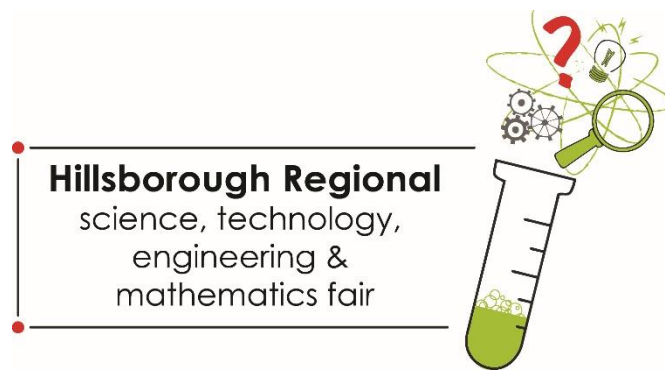


# 2019 Hillsborough Regional STEM Fair



## Secondary Division Results Presented by:



## Secondary Division Memorial Awards

Rajat Doshi

---

Plant HS

Title: Designing Sustainable Clay-Based Adsorbents to Remove Arsenic from Drinking Water

Memorial Award: **Grace Y. Abbott Award**

Chere' Erickson

---

Strawberry Crest HS

Title: The Effects of Polypropylene Plastic on Dissolved Oxygen Levels

Memorial Award: **Clara Crumpton Award**

Elaine Feaster

---

Liberty MS

Title: Naturally Cool

Memorial Award: **Helen Johnson's Award**

Elena Glow

---

Williams MS

Title: Allelopathic effect of Cymbopogon citratus on the cultivation of Oryza sativa

Memorial Award: **Joan Harris Life Science Award**

Aksheta Kanuganti

---

Carrollwood Day

Title: Estimation of Antibody Titers in Duffy Binding Protein (DBP) Immunized Mice and Sequencing DBP-Specific B-cells

Memorial Award: **Dr. Carl Riggs Award**

Saketh Katta

---

Strawberry Crest HS

Title: Optimization of Pathophysiological Databases for Enhanced User Experience, Year 2

Memorial Award: **Robert J. Matthews Award**

Anya Patidar

---

King HS

Title: Evaluation of Polymer-plasticizer Blends for Environmental Sensing of BTEX Compounds

