

# CONGRATULATIONS

to the following winners of the 2015 Synopsys Sacramento Regional STEM Fair, and THANK YOU to ALL of our student participants for another great year!



## GRAND PRIZE AWARD WINNERS OF 2015

### 1st Place

**Prem Talwai from Mira Loma High School**

In Math & Computer Science for his project

“Model Order Reduction of Cell Signaling Pathways – An Investigation of the Invasive Mechanism of Ebola Virus”

### 2nd Place

**Maya Jayanth from Mira Loma High School**

In Biological Sciences for her project

“Designing and Creating a Primer to Detect Multiple Viruses”

### 3rd Place

**Nathaniel Varghese from Folsom High School**

In Chemistry & Health Sciences for his project

“Advancing Western Blotting: Improving the Sensitivity of Protein Detection with Smaller Well Engineering”

# CATEGORY AWARD WINNERS OF 2015

## High School Division

### Behavioral & Social Sciences

#### 1st Place

Abberamee Visvanathan  
“High Tech Learners”  
(Vista del Lago High School)

#### 2nd Place

Nicholas Wong  
“What factors influence currency bill tracking?”  
(John F. Kennedy High School)

#### 3rd Place

Anant Singh, Ayman Dewan, & Asef Islam  
“Subconscious Perception of Stimuli during Sleep”  
(Mira Loma High School)

#### Honorable Mention

Sara Matto, Carla Luna, & Isher Singh  
“The effect of distractions on reaction time”  
(River City High School)

Raffaella Carrillo  
“Good Grades or Good Sleep: Can you have the best of both worlds?”  
(Inderkum High School)

### Biological Sciences

#### 1st Place

Maya Jayanth  
“Designing and Creating a Primer to Detect Multiple Viruses”  
(Mira Loma High School)

#### 2nd Place

Will Buelna

“The Effect of Pollution on Plants”  
(The Met Sacramento)

**3rd Place**

Hla Elkhatib, Makayla Benjamin, & Reeta Asmai

“Science of Film Photography”  
(Folsom High School)

**Honorable Mention**

Marisa Patel

“Caffinated Rats”  
(River City High School)

Jimmy (Cheng) Zhou

“Use of CRISPRs in Regenerative Medicine”  
(Davis Senior High School)

### **Chemistry & Health Sciences**

**1st Place**

Nathaniel Varghese

“Advancing Western Blotting: Improving the Sensitivity of Protein  
Detection with Smaller Well Engineering”  
(Folsom High School)

**2nd Place**

Brian Phong

“From Chickens to Mice to Cancer Patients? Boosting Immune Status  
with Amino Acids”  
(Monterey Trail High School)

**3rd Place**

Adith Arun

“Mathematical Modeling and Algorithms to Design More Efficient  
Cancer Therapeutics”  
(Mira Loma High School)

**Honorable Mention**

Henry Low

“Assessing the Mutagenicity of Common Herbicides Using a Novel  
Reverse Mutation Assay”  
(Western Sierra Collegiate Academy)

Karthik Raju

“Discovery of a novel polypeptide ligand targeting  $\alpha 6\beta 4$ -expressing  
pancreatic adenocarcinoma cells”  
(Mira Loma High School)

### **Energy & Transportation**

#### **1st Place**

Sanika Mane

“Determination of Most Beneficial Natural Occurring Enzyme or  
Chemical Type to Maximize Efficiency When Producing 2nd Generation  
Biofuel from Inedible Biomass”  
(Vista Del Lago High School)

#### **2nd Place**

Nathan Bergen, Kareem Ahmad, & Eashaan Katiyar  
“Passive Solar Energy Generation”  
(Vista Del Lago High School)

#### **3rd Place**

Jacquelyn Davila  
“A Coral Safe Sunscreen”  
(School of Engineering and Sciences)

#### **Honorable Mention**

Anthony Cordova, Trejon Croffet, Maribel Campos  
“Is Water from our school’s drinking fountain safe?”  
(John F. Kennedy High School)

Peter Milam & Darius Gordon-Gregor  
“Rock You like a Hurricane”  
(School of Engineering and Sciences)

## **Engineering**

### **1st Place**

Julie Fukunaga

“HappyGarden: An Internet of Things Aquaponic System”

