



EDITORS IN CHIEF:

YENA KIM

ALYSSA RUST

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ACKNOWLEDGMENTS

It's been another successful year of research, and none of this would have been possible without the help from the Roslyn staff, student body, and members of our community. First, we would like to thank our wonderful research teachers, Ms. Morin, Ms. Pearlman, Mr. Oggeri, and of course, Dr. Weseley. Our research would not have been a success without their guidance.

We would also like to thank the teachers who gave up their class time to help us recruit our participants and conduct our studies, all of the students who participated in studies, and the administration for their continued support of this unique program. Specifically, we would like to thank the Social Studies Department and the English Department for helping us with recruitment and the Physical Education Department for helping us with data collection. In addition, we would like to thank all of the many research scientists who gave our students an opportunity to work in their labs or gave us advice from afar.

Furthermore, we would like to thank the members of the Institutional Review Board, Dr. Andrews, Mr. Lynch, and Ms. Venezia. Without their help and guidance, none of us would have been able to conduct our studies. We are also grateful for Ms. Leon's help in aiding us with finding articles, so we could all conduct our literature review, and our school's IT department for helping us with any technological concerns.

Likewise, we appreciate the Roslyn staff and the members of our community who have read our work, listened to us present, and thrown support behind our research efforts.

Finally, Dr. Weseley and the research students want to express their gratitude to the Research Buddies – Yena Kim, Anuj Gupta, Matthew Batnick, and Ellie Eisenberg – who volunteered their Monday afternoons to help their fellow students make their research projects the best they can be.

MUSINGS ON RESEARCH, RELATIONSHIPS, AND LIFE

In the RHS Research Program, we're not just about science; we're also about building relationships. Over years of working together, we hope our students come to see each other as members of an extended family and to appreciate one another as well as the students they meet from other schools for their diversity of personalities and talents.

Psychology tells us that we are attracted to those who are similar to us. Imagine two students drawn together by their love of music, their relationship forged over many weekend slogs to music school on the LIRR. Picture another young man, an orator of significant talent, wooing young women all over Long Island who share this interest and even broaching the divide of age and grade within our very own school. Envision two young men, each with a history of life threatening allergies, their friendship cemented over their love of the muffin.

Others fight the findings of research. Studies show that proximity breeds liking. But imagine a couple separated by a continent and brought together only once in three years: by a research conference.

And, sometimes, feelings change seemingly overnight. One day, a girl puts on some professional clothes, and the boy next door sees her in an entirely different light; there's chemistry.

I hope that you will always look back at your time in our program as time well spent – that you not only learned about science, but also about each other and life. Best of luck in college and beyond!

Dr. Weseley

SENIOR SPOTLIGHT

SHAWN ANAND

BY ANUJ GUPTA



The Swan is quite the riveting specimen. He flies down the track, beating all of the other animals (including the Kamyar). He's an avid hunter, searching throughout NYC for his next Pokémon. But most impressively, he has quite the mating call, as evidenced by his ability to woo his neighbors.

Aside from being a swan, Shawn has a very unique skillset that makes him a valuable asset in many of his academic endeavors. For instance, he's perfected the art of being the "do-nothing" Science Olympiad captain as well as the honorable once-a-year goer to Astronomy Club. He's also a whiz when it comes to math team – in fact, he even turned down several problem sets from the famous Mark Kong because they were too easy to be worth his time. The Swan's evolution through research has also showcased his skills as an academic. He's gone from studying wartime restrictions as a ninth-grader to chemistry molecules as a senior, all while impressing (and confusing) Dr. Weseley with the complexity of his research.

As a second semester senior, Shawn has had a lot of free time on his hands. Rumor has it that he travels to Guatemala on the weekends to learn about its rich culture and to interview the residents for his AP Spanish class. In all, Shawn is a clear leader, academic, and success story. He plans on taking his talents to Columbia University, in which he hopes to continue studying art history (but without the guidance of his idol, James Mumma).



