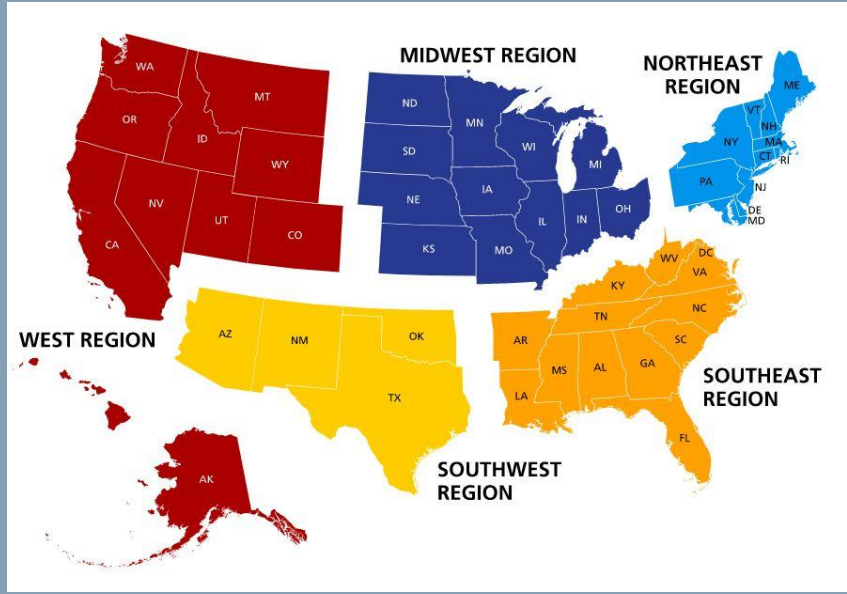
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

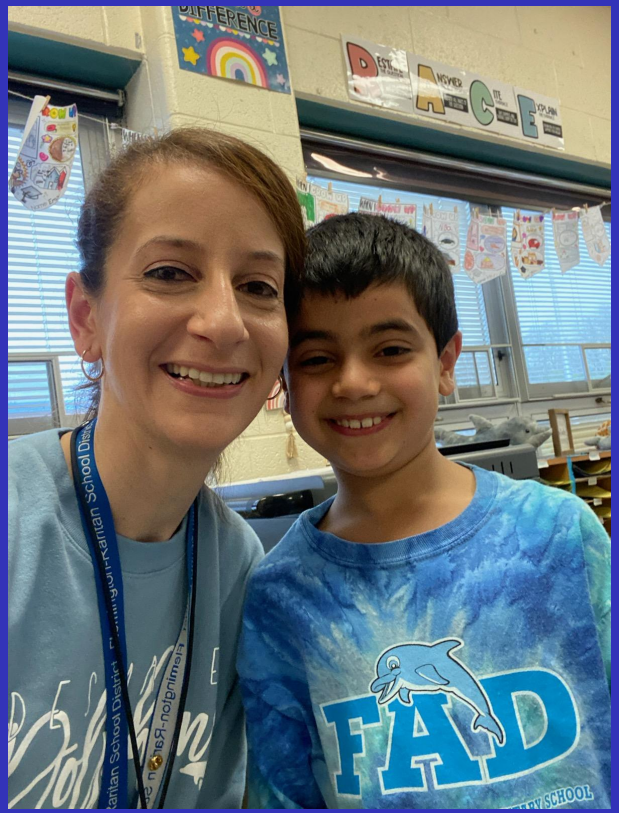
CENTRAL INTELLIGENCE AGENCY · UNITED STATES OF AMERICA

MISSION : POSSIBLE
Operation Advance Technology

Northeast Winner

Only 5 regional winners from the United States!





Hanan Attiyah

Technology Integration Specialist (TIS)

Barley Sheaf & Francis A. Desmares

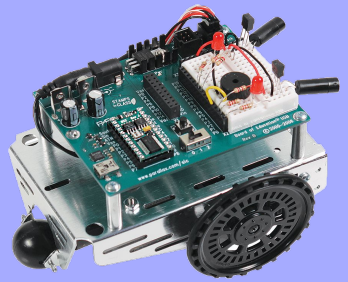
applied and WON!

A Snippet of Hanan's Video Submission

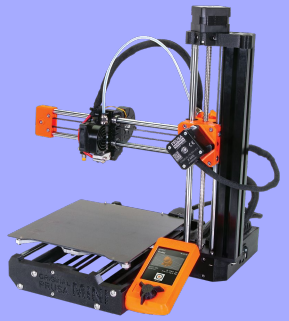
Schoolwide Assembly to Announce the News

Prizes...

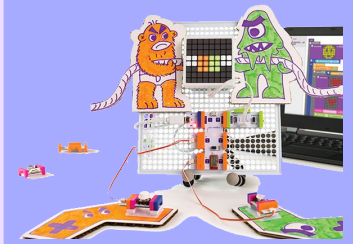
Sphero Robots



Boe-Bot Robots



Prusa 3D Printers



littleBits

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Original Discussions & Presentations to the BOE

FLEMINGTON-RARITAN SCHOOL DISTRICT

June 7, 2021

April 6, 2022

STEM LABS

- Receive the grant funds
- Receive the ORISE equipment
- Purchase additional lab supplies
- Build FAD STEM lab (grant & ESSR funding)
- Open the FAD STEM lab to students and staff during the 23-24 school year.
- Open STEM labs at Barley Sheaf, Copper Hill and Robert Hunter.
  (One new lab to be built each summer.)

Special Thank You to the

Thank you. Questions?

