

## GRADES K-3

## FIRST PLACE

## Saanvi Jahagirdar

## Are We Safe in Our School?

**Catherine Kolnaski**  
**Magnet School**  
**Groton, Connecticut**

## SECOND PLACE

## Kevin Joowoo Park and Eden Kang

### *Favorite Sports in 3rd Grade*

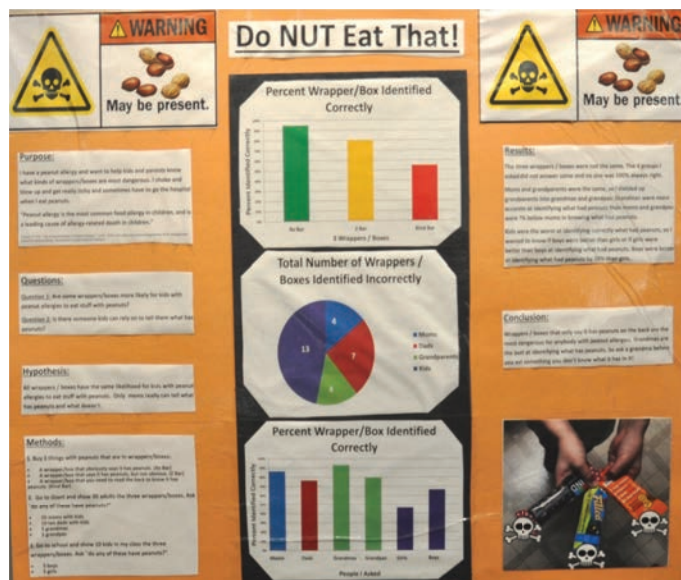
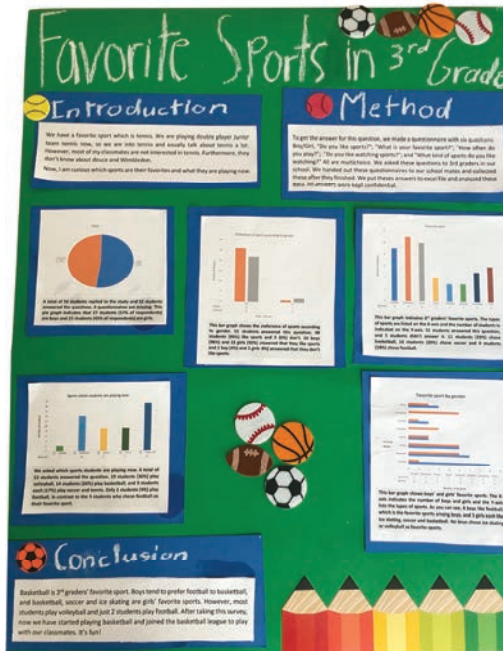
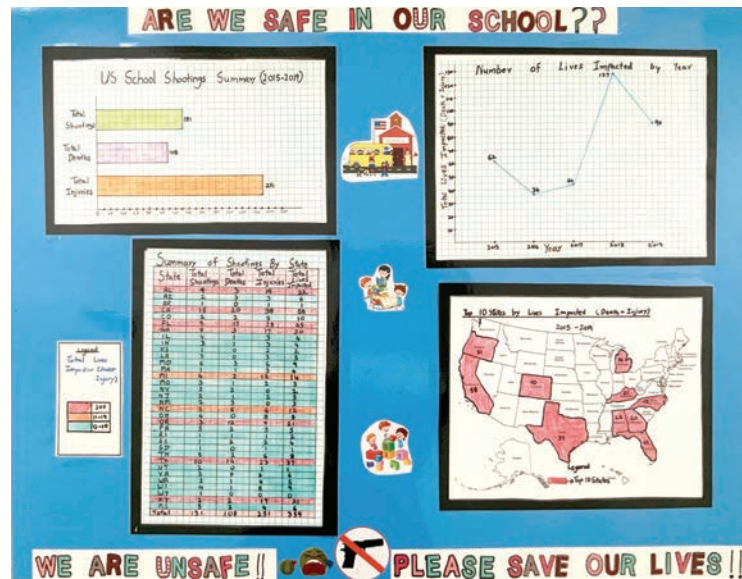
Sycamore Ridge  
Elementary School  
San Diego, California