RESEARCH RÉSUMÉ

Grade 12 – Rational Drug Design of Novel PARP-1 Inhibitors

Senior Project Abstract

In order to prevent the repair of cancer cells in BRCA-deficient patients, the PARP-1 enzyme must be inhibited. This project focused on using rational drug design to develop inhibitors of PARP-1 that can successfully bind and inhibit the enzyme. First, I synthesized a core compound solely containing the carboxamide group to mirror the structure of NAD but also so that I could make further substitutions easily, rather than if I created a larger compound that would be difficult to modify. Since this first compound was not active, I began creating larger compounds more similar in structure to NAD, such as containing a phenol aromatic ring to increase percent inhibition against PARP-1. Then, I confirmed the identity of these compounds by utilizing Proton NMR. After confirmation, these compounds were sent to specialized laboratories to evaluate their biological activity.

- Study conducted Summer 2015 – Winter 2016 at St. John's University

Summer 2016

- Research Assistant at St. John's University

Grade 11 – Design of Novel PARP-1 Inhibitors

- Honors, Long Island Science Congress (2016)

Summer 2015

- Research Assistant at St. John's University

Grade 10 – Heavy Metal Detoxification (with Felicia Hou)

- Honors, Long Island Science Congress (2015)

Grade 9 – Wartime Restrictions (with Kamyar Ghiam, Andrew Ock, Kion Noori)

MATTHEW BATNICK

BY RYAN SIMON



As a young child, Matt knew an unusual amount about dairy products. No one knew why. But this all changed in 1st grade when a milk carton spilled, and the world discovered Matt's milk allergy as he sprinted for the doors.

As time went on, all was normal until Matt discovered research. As a sophomore, Matthew and his fallen research comrade Landon Allen teamed up to study whether iPads *really* help students. Matt was overwhelmed by the amount of work, but Dr. Weseley assured him there were no dairy products in the research center, and with that, they were soon honored with 2nd place in an international competition. Despite this, Matt wanted to do more. He worked with a doctor at Mount Sinai to study what he truly cares about: his allergy. His work was so promising that his doctor decided it was time for Matt to beat his allergy.

We now enter the most important challenge of Mathew's young life, the muffin. It started out as only 1/8 of a muffin, but as time went on, he was allowed to have more. Unfortunately, on November 1, 2016, Matt tried 1/2 of the muffin, and a reaction occurred. He was required to take a two-month break, but hope was not lost because as the clock struck midnight on New Year's, Matt consumed 1/8 of a muffin once again.

Matthew Batnick is a hard worker who always gives it his all while consuming muffins or studying for his tests. He will most definitely continue his efforts in the Life Sciences and Management Dual-Degree Program at the University of Pennsylvania in the fall.



RESEARCH RÉSUMÉ

Grade 12 – In a Nutshell: The Use of Viable Compounds from Terminalia Chebula to Inhibit IgE Production in a Human U266 B-Cell Line

Senior Project Abstract

Food allergies stem from a reaction in which Immunoglobulin E, an antibody that interacts with harmless food proteins, results in an adverse immune system response, such as anaphylaxis (a severe potentially life-threatening allergic reaction). Unfortunately, non-consumption is the only validated treatment for food allergies. Another therapeutic option involving exposure, oral immunotherapy, can cause an anaphylactic reaction. An alternative is Traditional Chinese Medicine, a non-traditional immunomodulation treatment that inhibits production of IgE. In this two-part study, the Chinese herb Hezi was identified as a viable inhibitor of IgE production; subsequently, two compounds found in the herb, chebulagic acid and gallic acid, were tested on a Food-Allergic Human U266 B-Cell Line to determine if either was responsible for Hezi's efficacy. A compound extraction, cell culture, viability test, Enzyme-Linked Immunosorbent Assay, and optical density measurement were performed on both compounds and a positive control (berberine). Chebulagic acid was determined to be a successful inhibitor of IgE- production, thus likely serving as the potent compound within Hezi. In order to maximize treatment efficacy, patients could receive supplements of the compound; if they couple this supplementation with oral immunotherapy, patients consuming these compounds may also be less likely to experience anaphylaxis, henceforth improving chances of eliminating the allergy.