(Tokay High)

### **2nd Place**

Henry Jorrick, Wyatt Lacroix, & Logan Matti

“Project Titan”

(Academy of Personalized Learning)

### **3rd Place**

Fouad Alamedine

“Solving Problems with Drones”

(Folsom High School)

### **Honorable Mention**

Kyle Maw, Natalie De Valle, & Gabriel Corbella

“Bradshaw Robotics”

(Bradshaw Christian High School)

Neel Lal

“Testing the structural integrity of bridges using a stress analysis test in Autodesk inventor”

(Granite Bay High School)

## **Math & Computer Sciences**

### **1st Place**

Prem Talwai

“Model Order Reduction of Cell Signalling Pathways – An Investigation of the Invasive Mechanism of Ebola Virus”

(Mira Loma High School)

### **2nd Place**

\*No Award

### **3rd Place**

\*No Award

**Physical Sciences**

**1st Place**

Catherine Colella

“Spacecraft, Micrometeoroids and Photons - A Model of Micrometeoroid Impingement using thin gauge metals to simulate thermal shielding”

(Western Sierra Collegiate Academy)

**2nd Place**

Siddharth Karthikeyan, Geoffrey Embry, & Victor Fu

“Gravity and Buoyancy Machine”

(Vista Del Lago High School)

**3rd Place**

Echo Sit & Attie Sit

“Graphene quantum dots: Determining the light intensity from natural resource of graphite powder, graphite rock, activated charcoal, and coal”

(Tracy High School)

**Honorable Mention**

Shoumik Chaudhuri

“Orbital Period and Distance”

(Inderkum High School)

Viktoriya Gracheva

“How Many Pulleys”

(School of Engineering and Sciences)

# **Middle School Division**

## **Behavioral & Social Sciences**

### **1st Place**

Rhitishah Yuva Raju

“Illuminate Your Life with Light and Color”

(Winston Churchill Middle School)

### **2nd Place**

Abaigael Reilly & Julia Hayes

“Does Screen and Text Color affect Retention?”

(Our Lady of Assumption)

### **3rd Place**

Julia Heckey & Sophia Sidley

“Cellphones”

(Leonardo Da Vinci)

### **4th Place**

Emma Macon

“Success or Bomb”

(EV Cain STEM Charter Middle School)

### **5th Place**

Alison Wright

“Rock on or Relax? Do Different Types of Music Influence Cognitive Performance?”

(EV Cain STEM Charter Middle School)

### **Honorable Mention**

Maya Steinhart

“It’s all in the Eyes”

(Sutter Middle School Sacramento)

Bryce Baughman

“Do We Eat with Our Eyes”

(EV Cain STEM Charter Middle School)

## **Biological Sciences**

### **1st Place**

Autumn Peak

“What color of light inhibits algal growth the most?”

(EV Cain STEM Charter Middle School)

### **2nd Place**

Patrick Lomperski

“Who is going to be next?”

(Albert Einstein Middle School)

### **3rd Place**

Sydney Walthall

“Water Disinfection - Testing a Simple Solar Disinfection Approach”

(Sutter Middle School Sacramento)

### **4th Place**

Chloe Moore

“Hand Sanitizer: Are you getting the bang for your buck”

(EV Cain STEM Charter Middle School)

### **5th Place**

Chance Clements

“Which Lights Attract the Most Bugs”

(EV Cain STEM Charter Middle School)

### **Honorable Mention**

Aditya Rajavelu

“Does Music Really Make Plants Grow Taller?”

(Winston Churchill Middle School)

Sophia Peavy & Lola Jan

“Home Clean Home”

(Leonardo Da Vinci)



## **Chemistry & Health Sciences**

### **1st Place**

Alex Fera

“Whether the Obstruction of Pyrocystis Fusiformis’ Circadian Rhythm will affect how bright its bioluminescent flashes are”

(EV Cain STEM Charter Middle School)

### **2nd Place**

Ben Powell

“Tums, Tums Tums Tums Tums?”

(Leonardo Da Vinci)

### **3rd Place**

Csandra Lorena & Charai Mandolph-Coleman

“The Glowing Truth”

(WE Mitchell Middle School)

### **4th Place**

Alexa Gray & Bridget Herbert

“Are your Hands Really Clean?”