Memorial Award: **Nelda Mason Award**

Krishna Vekariya

---

Strawberry Crest HS

Title: Antibacterial Effects of UV-C Light

Memorial Award: **Carolyn S. Crow Award**

## Secondary Division Special Awards

Sarrah Abdulai & Olivia Giraldo

Wharton HS

**Title:** How Effectively Oysters Filter Different Types of Water

**Award(s):** Society for Mining, Metallurgy, and Exploration

Hayden Baudoin

Nativity Catholic School

**Title:** How Does Patriotic Music Affect Heartrate?

**Award(s):** FPA Special Award

Alisha Bhatia

Freedom HS

**Title:** Similarities Between Humans and Animals in The Huntingtin (HTT) Gene

**Award(s):** Big Cat Rescue

Camelia Bhattacharya & Khwahish Jain

Farnell MS

**Title:** Computer vision to detect hand written digits and human face using Raspberr

**Award(s):** Broadcom

Zachary Bischof

Williams MS

**Title:** Effects of Artifical sweetners on planarian growth and regeneration

**Award(s):** Broadcom

Raphael Brosula

Strawberry Crest HS

**Title:** Application of Schwarz-Christoffel Transformations to Determine Conformal Mappings

**Award(s):** Mu Alpha Theta Award

Dana Camp

Corpus Christi

**Title:** Detergent or Deterents: The Effects of Waste Water

**Award(s):** Broadcom

Josie Chapuis

Nativity Catholic School

**Title:** Magnet Mania

**Award(s):** Broadcom

Ryan Compton

Stewart MS

**Title:** Flying Forward: How design impacts distance traveled

**Award(s):** ASM Material Education Foundation

Kamille Cronk

Stewart MS

**Title:** Enzymes

**Award(s):** Broadcom

Lila Cueva

Sunlake Academy of Math & Science

**Title:** Radiation and Our Smartphones

**Award(s):** Broadcom

Ava Davis

Sunlake Academy of Math & Science

**Title:** Visions of Color

**Award(s):** Broadcom

Justin Delgado

Strawberry Crest HS

**Title:** Correlation between Human Development Index(HDI) and Global Type-2 Diabetes

**Award(s):** FPA Special Award

Rajat Doshi

Plant HS

**Title:** Designing Sustainable Clay-Based Adsorbents to Remove Arsenic from Drinking Water

**Award(s):** Accelerate Learning STEMscopes, USMA U.S. Metric Association, and Yale Science & Engineering Association

Hannah Encinosa & Chloe Gant

Buchanan MSS

**Title:** How Generational Changes Impact Film Genre Decisions

**Award(s):** Broadcom

Chere' Erickson

**Title:** The Effects of Polypropylene Plastic on Dissolved Oxygen Levels

**Award(s):** Association for Women Geoscientists, and Society for Mining, Metallurgy, & Exploration

Skyllar Erikson

Stewart MS

**Title:** Sustainable Alternatives for Commercial Construction: An Evaluation of Eco-Friendly Alternatives to Traditional Roofing

**Award(s):** Cardinal Roofing and Busch Gardens

Elaine Feaster

Liberty MS

**Title:** Naturally Cool

**Award(s):** Cardinal Roofing Broadcom

Brady Fitzpatrick

Coleman MS

**Title:** The Risk of Dehydration in NFL Positions

**Award(s):** Broadcom

Zion Flavien

Wharton HS

**Title:** Global Warming: The relation between chlorophyll production and a healthy Earth

**Award(s):** American Meteorological Society

Genesis Garcia

Hill MS

**Title:** Depolymerizing Chemicals vs. Polystyrene

**Award(s):** Broadcom

Elena Glow

Williams MS

**Title:** Allelopathic effect of Cymbopogon citratus on the cultivation of Oryza sativa

**Award(s):** Broadcom

Sabrina Grayson

Nativity Catholic School

**Title:** The Gender To Remember

**Award(s):** Broadcom

Shrey Gupta

Williams MS

**Title:** Yeast-Feast on the "Rising" Beast

**Award(s):** Broadcom

Cyenna Ison & Elizabeth Johns

Buchanan MS

**Title:** Effects Of Cell Lysis Modification On DNA Extraction

**Award(s):** The Society for In Vitro Biology

Saketh Katta

Strawberry Crest HS

**Title:** Optimization of Pathophysiological Databases for Enhanced User Experience, Year 2

**Award(s):** American Psychological Association

Elizabeth McCaffrey

Carrollwood Day

**Title:** Solar Power Electrocoagulation Cell for Removal of Nitrate and Phosphate from Wastewater Retention Ponds

**Award(s):** Stockholm Junior Water Prize and EPC

Katherine McCaffrey

Carrollwood Day

**Title:** Construction and Performance of a Silicone- Graphene Nanocomposite Strain Gauge

**Award(s):** ASM Material Education Foundation

Isabelle Meckley

Nativity Catholic School

**Title:** Grow Corals Grow!

**Award(s):** Broadcom

Shivani Padhye

Middleton HS

**Title:** Music to my Ears

**Award(s):** FPA Special Award

Srikar Parsi

Strawberry Crest HS

**Title:** The Encryption and Decryption of messages with an intelligent chatbot through the usage of polygraphs

**Award(s):** Intel Excellence in Computer Science Award

Shloke Patel

Carrollwood Day

**Title:** Testing the efficacy of biological control measure in preventing the reinfection of citrus greening disease and its validation of experiment through qPCR technique.

**Award(s):** USMA and U.S. Metric Association  
Broadcom

Uma Patel

Liberty MS

**Title:** The Vitamin C Integrity Project.

**Award(s):** Broadcom

Laura Pinto Alton

Hill MS

**Title:** Are Bilinguals better problem solver than monolinguals.

**Award(s):** FPA Special Award

Ellie & Olivia Pliska

Liberty MS

**Title:** The Algae is Blooming: Does Synthetic or Organic Fertilizer Contribute more to  
**Award(s):** Broadcom



James Prescot

Strawberry Crest HS

**Title:** The Effectiveness of Barley Straw Extract in Naturally Inhibiting the Growth of Scenedesmus sp. Algae in Eutrophic Freshwater Environments when Present in Varying Concentrations of the Recommended Dosage (10%, 20%, 30%, 40%, 50%).