- Study conducted Summer 2016 at Mount Sinai Hospital
- Pending publication in the *Journal of Allergy and Clinical Immunology*

Summer 2016

- Research Assistant at the Icahn School of Medicine, Mount Sinai Hospital

Grade 11 – In a Nutshell: The Use of Terminalia Chebula and Magnolia Officinalis to Inhibit IgE Production in a Human U266 B-Cell Line

- Honors, Long Island Science Congress (2016)
- Published in the *Journal of Allergy and Clinical Immunology*

Summer 2015

- Research Assistant at the Icahn School of Medicine, Mount Sinai Hospital

Grade 10 – Is it Write to Type? The Effect of Different Note-Taking Methods on Test Scores (with Landon Allen)

- Merit, Research Association Fair (2015)
- 2nd Place, French-American International Science Fair (2015)

Grade 9 – Does Plant Placement Affect Plant Growth? (with Landon Allen, Jackson Klein, Steven Bochner)

KAMYAR GHIAM

BY ALYSSA RUST



Whether it was taking home 2nd Place in the Research Association Fair when he was only a sophomore, stealing 1st Place at that same fair as a junior, competing in the New York State Science Congress, or making it to the 2nd round of LISEF, Kamyar has become a researcher we all admire. His passion for math and statistics (passions that are very hard to find in the average teenager) are so strong, he even designed a project with statistics so complicated, I'm not sure Dr. Weseley can understand his results.

Outside of research, everyone can hear Kamyar in the morning announcements where he tells us to have a “wonderful Wednesday,” or simply to “have a day.” He also makes sure to read the MoGo announcements extra carefully so that Dr. Weseley doesn’t roast him in his next research meeting. It's obvious that Kamyar loves to help those around him as you can frequently see him in the library tutoring and even takes time out of his day to play chess with Dr. Weseley's son Eli. But most importantly, as Kamyar himself would tell you, he loves making people laugh with his memes and videos (so much so that he feels the need to send them to everyone 24/7).

All around, Kamyar is an amazing, outgoing, lovable person who will do great things at Carnegie Mellon University, in which he plans to pursue business analytics with a possible second major in computer science (Woah, how fancy).



RESEARCH RÉSUMÉ

Grade 11-12 – The Perils of Pressure: An Analysis of the Predictors Associated with Academic Dishonesty, Self-Esteem, and Sleep Deprivation

Senior Project Abstract

Although research has identified parental pressure and academic competitiveness as stressors in the lives of high school students, few studies have investigated if stress mediates their relationships with common stress reactions, such as academic dishonesty, self-esteem, and sleep deprivation. This study looked to investigate (1) if there are relationships between the stressors (parental pressure and academic competitiveness) and the stress reactions and (2) whether the variables are associated through a mediation pathway involving stress. High school students (N = 102) were recruited during randomly selected, mandatory social studies classes. Upon returning a signed parental consent form, they were given a link to a 63-item online survey. A hierarchical multiple regression revealed that the model of parental pressure and academic competitiveness accounted for 74% of the variance in sleep deprivation, 52% in academic dishonesty, and 37% in self-esteem. The addition of stress significantly increased the proportion of variance explained by the sleep deprivation and self-esteem models. As indicated by a series of Sobel Tests, stress partially mediated all of the bivariate relationships between the stressors and stress reactions, aside from the one between parental pressure and academic dishonesty. These findings suggest that parents and teachers should help students reduce the amount of pressure they face from school so that they can minimize academic stress and its associated stress reactions.