## THIRD PLACE

## Isaac Freeman

## Do NUT Eat That

**Rydal Elementary School**  
**Abington, Pennsylvania**



## GRADES K-3

HONORABLE  
MENTIONS

Mubtasim Rafan

*Exploring Pi*

Dorothy C. Goodwin

Elementary School

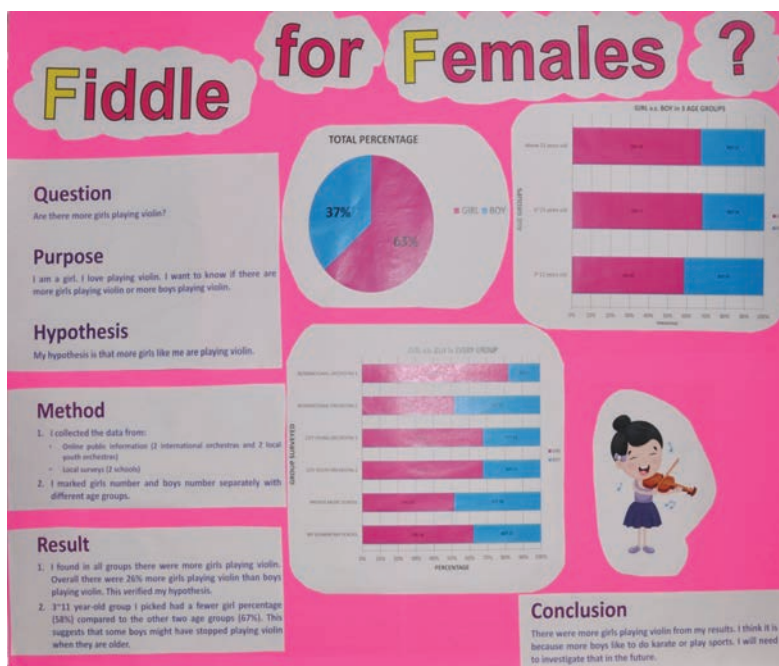
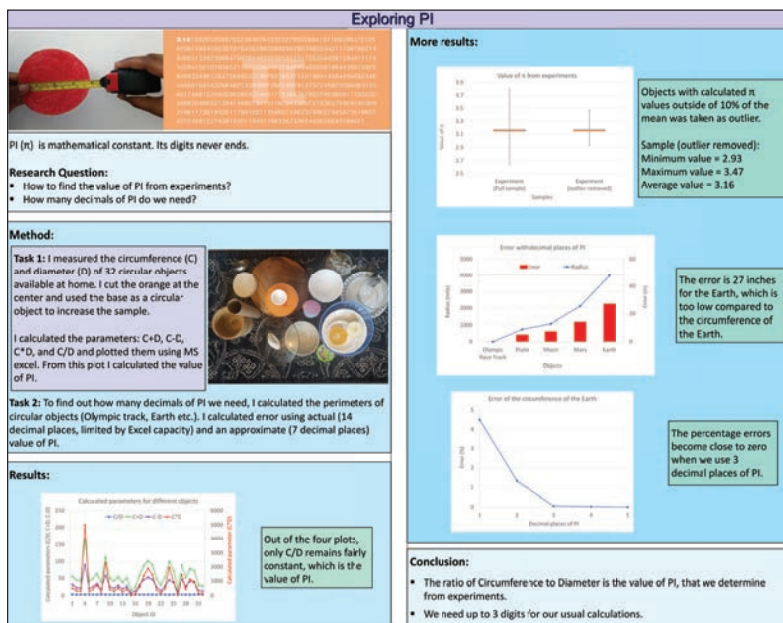
Storrs Mansfield, Connecticut

