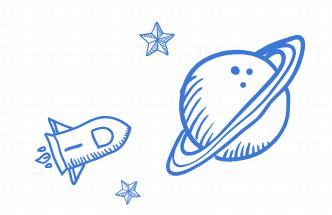


## Congratulations, Winners!

February 24, 2018





# Honorable Mention

**Elementary Division** 





## **Chemistry**

**Robert Connell** Tre Lessig Walker Meade 5th Grade **Fulton Elementary School Teacher: Paul Servis** The Wonderful World of Ice Cream



## **Chemistry**

Maya Simmons
6th Grade
Santan Elementary School
Teacher: Monica Kennedy
Fizz, Bang, Boom



## **Engineering**

**Alex Warkentin Aayush Pandey Jordan Cortez** 5th Grade **Tarwater Elementary School Teacher: Kayla Jacobs** Pandas For Prez



## **Engineering**

**Tanner Cardon Kael Slade Jason Taing** 6th Grade **CTA - Freedom Campus Teacher: Krista Yubeta Bottle Care** 



#### **Environmental Sciences**

Mialani Ocampo Kaelynne Braden Nathan Judd 5th Grade **CTA - Freedom Campus Teacher: Mary Jo White** Solar Fountain



#### **Environmental Sciences**

**Kate Burson Lindsey Tainsky** Ella Deisinger 6th Grade **Fulton Elementary School** Teacher: Tonja Pichardo Purifying Salt Water



#### **Medicine & Health Sciences**

Ryan Whyte
Reese Miller
5th Grade
Jacobson Elementary School
Teacher: Jaron Foy
Soda, Sugar and Science



## **Physics & Astronomy**

**Barrett Becker Nick Huff** Lauren Jack 5th Grade **Carlson Elementary School Teacher: Tristan Ruddle** Speed of Catapults



## **Physics & Astronomy**

**Arun Chebrolu** Glen Ruhl **Justin Yen** 6th Grade **Jacobson Elementary School Teacher: Ashleigh Butler** Magnetic Mayhem



#### **Plant Sciences**

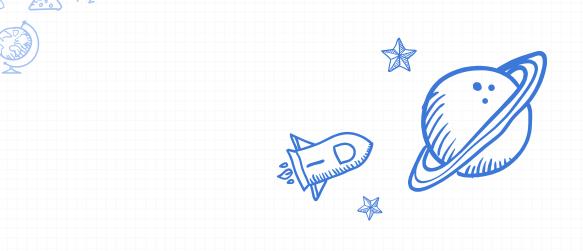
**Zoee Barclay Jacob Beasley** Elizabeth Franklin 5th Grade **Haley Elementary School Teacher: Heather Kringen Grow Plant Grow** 



#### **Plant Sciences**

Rae Allison
Raylene Espinoza
6th Grade
Navarrete Elementary School
Teacher: Joanne Terrell
Venus Flytrap VS. Heat





## Honorable Mention

**Junior Division** 





## **Cellular & Molecular Biology**

Alyssa Fabio
8th Grade
Bogle Junior High School
Teacher: Jena Phillips
How Local Water React with Yeast Cells



## **Chemistry**

Paige Leff
7th Grade
Santan Junior High School
Teacher: Kristina Plona
Meltdown



## **Chemistry**

Junwei Mao **Spencer Russell Tyler Zakowicz** 8th Grade **Basha High School** Teacher: Meghan Dunigan Solutions to Marker Stains



### **Earth & Planetary Science**

Taylor Mears
7th Grade
Payne Junior High School
Teacher: Rosemary Schlechty
Monster of a Wave



## **Engineering**

Victoria Jezierski 7th Grade

Payne Junior High School

**Teacher: James Collier** 

Mechanical Properties of 3D Printed Materials



#### **Environmental Sciences**

Marisa Jimenez

7th Grade

Arizona College Prep - Oakland Campus

**Teacher: Clair Gustafson** 

The Effect of TDS Level on the Price of Spring Water



#### **Environmental Sciences**

Loretta Tran
Hayley Williams
8th Grade
Basha High School
Teacher: Meghan Dunigan
Rain Rain Go Away



#### **Mathematical Sciences**

Adam Lee
8th Grade
Bogle Junior High School
Teacher: Christina Morrison
Genealogy Records in Determining Ar

DNA vs. Genealogy Records in Determining Ancestral Homelands



#### **Medicine & Health Sciences**

Ella Butler
8th Grade
Bogle Junior High School
Teacher: Tammy Goodman
Which Lotion Works Best



## **Physics & Astronomy**

The Effect of Color on Heat Absorption

Brenna Buckley
7th Grade
Bogle Junior High School
Teacher: Dan Fortney
The Effect of Color on Heat Absorption



## **Physics & Astronomy**

Rylee Johansen
8th Grade
Santan Junior High School
Teacher: Kristina Plona
Spunky Spatters



#### **Plant Sciences**

## **Robby Glanville**

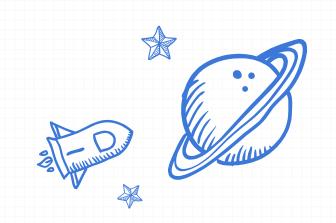
8th Grade

Arizona College Prep - Erie Campus

**Teacher: Charles Kidder** 

The Effect of Use of Pesticides during Fruit Production on its Resulting Vitamin C Content





# Honorable Mention

**Senior Division** 





#### **Behavioral & Social Sciences**

Micaela Merryman
12th Grade
Basha High School
Teacher: Michael McKelvy
Do Societal Factors Impact Homicide Convictions

Differently Than Exonerations?