(Leonardo Da Vinci)

### **5th Place**

Izabella Duchaine

“Does Organic Food or Conventional Food have more Pesticides?”

(EV Cain STEM Charter Middle School)

### **Honorable Mention**

Elisabeth Low

“Get the Soap Out”

(Sam Brannan Middle School)

Nitya Kotha

“Factors that Affect a Chemical Reaction”

(Sutter Middle School Folsom)

## **Energy & Transportation**

### **1st Place**

Alexandria Martinez

“Tide Pools: Exploring Sea Life”

(Our Lady of Assumption)

### **2nd Place**

Surabhi Hareendranath

“Can Bioplastics Be a Viable Alternative to Conventional Plastic?”

(Bethany Elementary)

### **3rd Place**

Noah Cardelli

“Splish, Splash: Which water is cleanest?”

(EV Cain STEM Charter Middle School)

### **4th Place**

Deeraj Gurram

“The generation of sustainable energy using the sun and water cycle”

(Folsom Middle School)

### **5th Place**

Mary O’Callaghan

“How Does Acid Rain Affect Aquatic Ecosystems?”

(Our Lady of Assumption)

### **Honorable Mention**

Lexi Ballard & Makenna Ballard

“How Does Water Pollution Effect Our Water Species?”

(W.E. Mitchell Middle School)

Suditi Bhatt, Akshara Legala, & Nishita Bagaria

“What type of filter is best for filtering grey water to safely reuse water  
in a household?”

(Folsom Middle School)

## **Engineering**

### **1st Place**

Will Gaudreau

“What’s Cooking?”

(Leonardo Da Vinci)

### **2nd Place**

Sinchana Shivaprasad

“Fingerprint Sensor”

(Sutter Middle School Folsom)

### **3rd Place**

Amaan Mohammed

“Project RC-PA”

(Sutter Middle School Folsom)

### **4th Place**

Vance Byer

“What materials block or at least weaken a WiFi signal?”

(EV Cain STEM Charter Middle School)

### **5th Place**

Zachary Follett

“See the Light: Household vs. Recommended Items”

(EV Cain STEM Charter Middle School)

### **Honorable Mention**

Alex DeNuzzo

“Why no WiFi?”

(Leonardo Da Vinci)

Colby Christierson

“Potato Battery, an Alternative Source for iPhone Charging”

(Sutter Middle School Folsom)

## **Math & Computer Sciences**

### **1st Place**

Samyak Surti

“Lane Merge Algorithm for Autonomous Cars”

(Folsom Middle School)

### **2nd Place**

Adam Hutchings

“The Riemann Hypothesis and the Distribution of Primes”

(Willett Elementary)

### **3rd Place**

Albert Qin

“The Spread of Drug Resistance: A Computer Simulation”

(Winston Churchill Middle School)

### **4th Place**

Kenny Duong & Tommy Hoang

“Want to make a video game? Here's how!”

(Sutter Middle School Sacramento)

### **5th Place**

Sean Cohen

“The True Randomness of Rock Paper Scissors”

(Sutter Middle School Folsom)

### **Honorable Mention**

\*No Award

## **Physical Sciences**

### **1st Place**

Manasi Deshpande

“Cleaning Oil Spills Using Nanotechnology”

(Sutter Middle School Folsom)

### **2nd Place**

Ameya Naik

“The Effect of Voltage in an Electromagnet”

(Winston Churchill Middle School)

**3rd Place**

Darin Thao

“A Breath of Fresh Air”

(Leonardo Da Vinci)

**4th Place**

Jonathan Varghese

“A Comparitive Study of AM and FM Radio Transimissions”

(Folsom Middle School)

**5th Place**

Megan Eckels

“Which Mute Mutes the Best?”

(Sutter Middle School Folsom)

**Honorable Mention**

Gautam Pradeep

“The Mpemba Effect: Does it Work?”

(Winston Churchill Middle School)

Shriya Nagulapally

“When making a Solar Oven what thickness of tin foil reflects more  
sunlight for heat?”

(Sutter Middle School Folsom)