Evelyn Kuo

*Fiddle for Females?*

Rydal Elementary School

Abington, Pennsylvania





## GRADES 4–6

# FIRST PLACE

# Noah Petajisto

## COVID-19 Deaths in the Nordic Countries

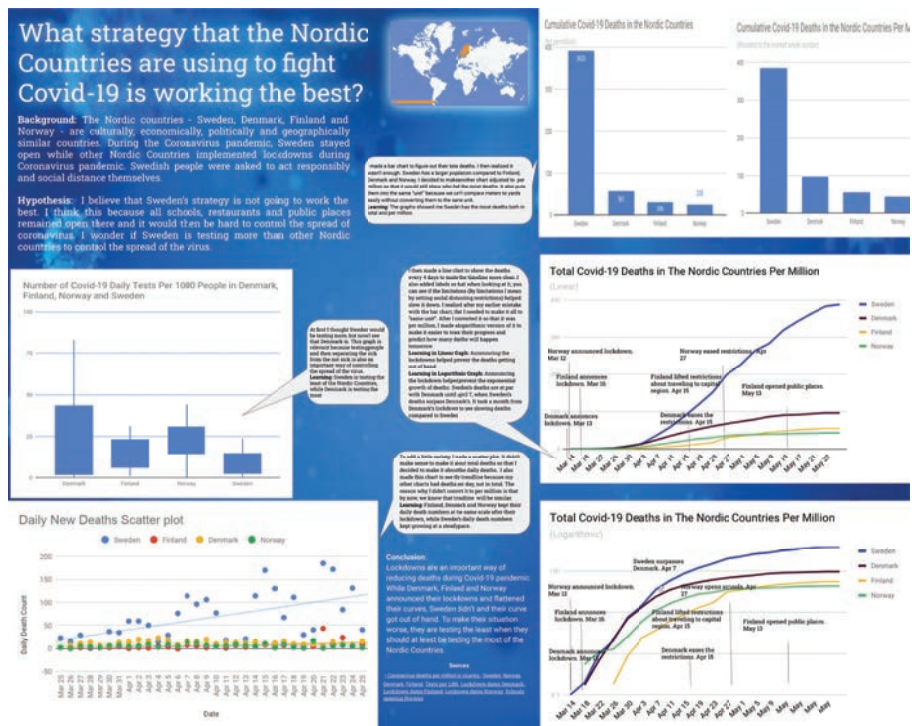
Town School for Boys  
San Francisco, California

## SECOND PLACE

## Preston Lo

# Social Distancing and Outdoor Exercise Trends in My Neighborhood During COVID-19

**Town School for Boys**  
**San Francisco, California**



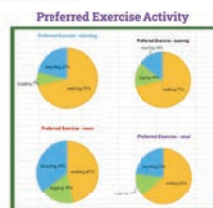
## Social Distancing and Outdoor Exercise Trends in My Neighborhood During COVID-19

By: Preston Lo

**Question: What are the social distancing and outdoor exercise trends in my neighborhood during COVID-19?**



- Although there was not a drastic difference on time of day, 37% exercised in the evening
- The remaining 30% exercised in the morning and 33% exercised at noon



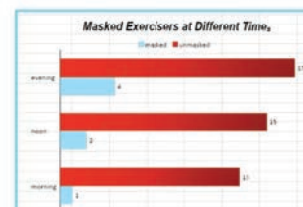
- Walking was the preferred exercise activity
- Type of exercise: 63% walkers, 13% joggers, 23% bicyclists

**Purpose:**  
I see people exercising around my neighborhood during this time of sheltering-in-place because of the Covid-19 pandemic and wondered if these neighbors were doing the right things being asked of the public such as:

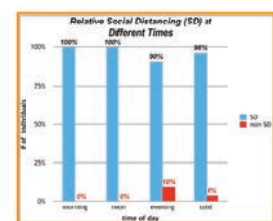
- Keeping a 6-foot distance from non-family members when outside and
- Wearing face masks?

**Data Collection:**

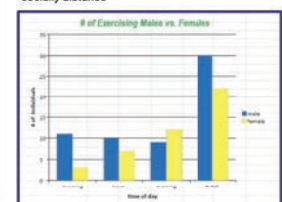
I observed people exercising from my living room window. I recorded morning, midday and evening time periods. Each observation consists of either one person or a group (2+ individuals) passing by..