### **Biochemistry**

**Ethan Merritt** 

9th Grade
Hamilton High School

**Teacher: Jyoti Nair** 

The Effect of the Method of Preparation of Broccoli on Ascorbic Acid Content



#### **Biomedical & Health**

Roshan Sanyal
11th Grade
Hamilton High School
Teacher: Raxha Bhagdev

Investigating the Ability to Combine Gold Nanoparticle Technology with Current Alzheimer's Treatment Options Amplify their Therapeutic Abilities



## **Cellular & Molecular Biology**

9th Grade
Casteel High School
Teacher: Cauley Clark
Bacterial Growth



# **Computational Biology & Bioinformatics**

#### **Dravid Navale**

9th Grade Hamilton High School Teacher: Raxha Bhagdev

Identifying Single Nucleotide Polymorphisms(SNP)
Variations in Cystic Fibrosis Causing CFTR Genes
Caused by Environmental Conditions Using
Bioinformatics



## **Chemistry**

Laurel Hamblin
9th Grade
Hamilton High School
Teacher: Brian Sears
Prismatic Pyrotechnics



# Earth & Environmental Sciences

Viveka Chinnasamy **Charlene Bernabe Kylee Thomas** 9th Grade **Hamilton High School Teacher: Aaron Ullman** Turning Trash Into Energy



## **Energy: Physical**

Savannah Christopherson

9th Grade Perry High School Teacher: Jerry Bell

Temperature's Effect on a Solar Panel



## **Engineering Mechanics**

Saachi Poddar
9th Grade
Chandler High School
Teacher: Deanna Martin
The Effect of Nose Cone Design on Model Rockets



#### **Mathematics**

Shivam Mohite

11th Grade

Hamilton High School
Teacher: Debbie Nipar
Variations on Infinite Summability



# Microbiology

Anusha Natarajan
11th Grade
Hamilton High School
Teacher: Deborah Nipar
The Effect of Vitamin D Intervention on Inhibiting

GOS2



# **Physics & Astronomy**

Rebecca Holdren

9th Grade Hamilton High School Teacher: Jyoti Nair

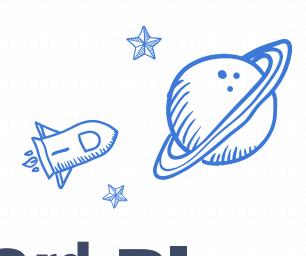
Stealth Planes, Radar and Angles of Incidence



#### **Plant Sciences**

Jessica Montecalvo
9th Grade
Hamilton High School
Teacher: Ashleigh Straube
Radiation is Lit





# 3<sup>rd</sup> Place

**Elementary Division** 





# **Cellular & Molecular Biology**

**Katy Volstad Riley Beall Chase Carter** 6th Grade **Patterson Elementary School Teacher: Daphne Medina** EGGcellent Teeth



# **Chemistry**

**Kailyn Figley** Anna Gryzlo **Chloe Wood** 5th Grade **CTA - Freedom Campus Teacher: Mary Jo White** Crystallization



# **Chemistry**

**Isaac Cuddihy Arnav Mishra** Caleb Sirilan 6th Grade **Jacobson Elementary School** Teacher: Alex Kiracofe The Shocking Truth About Batteries



# **Engineering**

Alex Huang
Andrew Nelson
5th Grade
Jacobson Elementary School
Teacher: Susana Clapham
Think Thermal



# **Engineering**

# Eleanor Andersen Ashton Palmer

6th Grade
Auxier Elementary School

**Teacher: Joan Suhre** 

Does the Angle of the Ping Pong Catapult Affect the Distance of Where it Lands?



#### **Environmental Sciences**

Caroline Ritchie
Reese Whyte
5th Grade
Jacobson Elementary School
Teacher: Jaron Foy
Sandbag Solution



#### **Environmental Sciences**

Savanna Creal
6th Grade
Knox Gifted Academy
Teacher: Michael Buist
Contamination Control



### **Medicine & Health Sciences**

**Grant Smith Ava Nomura Riley Wiggins** 5th Grade **Navarrete Elementary School Teacher: Bianca Doller** Iron for Breakfast



# **Physics & Astronomy**

Kaelyn Berthiaume
J Lilly Ritze
5th Grade
CTA - Goodman Campus
Teacher: Carolyn Fox
Boat Bash



# **Physics & Astronomy**

**Vincent Blacconiere Jameson Bauer Keston Welker** 6th Grade **Hull Elementary School Teacher: Lisa Boyer** Different Pitches in Bottles



#### **Plant Sciences**

**Breydon Frizzell Karson Leavitt Damon Uribe** 5th Grade **Tarwater Elementary School** Teacher: Tonya McMillan How Different Liquids Affect the Growth of Plants



#### **Plant Sciences**

Jacob Druhe
Luke Vermeulen
6th Grade
Ryan Elementary School
Teacher: Tracy Silva
Algae Growth







**Junior Division** 





#### **Animal Sciences**

Diya Nath 7th Grade

Arizona College Prep - Erie Campus Teacher: Larisa Thompson

The Effect of Household Chemicals on Brine Shrimp Stages and Death



#### **Animal Sciences**

Kiana Morris
8th Grade
Bogle Junior High School
Teacher: Christina Morrison
The Effect of Substrate on Crickets