- Honorable Mention, Long Island Science & Engineering Fair (2017)
- Recipient of American Psychological Association Award, Long Island Science & Engineering Fair (2017)

Grade 11

- Honors, New York State Congress (2016)
- 2nd Place, Long Island Science Congress (2016)
- 1st Place, Research Association Fair (2016)
- 1st Place, Long Island Psychology Fair (2016)

Grade 10 – The Squeeze to Succeed: Factors Associated with Parental Pressure (with Anuj Gupta)

- Highest Honors, Long Island Science Congress (2015)
- 2nd Place, Nassau County Science Competition (2015)
- 2nd Place, Research Association Fair (2015)

Grade 9 – Wartime Restrictions (with Shawn Anand, Kion Noori, Andrew Ock)

ANUJ GUPTA

BY YENA KIM



When Anuj isn't reading philosophy papers by dead white dudes, staring deeply into Spencer's chocolate brown eyes in AP Chemistry (#spenuj), or making club music, he's researching – researching like the powerhouse of the cell that he is.

Throughout his research career, Anuj has dedicated himself to the study of PPs. (No, not *that* kind of pee-pee.) From Power Posing to Parental Pressure to Perceived Parental goals, he took his strange obsession with PPs and swept up awards at every research competition imaginable – even winning a coveted spot at the renowned... Intel International Science and Engineering Fair (!!!) Who knew in-depth analyses of PPs could be the secret to Anuj's success?

But, aside from Anuj's accomplishments, who exactly *is* he? Well, it is believed that Anuj entered the world near a blue couch, which explains his indescribable gravitation to the one on the third floor. Rumor has it that Anuj also has a strange ability to attract a "flock of females" at any competition (flock, meaning approximately three girls). However, when asked to show off this superpower to his peers, he was barely able to use it even once at LISEF.

Now, if you need some high-quality Columbia pics, follow Anuj on Snapchat because he's on his way to Columbia University as a pre-med student, majoring in Biology and minoring in Philosophy (get you a man who takes care of both the body and the mind, amirite, ladies), at Columbia University. Yeah, he really loves Columbia – he can be found wearing that baby blue hue everywhere he goes. Did I mention that he's going to Columbia University?



RESEARCH RÉSUMÉ

Grade 11-12 – Do Parents Really Know Best? Investigating the Relationship between Perceived Parental Goals and Academic Factors

Senior Project Abstract

Previous literature has indicated that the goals that parents have for their children often become the goals the children have for themselves, and these goals influence certain character traits that can influence the development of children throughout their lifetimes (Gonida & Cortina, 2014). There are two types of parental goals in the context of this literature—mastery goals, which orient a child towards development of skills and understanding, and performance goals, which orient a child towards achievement on specific tasks. This study looked to examine the relationship between perceived parental goals and intrinsic motivation, self-reported GPA, academic self-efficacy, and race. High school students (N = 79) were surveyed at a high school on the north shore of Long Island. The survey included four scales (parental goal orientation, intrinsic motivation, GPA, and academic self-efficacy) as well as demographic items. The results show that students who perceived their parents as having mastery goals for them had significantly higher intrinsic motivation, lower GPAs, and lower academic self-efficacy when compared to students who perceived their parents to hold performance goals for them. In addition, Asian students had significantly higher levels of perceived parental performance goals than White/Caucasian students. This study suggests that parents should be mindful of the goals they communicate to their children, as the way in which children internalize their parents' goals for them shapes not only their academic performance, but also the way they view themselves.

- Honorable Mention for Addiction Science Award, Intel International Science and Engineering Fair (2017)
- 1st Place in Behavioral and Social Sciences, Long Island Science & Engineering Fair (2017)
- Recipient of American Psychological Association Award, Long Island Science & Engineering Fair (2017)

Grade 11

- Best Presentation, Nassau County Science Competition (2016)
- 1st Place, Long Island Psychology Fair (2016)
- Merit, Research Association Fair (2016)

Summer 2015

- Research Intern Team Leader at the Pineño Lab, Hofstra University

Grade 10 – The Squeeze to Succeed: Factors Associated with Parental Pressure (with Kamyar Ghiam)