- The majority of my neighborhood exercisers wore face masks
- Face mask usage: 13% wore face masks, 87% did not wear face masks



- 96% of exercisers appeared to socially distance in my neighborhood
- In the evening, the remaining 4% did not appear to socially distance



- There were more male exercisers in my neighborhood
- Gender: 58% males exercisers and 42% female exercisers

## GRADES 4–6

### THIRD PLACE

**Paavani Tewari**

*Weather Forecasts: The Good, the Bad, and the Wobbly!*

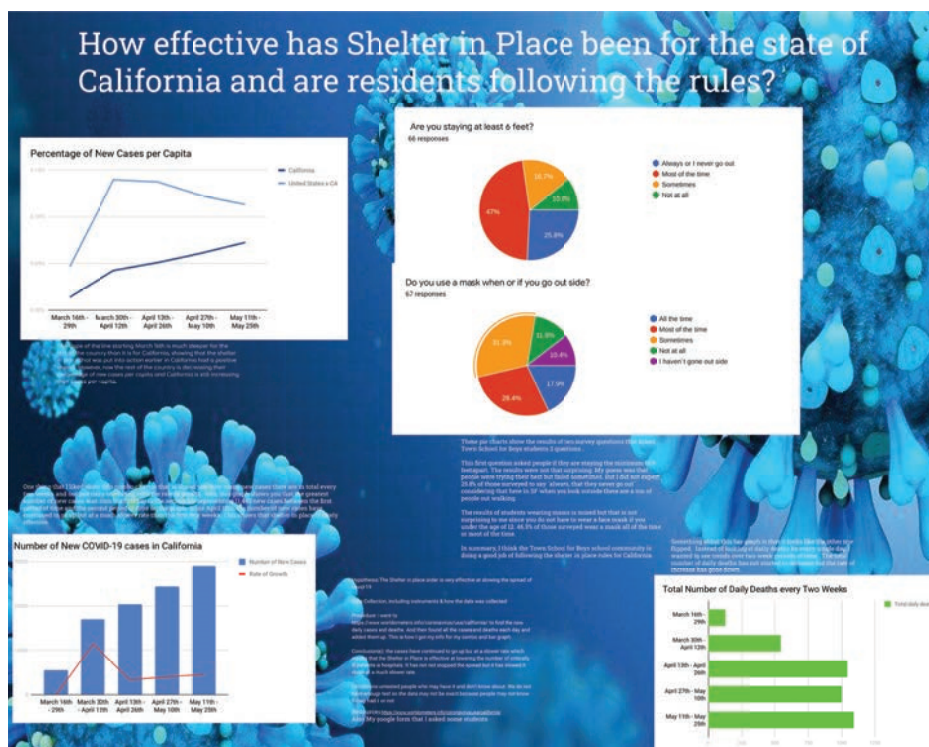
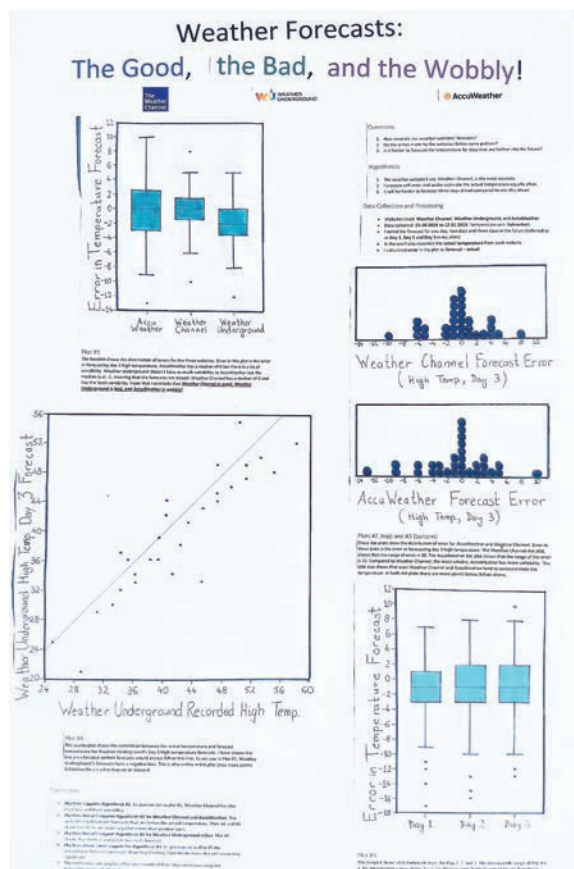
Uriah H. Lawton  
Elementary School  
Ann Arbor, Michigan