#### **Behavioral & Social Sciences**

Isabel Marley
7th Grade
Payne Junior High School
Teacher: Rosemary Schlechty
Matters of Memory



#### **Behavioral & Social Sciences**

Megan Misener
8th Grade
Bogle Junior High School
Teacher: Jena Phillips
How Social Media Affects Personality



# **Cellular & Molecular Biology**

**Trinity Woods Ava Johnson Sydney Johnson** 7th Grade **Basha High School Teacher: Miranda Thornton Forensics** 



# **Cellular & Molecular Biology**

**Makenzie Williams** 

8th Grade

**Bogle Junior High School** 

**Teacher: Jena Phillips** 

The Effect of Water Pollutants on Daphnia Magna



# **Chemistry**

Kellyn Nault
7th Grade
Payne Junior High School
Teacher: Lara Grimes
pH in Sports Drinks



# Chemistry

#### **Nolan Burke**

8th Grade
Bogle Junior High School
Teacher: Jena Phillips

Effect of Milk Fat to Serum Ratios on pH Decline



### **Computer Science**

#### **Chloe Maden**

8th Grade
Bogle Junior High School
Teacher: Tammy Goodman

Fastest Programming Language and Method to Calculate Pi



### **Earth & Planetary Science**

Sage Patzer
7th Grade
Santan Junior High School
Teacher: Kristina Plona
Angle of Power



# **Earth & Planetary Science**

Michelle Goerge
8th Grade
Andersen Junior High School
Teacher: Vidya Balasubramaniam
Science Behind Gigantic waves



### **Engineering**

Joshua Shunk
7th Grade
Santan Junior High School
Teacher: Kristina Plona
Clean Energy Project



# **Engineering**

Pradhyum Sathishkumar
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer

The Effect of Different External Catalytic Converters on the Amount of Carbon Dioxide Coming Out



#### **Environmental Sciences**

Sophia Carson
8th Grade
Bogle Junior High School
Teacher: Christina Morrison
The Effect of Ocean Acidification on Marine
Organisms



#### **Mathematical Sciences**

8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer

Password Attack



#### **Medicine & Health Sciences**

Price Valladolid
8th Grade
Andersen Junior High School
Teacher: Vidya Balasubramaniam
Which Drink Replenishes the Most Electrolytes



# **Physics & Astronomy**

Laura Richter
7th Grade
Payne Junior High School
Teacher: James Collier
Pulley Power



# **Physics & Astronomy**

Danielle Bernabe 8th Grade

Bogle Junior High School

**Teacher: Jena Phillips** 

The Effect of Heat Plastics' Flexural Strength



#### **Plant Sciences**

Nour Hassan
Ria Kulhari
7th Grade
Bogle Junior High School
Teacher: Jena Phillips
Hypothesizing Hydroponics



#### **Plant Sciences**

Morgan Nelson
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer
Nanosilver to the Rescue





**Senior Division** 





#### **Behavioral & Social Sciences**

Abhigyan Shukla
Andrew Hyatt
10th Grade
Hamilton High School
Teacher: Bhagdev Raxha
The Brain, Language, and Stroop



#### **Biochemistry**

Neha Shakir
9th Grade
Arizona College Prep - Erie Campus
Teacher: Rachna Nath

Cooler Cows??? The Effect of Temperature on Methane Production



#### **Biomedical & Health**

Shalini Vijayaraghavan
12th Grade
Hamilton High School
Teacher: Raxha Bhagdev
A Novel Way to Cure Atheroscelorosis



## **Cellular & Molecular Biology**

Vedik Navale
12th Grade
Hamilton High School
Teacher: Debbie Nipar

Liposome-Mediated Histamine Delivery for Accelerated Wound Healing and Skin Regeneration



## **Chemistry**

Tyler Goodrich
10th Grade
Perry High School
Teacher: Billie Fortune
Breaking the Tension



# **Computational Biology & Bioinformatics**

Samantha Kamath

12th Grade

Hamilton High School

Teacher: Raxha Bhagdev

Modeling a Drug Delivery System Within Nerve Guide

Conduits



# Earth & Environmental Sciences

**Devon L Baggot** 

9th Grade

Arizona College Prep - Erie Campus

**Teacher: Rachna Nath** 

What Are You missing? The Effect of Intensities of City Lights on Light Pollution.



#### **Energy: Chemical**

Sajan Patel
9th Grade

Hamilton High School

**Teacher: Brian Sears** 

Ethanol's Efficiency in Terms of its Energy Content Compared to Gasoline and Biodiesel



## **Energy: Physical**

Hunter Paynich
10th Grade
Arizona College Prep - Erie Campus
Teacher: Rachna nath

The Effect of Different Temperatures of Water on the Solar Panel and on the Output of the Solar Panel in Volts



### **Engineering Mechanics**

Gavin McDaniel
Robert Pike
12th Grade
Perry High School
Teacher: Karen Hutchinson
On the Aerodynamics of Rocket Payload Fairings



## **Environmental Engineering**

Brendan Manning 10th Grade Hamilton High School Teacher: Raxha Bhagdev

The Effect of Cheap Water Filters on the Amount of Water Analysis Tests That the Resulting Water Passes