- Highest Honors, Long Island Science Congress (2015)
- 2nd Place, Nassau County Science Competition (2015)

Grade 9 – I've Got the Power! The Academic Effects of Power Posing (with David Resnick and Ritwik Rudra)

YENA KIM

BY CHLOE LEVIN



Contrary to popular belief, Yena Kim is actually a high school senior (not citizen). Despite her LinkedIn account, thermos upon thermos of black coffee, and motherly scolding, this 18-year-old is just like any other angsty teen. When not dominating the behavioral research world by earning the coveted title of Regeneron Scholar and securing a lab internship at Stanford University, Yena can be found turning up at music festivals (who knew?), getting a little too cozy with her cats (who didn't know?), or wasting away her days on college meme pages.

With a sense of confidence as bold as her brows, Yena never fails to seize a worthwhile opportunity, be it a suspiciously cheap Craigslist apartment in the middle of Boston or advancing her career in psychology. Yena plans to take her talents to UChicago – that's if you couldn't tell by the daily beanie, or the scarf, or the shirt, or the sweater. And, if for some reason her plans go south, she'll always have a spot in Roslyn's research department as Weseley 2.0 (strange sound effects included).

Aside from loving a NorCal garden gnome and her seemingly never-ending supply of pupper pics, Yena's passion for the sciences is evident. This is true in the case of her research on the impact of gender roles in the field of education. Don't let that resting B face scare you because this girl has an equally endless group of friends – or at least that's what her 524-second long Snapchat stories tell. The presence of a missyenakim@gmail.com will be missed, especially by a particularly sad Taco Bell. And, with that, in the words of the legend herself... #vapenaysh.



RESEARCH RÉSUMÉ

Grade 11-12 – Should Men “Woman Up” for Female-Dominated Fields? The Effect of Teacher Gender and Gendered Traits on Perceptions of Elementary School Teachers

Senior Project Abstract

Studies have shown that people perceive female applicants to be more fit for male-dominated jobs when they emphasize information that triggers masculine stereotypes, including describing themselves in terms of agentic traits. However, no study has investigated the effect of gendered traits on perceptions of male elementary educators. This paper presents the results of two experiments conducted to fill this void. Experiment 1 explored the influence of gendered traits and teacher gender on perceptions of elementary educators. Participants (N = 246) were randomly assigned to view websites that varied gendered traits (communal, neutral, agentic) and teacher gender. When choosing a teacher for their child, individuals preferred either neutral or communal teachers to agentic teachers. Additionally, participants reported that men were significantly less hireable than women, indicating a backlash against men who seek employment in traditionally feminine fields. To create a stronger manipulation of gendered traits, Experiment 2 investigated more vivid descriptions that demonstrated how the teachers' classroom actions embodied such traits. Responses from participants (N = 261) suggest individuals perceived teachers who demonstrated neutral and communal traits as significantly warmer and preferable than teachers who demonstrated agentic traits. Unlike Experiment 1, no backlash against male teachers was found. The two experiments suggest that all individuals seeking entry into elementary education should avoid describing themselves in agentic terms.

- Merit, Research Association Fair (2017)
- Regeneron Science Talent Search Scholar (2017)
- Published in the *Journal of Research in Education* (2017)

Summer 2016

- Research Assistant at the Language Learning Lab, Boston College

Grade 11

- 3rd Place, Research Association Fair (2016)
- Presenter at the Stanford Undergraduate Psychology Conference (2016)

Summer 2015

- Research Assistant to Dr. Nancy Frye, Long Island University Post

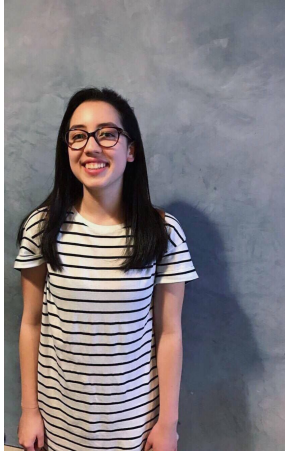
Grade 10 – Who is the New Student? The Effect of E-mail Domain on Perception (with Vicky Zhou)