### HONORABLE MENTION

**Mason Ogborne**

*How Effective Is the Shelter in Place Order for California, and How Are the Residents Following the Rules?*

Town School for Boys  
San Francisco, California





# GRADES 7-9

## FIRST PLACE

**Daniel Nikitin**

*How Has COVID-19 Impacted Online Grocery Shopping Behavior?*

Roosevelt High School  
Seattle, Washington

## SECOND PLACE

**Jacob Schwartz and  
Lance Hartman**

*Where Do You Find the Most Thrilling Roller Coasters?*

Hatboro-Horsham High School  
Horsham, Pennsylvania

# How Has COVID-19 Impacted Online Grocery Shopping Behavior?



Hypothesis: COVID-19 has caused an increase in online grocery shopping in the US, especially in high-risk households.



## Introduction

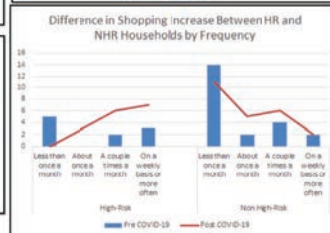
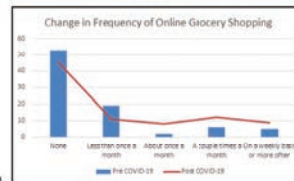
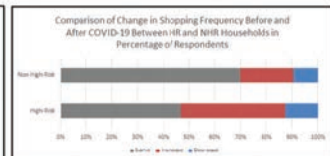
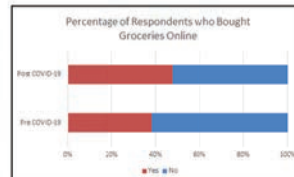
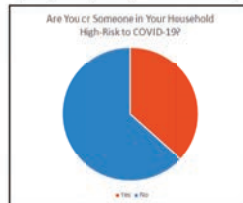
Online grocery shopping is a very recent business. In the past decade, many new services have ventured into this novel market, such as Amazon Fresh, Instacart, and many more. For my project, I wanted to demonstrate how COVID-19 has impacted online grocery shopping and test my hypothesis through statistics.

## Process

In order to test my hypothesis, I surveyed 88 staff members who work at my high school and compared data from different households.

**Pre COVID-19** refers to before January 20th, 2020 (the date of the first COVID-19 case in Washington State). **Post COVID-19** refers to after.

I defined online grocery shopping as "ordered delivery or pickup of refrigerated/fresh goods".