#### **Mathematics**

Michael Chung
11th Grade
Hamilton High School
Teacher: Raxha Bhagdev
Quantum Zeno Effect Using Schrodinger's Equation



## Microbiology

Tej Patel 9th Grade

Arizona College Prep - Erie Campus Teacher: Rachna Nath

"No SPF for You!!!" The Effect of Different Durations of UV-C Light on E. Coli Bacterial Colonies



## **Physics & Astronomy**

Jerry Sun
Jonathan Dwiyono
11th Grade
Hamilton High School
Teacher: Debbie Nipar
Using Convolutional Neural Networks to Predict

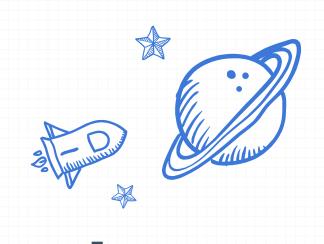
Stellar Parameters from Direct Imaging



#### **Plant Sciences**

Janet Thampy
9th Grade
Perry High School
Teacher: Christy Watabe
Alluring Alleopathy





## 2<sup>nd</sup> Place

**Elementary Division** 





#### **Behavioral & Social Sciences**

Gabriela Alvarado
Lucinda Cook
6th Grade
Santan Elementary School
Teacher: Monica Kennedy
Ready, Set, Read



## **Cellular & Molecular Biology**

Natalie Gurgui
Olivia Lund
6th Grade
Navarrete Elementary School
Teacher: Joanne Terrell
Vitamin C Aid



## **Chemistry**

Alexander Drakatos

5th Grade
Riggs Elementary School
Teacher: Heidi Weiand

Blinding Biochemicals



## **Chemistry**

Varsha Khatri
Fatima Ahmed
6th Grade
CTA - Goodman Campus
Teacher: Karen Lee
The Universal Solvent



## **Earth & Planetary Science**

Roman Corella Lomakuyva Polacca Julian Trujillo 5th Grade **CTA - Goodman Campus Teacher: Jadriene Ellery Creating Craters** 



### **Earth & Planetary Science**

Arveen Aziz
6th Grade
Arizona College Prep - Oakland Campus
Teacher: Carlie Moss

The Effect of Flood Preventing Techniques on the Amount of Wet Area of Home



## **Engineering**

Rowen Noreus
Ben Baldueza
5th Grade
Santan Elementary School
Teacher: Hannah Ross
Let It Slow



## **Engineering**

Katelyn Reinert

Megan Burke
6th Grade
Jacobson Elementary School
Teacher: Alex Kiracofe
Driving into the Future



#### **Environmental Sciences**

Annie Andersen
Madison Gonsalves
5th Grade
Hull Elementary School
Teacher: Michael Doutrich
The Best Bulb



#### **Environmental Sciences**

Dominic Cangemi
Noah Weister
6th Grade
Navarrete Elementary School
Teacher: Joanne Terrell
pH in Drinking Fountains



#### **Mathematical Sciences**

**Dawn Shim** 

6th Grade

Arizona College Prep - Oakland Campus

**Teacher: Carlie Moss** 

The Effect of the Weight of Coin Face on Amount of Coin Face Probability



#### **Medicine & Health Sciences**

Jack McDougal **Brady Ishu Abbey Redish** 5th Grade **Hull Elementary School Teacher: Kaitrin Cardew** Does Water Temperature Affect the Reaction Time of

an Alka-Seltzer Explosion?



#### **Medicine & Health Sciences**

Claudia Avalos **Audrey Muller Caitlin Flannery** 6th Grade **Hull Elementary School Teacher: Lisa Boyer** What Not to Drink for a Brighter Smile



## **Physics & Astronomy**

Merrik Kubacki **Lindsi Ramsey Addison Stevens** 5th Grade **Riggs Elementary School Teacher: Becky From** Fruitastic Batteries



## **Physics & Astronomy**

Conner Golightly
Camden Skousen
6th Grade
CTA - Freedom Campus
Teacher: Krista Yubeta
Soccer Ball Sizes



#### **Plant Sciences**

Nathan Nguyen
Benjamin Wang
5th Grade
Jacobson Elementary School
Teacher: Susana Clapham
Ready Set Grow



#### **Plant Sciences**

Kaitlyn Hutchins
Brooklyn Douglas
6th Grade
Weinberg Elementary School
Teacher: Kati Barrera
The Race Is On





# 2<sup>nd</sup> Place

**Junior Division** 





#### **Animal Sciences**

Victoria Yang
7th Grade

Arizona College Prep - Oakland Campus Teacher: Melody Anderson

The Effect of Temperature on Egg Production



#### **Animal Sciences**

### Izaan DeBruyn

8th Grade

Arizona College Prep - Oakland Campus

**Teacher: Kim Meyer** 

The Effect of Light Color on the Respiratory Rate of Guppies



#### **Behavioral & Social Sciences**

**Ashlynn Tucker Sofia Llanos Davina Chen** 7th Grade **Basha High School Teacher: Miranda Thornton** Fidget Spinner Madness



#### **Behavioral & Social Sciences**

Clare Hale
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer
Gender Stereotypes



# **Cellular & Molecular Biology**

Andrew Yang
7th Grade
Arizona College Prep - Oakland Campus
Teacher: Melody Anderson