JP Case Greenpower Car Club
May 22, 2023

Presenters: Carson Friedrich, Finn Gorsline, Ayaan Jain, Shiven Bansal

What is Greenpower USA?

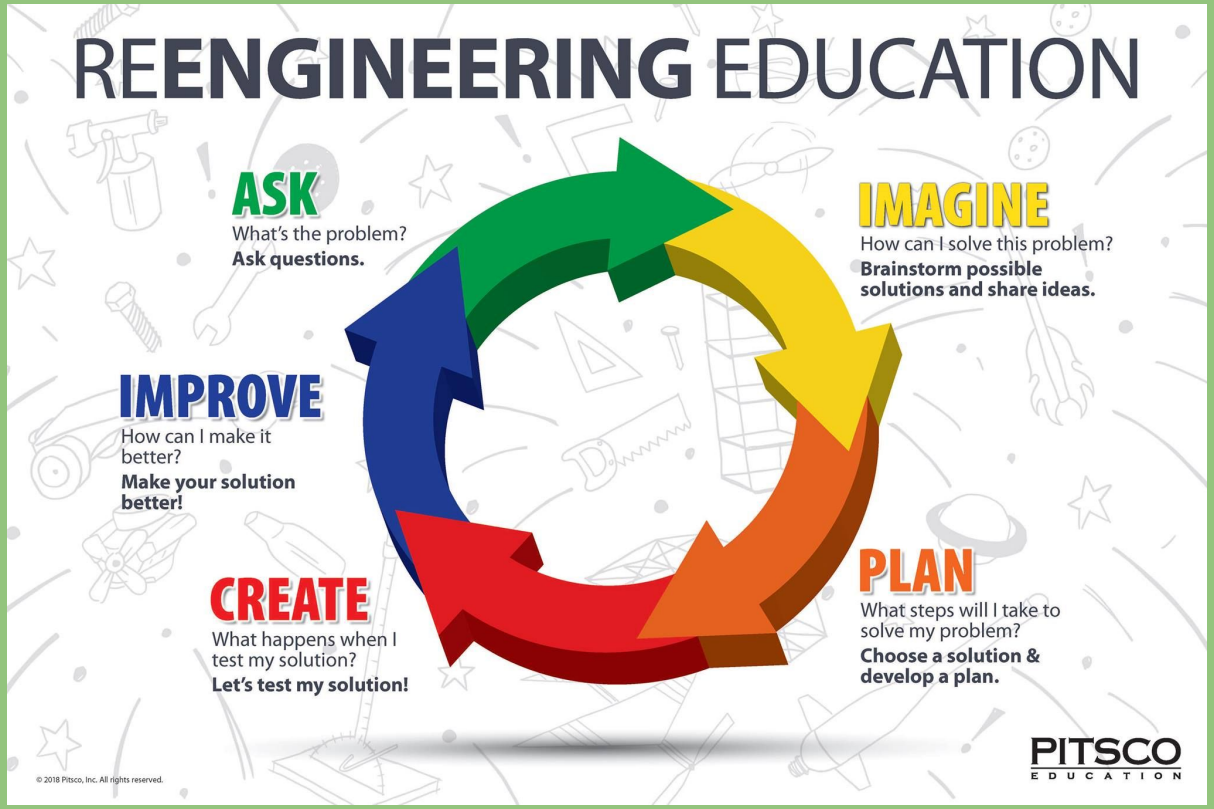
- **Project-based learning experiences**
- **Knowledge and real-world skills**
- **Eco-friendly technology**
- **Design-build-race competition**
- **Teamwork**

Who is in the club?

8th graders: 5
7th graders: 4

8 boys and 1 girl

Engineering Design Process In Action



Engineering Design Process In Action

Challenge:

Complete the main power wiring

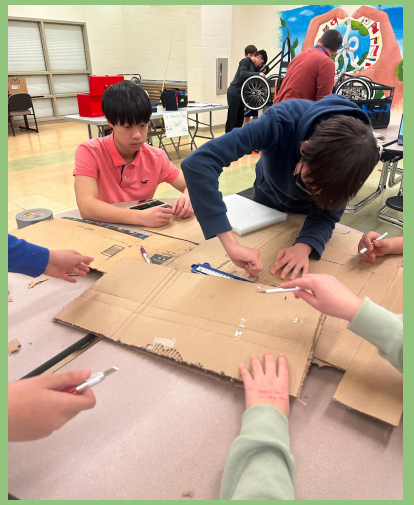
- Consulted with District electricians
- Trial and error using manual and prior experience

Engineering Design Process In Action

Challenge:

Construct nose of car

- Design sides and shape
- Reinforce shape
- Improvise with supplies available



Engineering Design Process In Action

Consistent Challenges to Overcome:

- Collaborating (9 Students working on one car)
- Explain your thinking, reasoning
- Pull in prior knowledge
- Time constraints - Picking up where left off
- Missing parts, limited tools, paper manual had not been updated since 2019

Challenges with Sponsorship:

- Research of local EV car dealers
- Reached out to local businesses for sponsorship
- Obtained funding from District for new car kit
- Listed wants and needs for project including tools, supplies, and information from experts

Website Design:

- Chronicling the club's activities
- Each week's accomplishments
- Research of sponsors
- goHunterdon visit and lessons learned

goHunterdon visited

goHunterdon visited

goHunterdon visited

- What is an EV?
- What does an EV look like?
- What is the future of EVs in Hunterdon County?
- How will Hunterdon have to change to meet the needs of EV owners?

All Worth It in the End