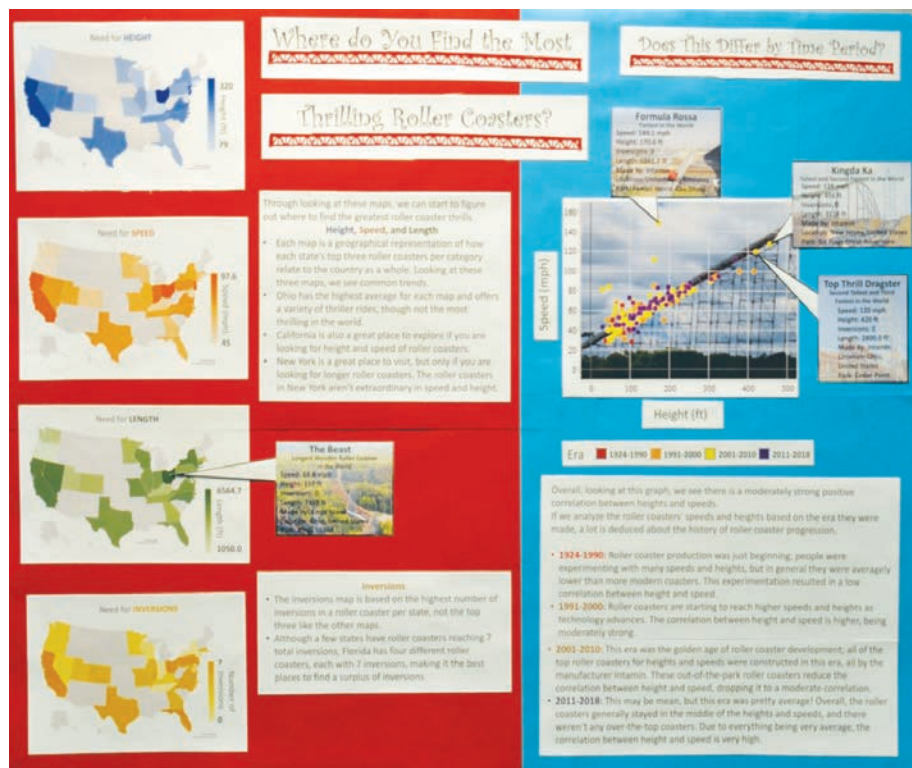


## Conclusion

It is evident from the graphics above that high-risk households online grocery shop much more often than non high-risk households. In addition, they have twice as many people who increased their shopping frequency.



This graphic concludes that COVID-19 has caused an increase in frequency of online grocery shopping. In my sample, there is an increase in people that are shopping once a month or more frequently post COVID-19.



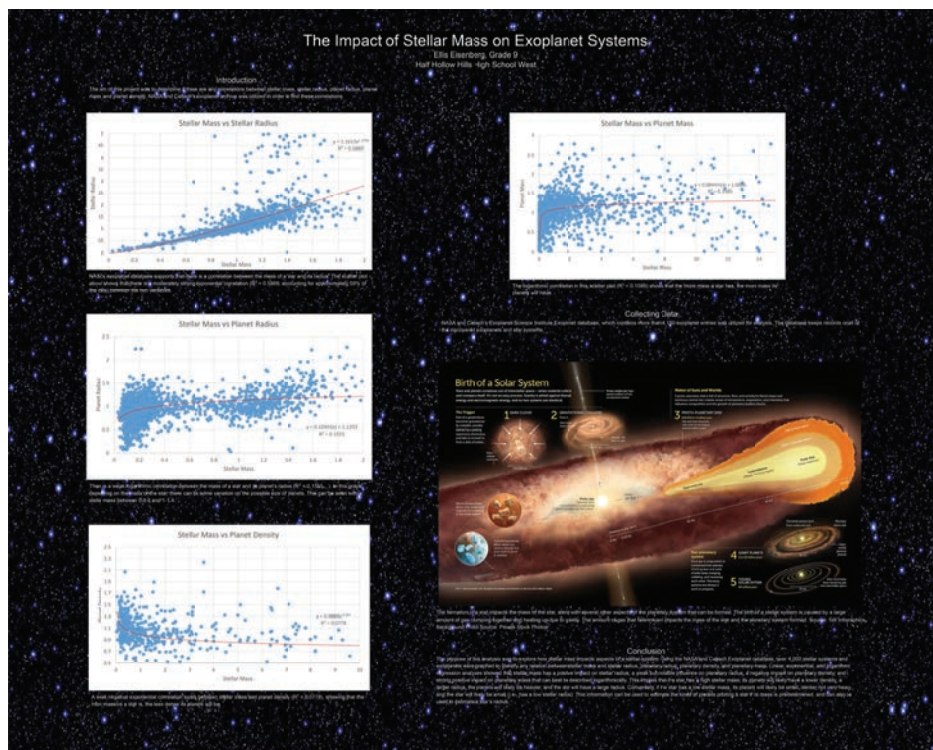
## GRADES 7–9

## THIRD PLACE

Ellis Eisenberg

*The Impact of Stellar Mass on Exoplanet Systems*Half Hollow Hills High School West  
Dix Hills, New York

## HONORABLE MENTION

Mariam Hassan and  
Viti Chandra*GIRL POWER = WORLD POWER?*Half Hollow Hills High School West  
Dix Hills, New York