The Effect of Sugar Type on Yeast Metabolism



# **Cellular & Molecular Biology**

Shruti Ramkumar
8th Grade
Bogle Junior High School
Teacher: Jena Phillips
Detection of the 1p and 19q Chromosome Using Deep
Learning



## Chemistry

#### Jordan Hill

7th Grade

Arizona College Prep - Oakland Campus Teacher: Melody Anderson

The Effect of Material Type on Rate of Temperature Conduction



### Chemistry

Jennyfer Park
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Tamela Harris

The Effect of Different Oil Ingredients Added into Soap on its pH Level



### **Computer Science**

Bode Light
8th Grade
Bogle Junior High School
Teacher: Jena Phillips
The Effect of Big Data on Digital Assistants



# **Earth & Planetary Science**

8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer
The Effect of Soil Moisture on the Building Stability



# **Engineering**

Noah Kellso
Shayan Mukherjee
7th Grade
Bogle Junior High School
Teacher: Jena Phillips
Power of Pressure



# **Engineering**

**Jack Cristofano Ben Jones** 8th Grade **Bogle Junior High School Teacher: Jena Phillips** How Sandbags Used in Hurricanes/Flooding Can Be **Improved** 



#### **Environmental Sciences**

Charles Zhang
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Tamela Harris
The Effect of Humidity on Solar Cell Performance



#### **Mathematical Sciences**

#### **Anish Puri**

8th Grade

Arizona College Prep - Oakland Campus Teacher: Tamela Harris

The Effect of Possible Password Combinations Across Length and Number of Characters Allowed on the Time Taken to Crack a Password



#### **Medicine & Health Sciences**

Defne Aydin 7th Grade

Arizona College Prep - Oakland Campus Teacher: Melody Anderson

The Effect of Different Water Purification Methods on the Number of Surviving Protists Left in the Water



#### **Medicine & Health Sciences**

Mikayla Gardias
8th Grade
Bogle Junior High School
Teacher: Tammy Goodman
How Activity Affects Sleep Quality



# **Physics & Astronomy**

**Rahil Shah** 

7th Grade

Arizona College Prep - Oakland Campus

**Teacher: Melody Anderson** 

The Effect of Wing Angle on Quad-Copter (Drone)
Speed



# **Physics & Astronomy**

Andrew Kang
8th Grade
Arizona College Prep - Erie Campus
Teacher: Charles Kidder
The Effect of Angle of Attack on Voltage Generated By
Wind Turbines



#### **Plant Sciences**

# Michelle Hu 7th Grade Santan Junior High School Teacher: Kristina Plona

The Effect of Sunscreen on Dissolved Oxygen Produced Nannochloropsis



#### **Plant Sciences**

#### Mason Lemke

8th Grade Bogle Junior High School Teacher: Tammy Goodman

The Effect of Super Absorbent Polymers on the Growth of a Plant





# 2<sup>nd</sup> Place

**Senior Division** 





#### **Animal Sciences**

### **Emma Loop**

9th Grade

Arizona College Prep - Erie Campus

**Teacher: Rachna Nath** 

SWARMING: The Effect of Household Ingredients on Bee Behavior and How it Can Control Swarming



#### **Behavioral & Social Sciences**

Devrath lyer
10th Grade
Hamilton High School
Teacher: Debbie Nipar

Automatically Analyzing Open-Ended Survey Responses Using Statistical and Machine Learning Methods



# **Biochemistry**

Nicole Smith
9th Grade

**Hamilton High School** 

**Teacher: Brian Sears** 

The Effect of CO<sub>2</sub> on the Decomposition of Oysters



#### **Biomedical & Health**

Laasya Vallabhaneni

12th Grade

**Hamilton High School** 

**Teacher: Debbie Nipar** 

Effects of Age on Neuropathology Induced by Experimental Pediatric Concussion



# **Cellular & Molecular Biology**

Lasya Anantuni
Rachel Yu
12th Grade
Hamilton High School
Teacher: Raxha Bhagdev
The Astroglial Scar After Exercise Treatment PostSpinal Cord Injury



# **Chemistry**

Omkar Arasaiah
9th Grade
Hamilton High School
Teacher: Raxha Bhagdev
Grapes Can Produce Plasma. But How?



# **Computational Biology & Bioinformatics**

#### **Elaina Ashton**

10th Grade

Arizona College Prep - Erie Campus Teacher: Kevin Jagiello

The Effect of Different Size Bloated Stomachs on the Electrical Resistance of a Stretch Sensor When Measured Using an Intel Galileo Arduino Board or a Digital Multimeter



# Earth & Environmental Sciences

Peyton Idleman
9th Grade
Perry High School
Teacher: Jerry Bell
Drastic Reduction of Plastic



# **Energy: Chemical**

#### Nikita Bharati

9th Grade
Basha High School
Teacher: Michael McKelvy

Investigation of the Algal Bioflocculating Activity of Naturally-Occurring Extracellular Polymeric Substances (EPS): A Novel Approach for Optimizing Biofuel Production



# **Energy: Physical**

Travis Zhang
Dev Singhania
10th Grade

Hamilton High School Teacher: Raxha Bhagdev

A Spatial and Temporal Model for Probabilistic Forecasting of Solar Photo-Voltaic Power



# **Engineering Mechanics**

Sonakshi Sharma
Ayesha Raman
11th Grade
Hamilton High School
Teacher: Raxha Bhagdev
Mechanical Fatique of PCM-Based Infrastructure