- Honorable Mention, Research Association Fair (2015)
- Honors, Long Island Science Congress (2015)

Grade 9 – Piaget and Cognitive Thinking (with Holly Kim, Zach Mines, Vicky Zhou)

CHLOE LEVIN

BY SHAWN ANAND



When Chloe isn't watching Netflix, she's lying to you and really is watching Netflix. This taekwondo master can beat you up (personal experience) but will at least do it in style. An infinite number of striped shirts makes you wonder if she's a tiger or a zebra, or half-and-half like her ethnicity (so exotic). But nothing shows her character more than her always-worn cactus ring, because, like cactuses, she seems scary at first, but once you get to know her, she becomes even scarier. Some might even say spooky. There's a reason why she wasn't accepted to the Yeomen squad, and it's not because she's a woman.

Jokes aside, Chloe has it all. She has positions in Ethics Bowl, Quiz Bowl, and Sushi Bowl. Yes, she is ethical, intelligent, and will criticize you on how basic your sushi tastes are. Her expertise in all genres of food is probably why she's a board member of the World Language Honor Society and not because she repeatedly tells me that French is her favorite class of the day. She's even the only person in at least three years to qualify for ISEF that *isn't* brown (p.s. I'm the one who didn't qualify that is brown).

The only reason I can make these jokes and only slightly be scared for my life is because Chloe is super personable. I feel close enough that I can say anything to her, and not because we're neighbors (Frank listens to my feelings better, anyway). I am sure she will kill it at Barnard College next year and make sos many friends because she is as cool as an ice tea/cube (the rappers and drink). Hopefully, I'll see her in the city wearing that cactus ring. Keep doing you, Cloe – the world wouldn't be the same without you.



RESEARCH RÉSUMÉ

Grade 11-12 – Dress to Impress: The Influence of the Enclothed Cognition Effect on Self-Esteem and Self-Efficacy

Senior Project Abstract

According to Adams and Galinsky's (2012) enclothed cognition effect, clothing can have a strong influence over performance on cognitive tasks and processes. The purpose of the present study was to explore the effect of clothing on two of the most essential traits an individual may possess: self-esteem and self-efficacy. It was hypothesized that compared to participants in casual attire, those dressed professionally would display higher levels of (A) self-esteem, (B) self-efficacy, and (C) be more likely to demonstrate intent to apply for a higher level position. Participants (N = 120) were randomly assigned to wear their own clothing (control), casual, or professional attire, while completing the five positively phrased items of the Rosenberg Self-Esteem Scale, the General Self-Efficacy Scale, and a self-designed question regarding the likelihood of applying for a new position which would require a greater degree of responsibility and challenges to be faced, analyses using one-way ANOVAs and Tukey-Kramer post-hoc tests revealed that students in casual clothing scored significantly lower ($p < .001$) than those in both other conditions on all three variables, while participants dressed professionally exhibited significantly higher ($p < .001$) magnifies of self-perception than the control group. This study is the first to reveal the effect of attire on reported self-perception measured in adolescents, the results of this study demonstrating the extent to which clothing can impact how we view ourselves, and indicating the potentially expansive scope of influence the enclothed cognition effect may have.

- 3rd Place in Behavioral and Social Sciences, Intel International Science and Engineering Fair (2017)
- Honorable Mention for American Statistical Association Award, Intel International Science and Engineering Fair (2017)
- 1st Place in Behavioral and Social Sciences, Long Island Science & Engineering Fair (2017)

Summer 2016

- Research Assistant at the Behavioral Research Lab of Columbia Business School, Columbia University

Grade 11

- 1st Place, Research Association Fair (2016)
- High Honors, Long Island Science Congress (2016)
- Presenter at the Stanford Undergraduate Psychology Conference (2016)

Grade 10 – It's All Relative: Consumers' Perceptions of Products (with Holly Kim)