## GIRL POWER = WORLD POWER?

**Introduction:**

The goal of this project was to determine if there was any correlation between how educated a country's women were and how developed it was. This topic was chosen because it was hypothesized that less developed countries would have less educated women, a hypothesis made under the assumption that women would have less educational opportunities than men in developing countries. Data used to support, or fail to support the hypothesis, was gathered from the website Gapminder, which provides the public with several measures of data from different times and locations. Data was collected of the average years of schooling for women ages 25+ and scores on the human development index, for 160 countries. The human development index is a scale from 0 to 1 that measures how developed a nation is, considering many factors such as standard of living and lifespan. In addition, data of the average life expectancy for these countries was also collected. All data values were collected from the year 2009.

**Question**

Does women's education have a relationship with more developed countries?

**Hypothesis**

Mean years of schooling for women will have a direct correlation with a country's human development index score.

**World Maps****Mean Years in School (Women 25+)****Human Development Index Score****Mean Life Expectancy****Scatterplot: Mean Years in School vs. Human Development**

Shown towards the right is a scatter plot to represent the relationship between mean years in school and human development index scores. Located below are the calculated residuals, as well as an equation for the line of best fit.

$$r = 0.897$$

$$r^2 = 0.805$$

$$y = 0.07094x + 0.01240$$

**Scatterplot: Mean Years in School vs. Life Expectancy**

To the right is a graph comparing the mean years in school against life expectancy, along with the calculated residuals, shown below.

$$r = 0.824$$

$$r^2 = 0.679$$

$$y = 0.00034x + 30.2496$$

**Further Investigation**

Located below is a table comparing the data of the country with the highest mean years of education for women ages 25+, Canada, and the lowest, Afghanistan.

Country	Mean years of schooling for women (25+)	Human Development Index Score in 2009	Mean Life Expectancy
Canada	14.21089	0.898	84.10079
Afghanistan	0.41089	0.448	50.11089

**Results: Mean Years in School vs. Human Development Index**

A positive correlation was found between years of women's education and the human development index of a country. The r-value was 0.897 and the r-squared value was 0.805, indicating that there is a strong correlation.

**Conclusion:**

One can conclude from the data, that women's education has a direct relationship with human development index scores as well as life expectancy in countries all over the world. To further examine the possible relationship between women's education and the development and quality of life in countries all over the world, mean life expectancy data was also collected. All three of these factors were found to have a strong, positive correlation. Though this data alone cannot suggest a causation between the factors at play, there is ample evidence to prove that there is a direct correlation between women's education and the development of countries all over the globe, and that life expectancy also seems to be a variable that shares in this relationship. Hidden variables that may be present and may perhaps be the cause of this relationship could be a nation's wealth, social index, corruption levels, and crime. Fearing that an additional third variable was also taken into consideration, there is also uncertainty as to which variables affect the others. Regardless of all of these factors, it is clear that women's education is an indicator of the quality of life and development of a nation.