# **Environmental Engineering**

Arthur Yang
9th Grade
Hamilton High School
Teacher: Taylor Hale

Effect of Changes in Operating Temperature on the Voltage Output of a Reversible Fuel Cell



#### **Materials Science**

9th Grade
Hamilton High School
Teacher: Debbie Crane
Phytogenic Prosthetics



#### **Mathematics**

#### **Evan Crabtree**

10th Grade
Perry High School
Teacher: Karen Hutchinson

The Effect of Shuffling Technique on Number of Consecutive Cards



# Microbiology

Hannah Skocypec

12th Grade

**Basha High School** 

**Teacher: Michael McKelvy** 

Exploring the Use of Bacteria in Mitigating Fungal Disease



# **Physics & Astronomy**

Jacob Wise

10th Grade
Perry High School
Teacher: Karen Hutchinson
Observing Particle Decay with Clouds



#### **Plant Sciences**

#### Candice DeCuna

9th Grade Hamilton High School Teacher: Brian Sears

The Efficacy of Plant Type on Number of Crickets Repelled





# 1st Place

**Elementary Division** 





#### **Animal Sciences**

Aubrey Colvin
6th Grade
Navarrete Elementary School
Teacher: Joanne Terrell
Getting Schooled on Climate Change



#### **Behavioral & Social Sciences**

**Roman Sanders** 

5th Grade

**CTA - Freedom Campus** 

**Teacher: MaryJo White** 

Backwards Video Gaming - Testing Neuroplasticity



#### **Behavioral & Social Sciences**

Sydni Parker
6th Grade
Navarrete Elementary School
Teacher: Joanne Terrell
Pump the Beats



# **Cellular & Molecular Biology**

Corey Allen
Lailani Hall
5th Grade
Sanborn Elementary School
Teacher: Geneal Fendrick
The Fun of Melting Ice



# **Cellular & Molecular Biology**

**Ekta Puri** 

6th Grade

Arizona College Prep - Oakland Campus Teacher: Carlie Moss

The Effect of Caffeine's Allelopathic Potential as a Growth and Germination inhibitor



# Chemistry

Prisha Khemka Disha Sankhla **Emma Weiss** 5th Grade **Knox Gifted Academy Teacher: Jamie Stack** A Sweet Solution



# Chemistry

# Shanthi Lebonheur 6th Grade College Prep - Oakland Camp

Arizona College Prep - Oakland Campus Teacher: Carlie Moss

The Effect of the Type of Emulsifier or Stabilizer on the Amount of Water, Oil, and Dispersed Phase in an Emulsion



# **Computer Science**

Shane Smith
6th Grade
Ryan Elementary School
Teacher: Caroline Hall
RFID Reader Blocking: What Works and What Doesn't



# **Earth & Planetary Science**

Mia Smith **Anya Morman Marissa Chavez** 5th Grade **CTA - Freedom Campus Teacher: Mary Jo White Light Powered Solar** 



# **Earth & Planetary Science**

Leela Raj Sankar
6th Grade
Knox Gifted Academy
Teacher: Michael Buist
Purification Situation



# **Engineering**

Prisha Schroff
Michael Rosendahl
5th Grade
Knox Gifted Academy
Teacher: Deepa lyer
Solar Powered Drones



# **Engineering**

**Emma Hogarth** Sara Horrell **Dylan Lee** 6th Grade **Knox Gifted Academy Teacher: Michael Buist** Polyhedron Pros



#### **Environmental Sciences**

**Cullen Shreiner Alex Jian Daniel Coles** 5th Grade **Knox Gifted Academy** Teacher: Deepa lyer Solar Irradiance



#### **Environmental Sciences**

Sophia Mallette **Taylor Tainsky** Valerie Miller 6th Grade **Fulton Elementary School Teacher: Nicole Renio** A Sip of the Ocean



#### **Mathematical Sciences**

**Eldrick Chang Daniel Lin Nate Feely 6th Grade Knox Gifted Academy Teacher: Michael Buist** Marvelous Membranes



#### **Medicine & Health Sciences**

**Whitney Connor** Megan Williams Sidney Fagan 5th Grade **Knox Gifted Academy Teacher: Jamie Stack** Testing SPFs in Sunscreen



#### **Medicine & Health Sciences**

Caelyn Bambanian **Chloe Boyd** Sophia Greifzu 6th Grade **Santan Elementary School Teacher: Monica Kennedy** Heart Beat



# **Physics & Astronomy**

**Andres Encinas Drew Boyd Anders Platt** 5th Grade **Hancock Elementary School Teacher: Michelle Martin** Paper Planes with Different Nose Tip Weights



# **Physics & Astronomy**

Natalie Cline
Julia Pitman
6th Grade
Santan Elementary School
Teacher: Kim Sanford
The Ripple in the Water



#### **Plant Sciences**

Eashani Ghosh Michael Cozza **Colin Shunk** 5th Grade **Knox Gifted Academy** Teacher: Deepa lyer Hydroponics



#### **Plant Sciences**

Alicia Bai
6th Grade
Arizona College Prep - Oakland Campus
Teacher: Carlie Moss

The Effect of Salinity on the Germination Rate of Tomato Seeds







#### **Animal Sciences**

Skylar Franz

7th Grade

Arizona College Prep - Oakland Campus

**Teacher: Melody Anderson** 

The Effect of the Amount of Protein in Seeds on Ant Choosing



#### **Animal Sciences**

Kaitlyn Lai 8th Grade

Arizona College Prep - Oakland Campus Teacher: Kim Meyer

The Effect of Different Types of Scents on the Number of Crickets Near the Scent



#### **Behavioral & Social Sciences**

Jubilee Lin
7th Grade
Santan Junior High School
Teacher: Kristina Plona
Minding the Memory



#### **Behavioral & Social Sciences**

Morgan Applegate
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer
Product Placement



# **Cellular & Molecular Biology**

Mihira Karnik
7th Grade
Arizona College Prep - Erie Campus
Teacher: Larisa Thompson

What is the Ideal Time for Preparing Vegetables Such that the Nutritional Value Will Be at its Highest?