**Award(s):** Ricoh Sustainable Development Award

Meghna Ramaswamy

Farnell MS

**Title:** Predicting the Nature of Pesticides in our Food

**Award(s):** Broadcom

Makana Salim-Uesi

Williams MS

**Title:** Let's Go RCV H2O!

**Award(s):** City of Tampa Broadcom

Nadia Smith & Barrett Williams

Buchanan MS

**Title:** How Does Baking Soda Affect A Glow Sticks Luminosity?

**Award(s):** Broadcom

Christopher Steadman

Hill MS

**Title:** Viable Solutions for Single Use Straws

**Award(s):** Florida Aquarium

Teghan Theile

Buchanan MS

**Title:** Analysis Of Clinical Success And Complication Rates Of Duraplasty Chiari Malformation Decompression Surgeries

**Award(s):** Bristol-Myers Squibb Innovation Award and Florida Association of Science Teachers

Mark Thivierge

Homeschool

**Title:** Developing Microsatellite Markers to Identify Vulnerable Argopecten irradians Populations

**Award(s):** Bristol-Myers Squibb Innovation Award

Ethan VanName

Buchanan MS

**Title:** The Effects Of Human Population Density On Sea Turtle Nesting Sites In The Venice Beach Areas Of Florida

**Award(s):** Big Cat Rescue

Amari Vasser

Hill MS

**Title:** Weathering on Limestone

**Award(s):** American Meteorological Society

Krishna Vekariya

Strawberry Crest HS

**Title:** Antibacterial Effects of UV-C Light

**Award(s):** Florida Association of Science Teachers and Society for Mining, Metallurgy, & Exploration

Allee Williams

Buchanan MS

**Title:** The Effects Of Plant Variety on Mosquito Collection

**Award(s):** Broadcom

Owen Young

Stewart MS

**Title:** Compost or Landfill? Decomposition Rates Among Biodegradable Substances In Distinct Controlled Environments

**Award(s):** NOAA Taking the Pulse of the Planet Award and NASA Earth Systems Science Award

# Junior Animal Sciences Awards

Lisa Maeda

Benito MS

---

**Title:** Which Length of Electromagnetic Waves Repels Mosquitoes the Most?

**Place: 3**

Allee Williams

Buchanan MS

---

**Title:** The Effects Of Plant Variety On Mosquito Collection

**Place: 2**

Isabelle Meckley

Nativity Catholic School

---

**Title:** Grow Corals Grow!

**Place: 2**

Shloke Patel

Carrollwood Day

---

**Title:** Testing the efficacy of biological control measure in preventing the reinfection of citrus greening disease and its validation of experiment through qPCR technique. **Place: 1**