## GRADES 10–12

## First Place

# Jeremy Dumalig

## Did Stephen Curry

## Deserve to Win

## Unanimous MVP in 2016?

## The Nueva School

## San Mateo, California

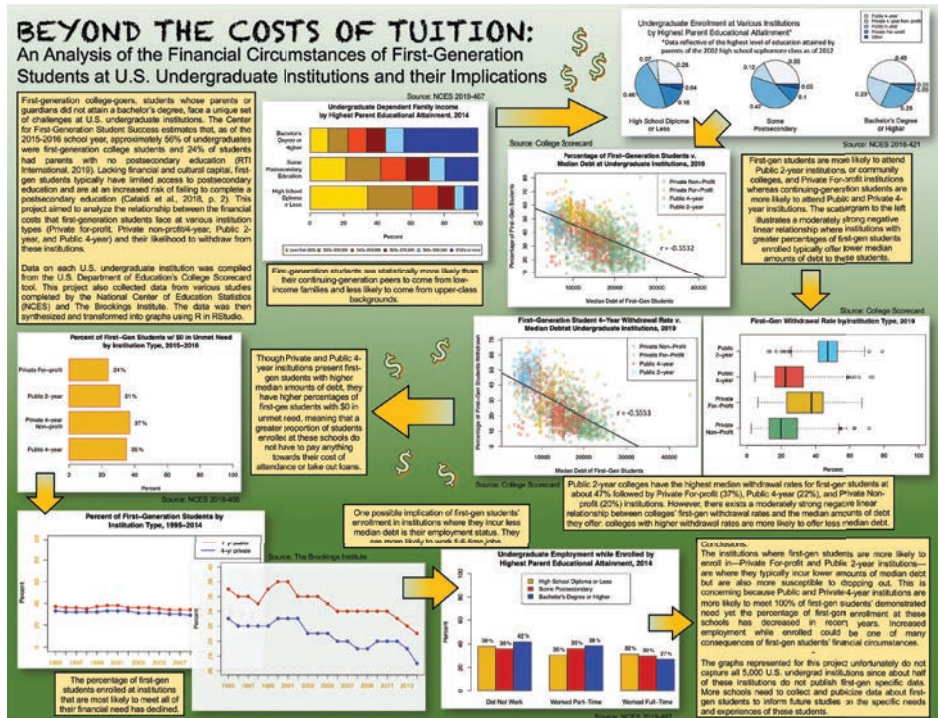
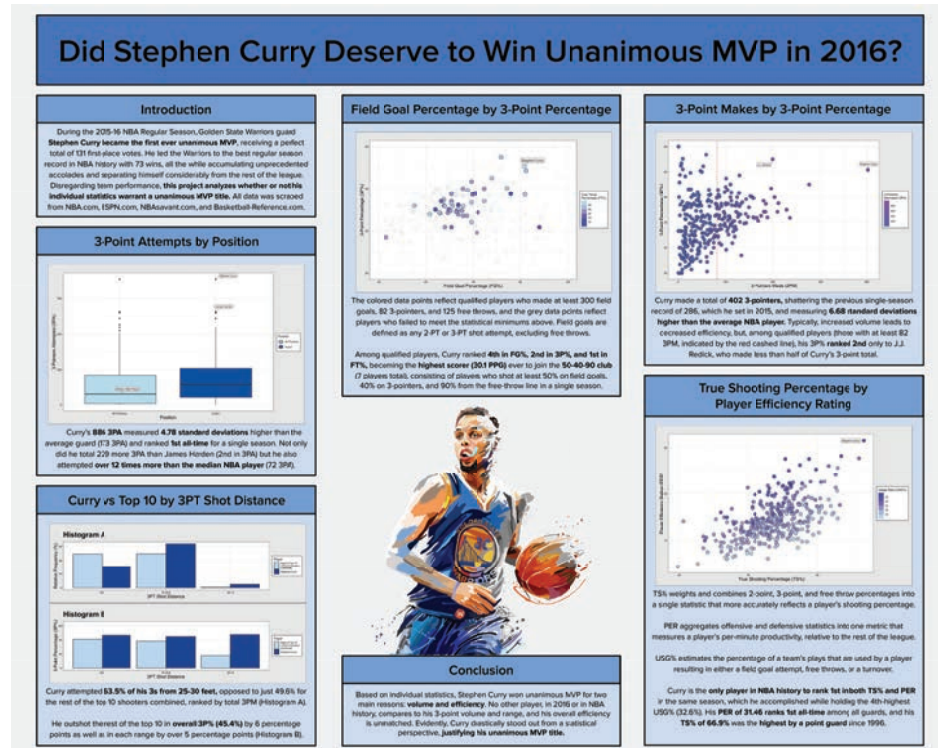
## SECOND PLACE

## Aissata Bah

## Beyond the Costs of Tuition

# Phillips Academy

## Andover, Massachusetts



## GRADES 10-12

## THIRD PLACE

Douglas Yang

*Diving into the Data of Oceans and Coral Reefs*

Phillips Academy

Andover, Massachusetts

## HONORABLE MENTION

Sarah Crockett,  
Sheldon Skoboloff,  
and RaeAnne Zobel*Music Consumption*Coronado High School  
Las Vegas, Nevada