# **Cellular & Molecular Biology**

Sarah Savage
8th Grade
Santan Junior High School
Teacher: Kristina Plona
A Matter of Antioxidants



# **Chemistry**

Reese Carpenter
7th Grade
Payne Junior High School
Teacher: Rosemary Schlechty
Moving Color Molecules Using DNA Technology



# Chemistry

### Maria Lopez

8th Grade

Arizona College Prep - Erie Campus

**Teacher: Charles Kidder** 

The Effect of Different Types of Food Dye on Migration During Electrophoresis



# **Computer Science**

#### Roman Goebel

7th Grade

Arizona College Prep - Oakland Campus

**Teacher: Melody Anderson** 

The Effect of Virtual Cubes on Run Speed of a Map



# **Computer Science**

# **Richard Cheng**

8th Grade

Arizona College Prep - Oakland Campus

**Teacher: Tamela Harris** 

The Effect of Image Format on Percentage Size Reduction in Compression



## **Earth & Planetary Science**

Vinay Raman
8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer

The Effect of Chemical Dispersant Amount on the Difference of Interfacial Tension



## **Engineering**

### **Caitlin Patarakun**

7th Grade

Arizona College Prep - Erie Campus

**Teacher: Larisa Thompson** 

How Does Ambient Temperature Affect the Amount of Energy Produced by a Solar Cell?



## **Engineering**

Thilina Balasooriya
Pranav Mantri
8th Grade
Bogle Junior High School
Teacher: Jena Phillips
Smart Watering System Mach-2



#### **Environmental Sciences**

Amitesh Bharati
7th Grade
Basha High School
Teacher: Miranda Thornton
Spectacular Spirulina the Effect of Algae Blooms



#### **Environmental Sciences**

Risha Bhoite
8th Grade
Bogle Junior High School
Teacher: Jena Phillips

The Effect of Changing the Starch Used in Bioplastic and Testing the Biodegradibility and Durability



#### **Mathematical Sciences**

Christhopher Lavin
7th Grade
Arizona College Prep - Oakland Campus
Teacher: Clair Gustafson
The Effect of Angles on Distances



#### **Mathematical Sciences**

Ashley Kalscheur
8th Grade
Casteel High School
Teacher: Robin Flyte
The Math and Marketing Behind Mother Nature



### **Medicine & Health Sciences**

Sophia Dominguez

7th Grade
Payne Junior High School
Teacher: James Collier

The Effect of Various Sunscreen SPFs on UV Protection



#### **Medicine & Health Sciences**

**Nathan Lam** 

8th Grade

Arizona College Prep - Oakland Campus Teacher: Tamela Harris

The Effect of Sucrose Water's Temperature on the Amount of Sucrose Converted into Glucose Using Invertase



# **Physics & Astronomy**

#### **David Demarco**

7th Grade

Arizona College Prep - Oakland Campus Teacher: Clair Gustafson

What is the Effect of Different Methods of Transportation on the Time it Takes to move a Moai Statue?



# **Physics & Astronomy**

8th Grade
Arizona College Prep - Oakland Campus
Teacher: Kim Meyer
The Energy of the Future: Space-Based Solar Power



#### **Plant Sciences**

#### Conner Redmond 7th Grade

Arizona College Prep - Oakland Campus Teacher: Clair Gustafson

The Effect of Genotype on Resistance to Heavy Metal Soil Contamination



#### **Plant Sciences**

Jaycee Murton
8th Grade
Payne Junior High School
Teacher: Kristin Emerich
The Effect of Magnetism on Plant Growth





**Senior Division** 



#### **Animal Sciences**

Vaishalini Sitaraman
10th Grade
Hamilton High School
Teacher: Raxha Bhagdev
Hyoids and Force



#### **Behavioral & Social Sciences**

Alisha Goyal
12th Grade
Hamilton High School
Teacher: Debbie Nipar

Adolescents' Motivations for Social Media and Effects on Anxiety



## **Biochemistry**

## Sanjana Ramakrishhan

9th Grade Hamilton High School Teacher: Brian Sears

The Effect of Nitrates and Phosphates on Pixelated Algae Growth in Pond Water



#### **Biomedical & Health**

Somil Jain
12th Grade
Hamilton High School
Teacher: Raxha Bhagdev
Targeting of mtTERT Promoter for Treatment of GBM



# **Cellular & Molecular Biology**

Ryan Tran
12th Grade
Basha High School
Teacher: Michael McKelvy

Genetic Modification of N. Oceanica for Enhanced Biofuel Production



## Chemistry

Cassidy Fredette-Roman

12th Grade

Basha High School

Teacher: Michael McKelvy

Can Adding Healthy Proteins to Factor V Leiden Blood

Improve its Clotting Function?