# Junior Behavioral and Social Sciences Awards

Adrianna Rodriguez

Hill MS

---

**Title:** Does color and gender have an impact on your memory

**Place: 3**

Hayden Baudoin

Nativity Catholic School

---

**Title:** How Does Patriotic Music Affect Heartrate?

**Place: 3**

Hannah Encinosa & Chloe Gant

Buchanan MS

---

**Title:** How Generational Changes Impact Film Genre Decisions

**Place: 2**

Ava Davis

Sunlake Academy of Math and Science

---

**Title:** Visions of Color

**Place: 2**

Sabrina Grayson

Nativity Catholic School

---

**Title:** The Gender To Remember

**Place: 1**

# Junior Biomedical and Health Sciences Awards

Lauren Slade

Stewart MS

---

**Title:** Measuring the Electrical Resistance of Electrolytes in Liquid

**Place: 3**

Meghna Ramaswamy

Farnell MS

---

**Title:** Predicting the Nature of Pesticides in our Food

**Place: 2**

Uma Panchal

Liberty MS

---

**Title:** The Vitamin C Integrity Project

**Place: 1**

# Junior Chemistry Awards

Asher McMillan

Sunlake Academy of Math and Science

**Title:** Electrolyte Challenge

**Place: 3**

Grace Pleinis

Coleman MS

**Title:** Rise Up; the Effect of Different Leavening Agents on Cake

**Place: 3**

Michele Sandoval

Sunlake Academy of Math and Science

**Title:** Which Type of Drink Stains the Teeth the Most?

**Place: 3**

Jennalise Tia

Nativity Catholic School

**Title:** Freeze Tag

**Place: 3**

Genesis Garcia

Hill MS

**Title:** Depolymerizing Chemicals vs. Polystyrene

**Place: 2**

Nadia Smith & Barrett Williams

Buchanan MS

**Title:** How Does Baking Soda Affect A Glow Sticks Luminosity?

**Place: 2**

Shrey Gupta

Williams MS

**Title:** Yeast-Feast on the "Rising" Beast

**Place: 1**

# Junior Cellular/Molecular Biology and Biochemistry Awards

Kamille Cronk

Stewart MS

---

**Title:** Enzymes

**Place:** 2

## Junior Earth and Environmental Sciences Awards

Amaiya Arrington

Stewart MS

---

**Title:** Egg Delivery

**Place: 3**

Dana Camp

Corpus Christi

---

**Title:** Detergent or Deterents: The Effects of Waste Water

**Place: 2**

Ellie and Olivia Pliska

Liberty MS

---

**Title:** The Algae is Blooming: Does Synthetic or Organic Fertilizer Contribute more to Algae Growth?

**Place: 1**



# Junior Environmental Engineering Awards

Elaine Feaster

Liberty MS

---

**Title:** Naturally Cool

**Place: 2**

Makana Salim-Uesi

Williams MS

---

**Title:** Let's Go RCV H2O!

**Place: 1**

# Junior Engineering and Materials Sciences Awards

Tyler Ward

Stewart MS

---

**Title:** What is the best electrical conductor?

**Place:** **3**

Ryan Compton

Stewart MS

---

**Title:** Flying Forward: How design impacts distance traveled

**Place:** **2**

Lila Cueva

Sunlake Academy of Math and Science

---

**Title:** Radiation and Our Smartphones

**Place:** **1**

# Junior Intelligent Machines, Robotics, and Systems Software Awards

Andres Romero

Nativity Catholic School

---

**Title:** Who's Faster?

**Place:** 3

Colton Kirtley

Independence Academy

---

**Title:** What Materials Block a Wi-Fi Signal?

**Place:** 3

Adam Gainsburg & Tai Vu

Buchanan MS

---

**Title:** The Effect Of Sound Decibel Volume On Robotic Accuracy

**Place:** 2

Quinn Gallagher

Stewart MS

---

**Title:** Propelling the future

**Place:** 2

Camelia Bhattacharya & Khwahish Jain

Farnell MS

---

**Title:** Computer vision to detect hand written digits and human face using Raspberry Pi

**Place:** 1

# Junior Mathematics and Computational Sciences Awards

Osman Eksioglu

Liberty MS

---

**Title:** Machine Learning and how it adapts

**Place: 3**

Zaim Sawar

Carrollwood Day

---

**Title:** Use of Machine Learning Tool on Benefits of Curcumin Effecting Cancer Patients

**Place: 2**

Brady Fitzpatrick

Coleman MS

---

**Title:** The Risk of Dehydration in NFL Positions

**Place: 1**

# Junior Microbiology Awards

Olivia West

Hill MS

---

**Title:** Bring The Heat, or Play It Cool?

**Place: 3**

Dominic Rossi

Nativity Catholic School

---

**Title:** Where the Wilds Things Grow

**Place: 2**

Zachary Bischof

Williams MS

---

**Title:** Effects of Artificial sweetners on planarian growth and regeneration

**Place: 1**

# Junior Physics and Astronomy Awards

Raaghava Deepak

Stewart MS

---

**Title:** The effect of different materials on heat retention of water

**Place: 3**

Jayden Garcia & Todd Ison

Buchanan MS

---

**Title:** Knot Variations Effects On Monofilament Line

**Place: 2**

Montgomery Cherry

Buchanan MS

---

**Title:** Air Pressure Variations With Sand Fluidisation

**Place: 2**

Josie Chapuis

Nativity Catholic School

---

**Title:** Magnet Mania

**Place: 1**

# Junior Plant Sciences Awards

Amber Islas

Williams MS

---

**Title:** Plant Erosion

**Place: 3**

Quenten Erikson

Stewart MS

---

**Title:** Importance and Impact of Transpiration

**Place: 2**

Melissa Fraga

Smith MS

---

**Title:** Hey You! Get the Scoop on the Poop! It's Smart. It's Beautiful. It's Cow Manure.

**Place: 2**

Elena Glow

Williams MS

---

**Title:** Allelopathic effect of *Cymbopogon citratus* on the cultivation of *Oryza sativa*

**Place: 1**

# Senior Behavioral and Social Sciences Awards

Justin Delgado

Strawberry Crest HS

---

**Title:** Correlation between Human Development Index (HDI) and global Type – 2 Diabetes

**Place: 3**

Shivani Padhye

Middleton HS

---

**Title:** Music to my Ears

**Place: 2**

Nicole Carlin, Genesis Dalcourt, & Maria Pinilla-Baquero

Freedom HS

---

**Title:** How Does Music Impact Test Taking?

**Place: 2**

Saketh Katta

Strawberry Crest HS

---

**Title:** Optimization of Pathophysiological Databases for Enhanced User Experience, Year 2

**Place: 1**



# Senior Biomedical and Health Sciences Awards

Ameya Mujumdar

King HS

---

**Title:** Characterization of Diatomaceous Earth for Flowability Improvement in Pharmaceuticals

**Place: 3**

Allison Afiat

King HS

---

**Title:** I've Got Pills, They're Multiplying: Changes in the Rf values of pills after their expiration date using TLC

**Place: 2**

Mark Thivierge

Homeschool

---

**Title:** Developing Microsatellite Markers to Identify Vulnerable Argopecten irradians Populations

**Place: 1**

# Senior Chemistry Awards

Yash Patel

Wharton HS

---

**Title:** Using Banana Peels as Eco-friendly Supplements to Livestock feed

**Place: 3**

Jess Joyson

Strawberry Crest HS

---

**Title:** The Effect of Different Temperatures on the Ascorbic Acid Amount of Citrus Sinensis

**Place: 3**

Melvin Joy

Strawberry Crest HS

---

**Title:** The Effect of Limestone Concentration on Atmospheric CO<sub>2</sub> Concentrations

**Place: 3**

Anya Patidar

King HS

---

**Title:** Evaluation of Polymer-plasticizer Blends for Environmental Sensing of BTEX Compounds

**Place: 2**

Rajat Doshi

Plant HS

---

**Title:** Designing Sustainable Clay-Based Adsorbents to Remove Arsenic from Drinking Water

**Place: 1**

# Senior Cellular/Molecular Biology and Biochemistry Awards

Aaron Ha & Clyddyll Uyan

Wharton HS

---

**Title:** Chlorophyll Extraction/Chromatography

**Place: 2**

Kylie Orihuela & Mackenzie Schaecher

Wharton HS

---

**Title:** Copper Heals

**Place: 1**

# Senior Earth and Environmental Sciences Awards

Meghna Desai & Neelam Patel

Wharton HS

---

**Title:** Is it Worth Paying for Water Bottles?

**Place: 3**

Sarrah Abdulai & Olivia Giraldo

Wharton HS

---

**Title:** How Effectively Oysters Filter Different Types of Water

**Place: 2**

Chere' Erickson

Strawberry Crest HS

---

**Title:** The Effects of Polypropylene Plastic on Dissolved Oxygen Levels

**Place: 2**

Krishna Vekariya

Strawberry Crest HS

---

**Title:** Antibacterial Effects of UV-C Light

**Place: 1**

# Senior Environmental Engineering Awards

Lauren Haggerty & Ruchi Korde

Middleton HS

---

**Title:** Which combination of ingredients make the strongest bioplastic?

**Place:** 3

James Prescott

Strawberry Crest HS

---

**Title:** The Effectiveness of Barley Straw Extract in Naturally Inhibiting the Growth of *Scenedesmus* sp. Al<sub>3</sub> **Place:** 2

Environments when Present in Varying Concentrations of the Recommended Dosage (10%, 20%, 30%, 40%, 50%).

Elizabeth McCaffrey

Carrollwood Day

---

**Title:** Solar Power Electrocoagulation Cell for Removal of Nitrate and Phosphate from Wastewater Retention Ponds

**Place:** 1

# Senior Engineering and Materials Sciences Awards

Jaclyn Saldana

Wharton HS

---

**Title:** Bridge Breaking

**Place: 2**

Katherine McCaffrey

Carrollwood Day

---

**Title:** Construction and Performance of a Silicone- Graphene Nanocomposite Strain Gauge

**Place: 1**

# Senior Intelligent Machines, Robotics, and Systems Software Awards

Dean Alvarez

Strawberry Crest HS

---

**Title:** Anomaly-Based vs Signature-Based Intrusion Detection Systems: How do the effectiveness of anomaly-based intrusion detection systems and signature-based intrusion detection systems compare in terms of robustness to various attacks?