# **Computational Biology & Bioinformatics**

#### **Rohit Nandakumar**

12th Grade
Basha High School
Teacher: Michael Mckelvy

Developing a Machine Learning Model to Identify
Protein-Protein Interaction Hotspots to Facilitate Drug
Discovery



# Earth & Environmental Sciences

Shreya Tripathi
Elda Bengu
9th Grade
Hamilton High School
Teacher: Raxha Bhagdev

The Effect of Fruit Peels on the Amount of Oil Absorbed: A Biodegradable Way to Prevent Oil Spills



## **Embedded Systems**

Sachin Konan
12th Grade
Hamilton High School
Teacher: Debbie Nipar

A Novel Framework for Optimizing Neural Network Performance by Morphing Systolic Arrays



## **Energy: Chemical**

Grace Wei

11th Grade

Hamilton High School

Teacher: Debbie Nipar

The Accelerating Effects of Ultrasonic Wave on Water's Crystallization



## **Energy: Physical**

Sahil Sharma
10th Grade
Arizona College Prep - Erie Campus
Teacher: Cristi Sims

Do Thin Film Photovoltaic Cells Made into Novel Polygons, Namely Convex and Concave Forms, Produce More Voltage than a Rigid Silicon Photovoltaic Cell?



## **Engineering Mechanics**

Aidan Powers

11th Grade
Perry High School
Teacher: Karen Hutchinson
Designing the Fastest CO2 Car



# **Environmental Engineering**

9th Grade
Arizona College Prep - Erie Campus
Teacher: Cristi Sims

Erosion Prevention: The Effect of Plant Species on Amount of Soil Erosion



#### **Materials Science**

**Austin Heath** 

12th Grade

**Perry High School** 

**Teacher: Karen Hutchinson** 

Effect of 3D Printing Infill Percentage on Tensile Strength



#### **Mathematics**

Aris Zhu

9th Grade

**Hamilton High School** 

**Teacher: Sara Loutzenheiser** 

Climate Change and its Aftermath: A Mathematical Model with Statistical Regression



# Microbiology

Nidhi Singh
9th Grade
Hamilton High School
Teacher: Taylor Hale

The Effect of Process Conditions on pH Variation During Yogurt Fermentation Process Using Arduino



# **Physics & Astronomy**

Jayashree Adivarahan

9th Grade

**Hamilton High School** 

**Teacher: Brian sears** 

The Effect of Electromagnetic Radiation on Water Hardness



#### **Plant Sciences**

Yenia Zhao 9th Grade

Hamilton High School

Teacher: Jyoti Nair

The Effect of Carbon Dioxide Concentration on Seed Viability



# Robotics & Intelligent Machines

Meghna Ramesh Hannah Guan

10th Grade Hamilton High School Teacher: Debbie Crane

The Effect of Pace of Speech on the Ability of Artificially Intelligent Devices' to Accurately Respond



# **Systems Software**

12th Grade
Hamilton High School
Teacher: Debbie Nipar

A Novel Blockchain and Deep Machine Learning Framework for Computer-Aided Analysis of Small Medical Image Datasets using GPU-accelerated Cloud Computing











#### **Water Wise Award**

Skyler Maes
Ashley Sanchez Arenas
5th Grade
Bologna Elementary School
Teacher: Sundra Nickerson
Solar-Powered Water Desalination



# **Water Wise Award**

Kera Medhi
Andrew Lee
6th Grade
CTA - Independence Campus
Teacher: Rebecca Babcock
Sheds of Water



# **Water Wise Award**

Thilina Balasooriya
Pranav Mantri
8th Grade
Bogle Junior High School
Teacher: Jena Phillips
Smart Watering System Mach-2









Prisha Khemka Disha Sankhla **Emma Weiss** 5th Grade **Knox Gifted Academy Teacher: Jamie Stack** A Sweet Solution



**Emma Hogarth** Sara Horrell **Dylan Lee** 6th Grade **Knox Gifted Academy Teacher: Michael Buist** Polyhedron Pros



Mihira Karnik
7th Grade
Arizona College Prep - Erie Campus
Teacher: Larisa Thompson

What is the Ideal Time for Preparing Vegetables Such That the Nutritional Value Will be at its Highest?



Risha Bhoite
8th Grade
Bogle Junior High School
Teacher: Jena Phillips

The Effect of Changing the Starch Used in Bioplastic and Testing the Biodegradibility and Durability



# **Rohit Nandakumar**

12th Grade
Basha High School
Teacher: Michael Mckelvy

Developing a Machine Learning Model to Identify
Protein-Protein Interaction Hotspots to Facilitate Drug
Discovery











# **Best of Fair: Physical**

12th Grade
Hamilton High School
Teacher: Debbie Nipar

A Novel Blockchain and Deep Machine Learning Framework for Computer-Aided Analysis of Small Medical Image Datasets using GPU-accelerated Cloud Computing



# **Best of Fair: Biological**

# **Rohit Nandakumar**

12th Grade
Basha High School
Teacher: Michael Mckelvy

Developing a Machine Learning Model to Identify
Protein-Protein Interaction Hotspots to Facilitate Drug
Discovery



#### **Credits**

Huge thanks to all of our HISEF volunteers and vendors for making this event successful!

Presentation template by <u>SlidesCarnival</u>
Photographs by <u>Unsplash</u>