**Place: 2**

Dhruv Krishnan

Carrollwood Day

---

**Title:** Algorithmic Trading Strategy for Value Investing

**Place: 2**

Srikar Parsi

Strawberry Crest HS

---

**Title:** The Encryption and Decryption of messages with an intelligent chatbot through the usage of polygraphs

**Place: 1**

# Senior Mathematics and Computational Sciences Awards

Raphael Brosula

Strawberry Crest HS

---

**Title:** Application of Schwarz-Christoffel Transformations to Determine Conformal Mappings

**Place: 1**



# Senior Microbiology Awards

Aksheta Kanuganti

Carrollwood Day

---

**Title:** Estimation of Antibody Titers in Duffy Binding Protein (DBP) Immunized Mice and Sequencing DBP Specific B-cells **Place: 1**

# Senior Physics and Astronomy Awards

Laura Deloso

Wharton HS

---

**Title:** Proving Acceleration Due to Gravity

**Place: 2**

Trevor Folken

Strawberry Crest HS

---

**Title:** An Investigation of the Effect of Combatant Positioning and Rainfall on the Outcome of the Battle of Waterloo **Place: 1**

# Senior Plant Sciences Awards

Jordan Bramley

Durant HS

---

**Title:** The Comparative Growth Rates of Radishes Between Solar Panels

**Place: 3**

Sarah McInvale

Wharton HS

---

**Title:** Radiation on Germination

**Place: 3**

Huzefa Johar & SriVarsha Katoju

King HS

---

**Title:** Nanoformulations: More in less

**Place: 2**

Crystal Castro & Isabella Kim

Wharton HS

---

**Title:** The Effects of Different Concentrations of IAA on Root Initiation

**Place: 2**

Maria Jacob

Strawberry Crest HS

---

**Title:** The Effect of Different Concentrations of Gibberellin on Shoot Apex and Root Apex Growth of  
Catharanthus roseus' (Madagascar Periwinkle)

**Place: 1**

# International Science and Engineering Fair Representatives

May 2019, Phoenix, AZ

Rajat Doshi

Plant HS

---

**Title:** Designing Sustainable Clay-Based Adsorbents to Remove Arsenic from Drinking Water

Raphael Brosula

Strawberry Crest HS

---

**Title:** Application of Schwarz-Christoffel Transformations to Determine Conformal Mappings

Srikar Parsi

Strawberry Crest HS

---

**Title:** The Encryption and Decryption of messages with an intelligent chatbot through the usage of polygraphs

## JUNIOR DIVISION BEST OF FAIR

Elena Glow

Williams MS

---

**Title:** Allelopathic effect of *Cymbopogon citratus* on the cultivation of *Oryza sativa*

Junior Division

## SENIOR DIVISION BEST OF FAIR

Rajat Doshi

Plant HS

---

**Title:** Designing Sustainable Clay-Based Adsorbents to Remove Arsenic from Drinking Water

Senior Division

## 2019 Team Hillsborough

*Students to compete in the Florida State Science and Engineering Fair, March 2019*

Allison Afiat	King HS	Aksheta Kanuganti	Carrollwood Day
Camelia Bhattacharya & Khwahish Jain	Farnell MS	Saketh Katta	Strawberry Crest HS
Raphael Brosula	Strawberry Crest HS	Elizabeth McCaffrey	Carrollwood Day
Josie Chapuis	Nativity Catholic	Katherine McCaffrey	Carrollwood Day
Lila Cueva	Sunlake Academy of Math & Science	Kylie Orihuela & Mackenzie Schaecher	Wharton HS
Rajat Doshi	Plant HS	Uma Panchal	Liberty MS
Brady Fitzpatrick	Coleman MS	Srikar Parsi	Strawberry Crest HS
Trevor Folken	Strawberry Crest HS	Shloke Patel	Carrollwood Day
Elena Glow	Williams MS	Ellie and Olivia Pliska	Liberty MS
Sabrina Grayson	Nativity Catholic	James Prescott	Strawberry Crest HS
Shrey Gupta	Williams MS	Makana Salim-Uesi	Williams MS
Maria Jacob	Strawberry Crest HS	Mark Thivierge	Homeschool
Huzefa Johar & Sri Varsha Katoju	King HS	Krishna Vekariya	Strawberry Crest HS

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Hillsborough Regional  
science, technology,  
engineering &  
mathematics fair