- Honorable Mention, Research Association Fair (2015)

Grade 9 – It's Electric: Static Electricity as an Alternate Energy Source (with Behnam Ardebili, Felicia Hou, William Lee)

- Honorable Mention, eCybermission

ALYSSA RUST

BY KAMYAR GHAM



Alyssa has won the game. You see, if RHS were a videogame, in which floor three is the boss level, Alyssa has definitely beat it. She's done it all: placed at major competitions like LISEF, did research about something she was passionate about (music), gone to a major symposium, worked at a prestigious lab over the summer, got published in a research journal, aced all the research exams, and, most importantly, won the favor of Dr. Weseley.

Alyssa is one of the sweetest and most heartwarming people to walk into the research room. Although she may seem like a quiet person at first, you'll realize that she's extremely resourceful, exceptionally insightful, and secretly...evil. She set the curve on the research midterm, placed top five in Kahoot, and even landed a spot to present at Stanford but claims it all happened by chance. She'd be nice to you at a research competition by lending some tape or talking about your project, but then she'll win over the judge who everyone else thought was mean. She'd put a cheesy pun into her project's title not because it would be funny, but because it would make everyone stop and ask her what it meant.

Okay, well, Alyssa's not really all that evil – sometimes you can't distinguish evil from pure genius. But besides her academic accomplishments, she is a pleasure to be around because of her lighthearted humor and charismatic nature. There's no doubt that Alyssa will be successful in her study of neuroscience as she goes to Brown University this fall.



RESEARCH RÉSUMÉ

Grade 11-12 – Should the Radio be Band? The Effects of Listening to Music on Driver Error and Stress

Senior Project Abstract

Car accidents result in the death of more than 30,000 Americans each year (Insurance Institute for Highway Safety). Research has shown that listening to music – especially of a high tempo and negative valence - while driving can affect people’s frequency of traffic violations and their stress level while driving (Brodsky and Slor, 2013; Fairclough, van der Zwagg, Spiridon, & Westerink, 2014). Previous studies typically either assigned participants to listen to specific songs which may not mirror the actual music they would select or allowed participants to select their own music without assigning them to a typical genre, which introduces potential confounds. The present study attempted to balance the goals of realism and control by having participants select music from a list of songs. Young drivers completed three tasks on a driving simulator in a randomly assigned order. In one task, the participant listened to no music, in another the participant listened to high-tempo, negative valence music, and in a third the participant listened to low-tempo, positive valence music. After each task, the participant took a survey to test their psychological stress level and had their pulse level taken to measure physiological stress. Participants driving while listening to either type of music made significantly more mistakes than when they were driving without music, with the most errors occurring while listening to high-tempo, negative valence music. In addition, driver stress levels, both psychological and physiological, were higher when participants were listening to music than when they were not listening to music, with the highest stress levels occurring while listening to high-tempo, negative valence music. Overall, this study showed that listening to music, especially music with a high-tempo and a negative valence, can increase people’s frequency of driver error and stress level, and that young-drivers should be educated on its potential effects.

- 3rd Place, Long Island Science & Engineering Fair (2017)

Summer 2016

- Research Assistant at Cohen Children's Hospital

Grade 11

- 3rd Place, Research Association Fair (2016)
- Highest Honors, Long Island Science Congress (2016)
- Presenter at the Stanford Undergraduate Psychology Conference (2016)

Grade 10 – Almost There: The Goal Gradient Effect on Cognition (with Arwa Adib)

- Honors, Long Island Science Congress (2015)

Grade 9 – U.F.P. (unidentified freshmen project)

RYAN SIMON

BY MATTHEW BATNICK



Ryan Abraham Simon, known as P, has taken the third floor by storm ever since he introduced Dr. Weseley to his breakfast, lunch, and dinner of gluten-free pretzels. While Ryan's plethora of extracurriculars is insurmountable in magnitude (including, but not limited to, Vice President of Animal Rights Club despite his profound yet admittedly dwindling fear of domesticated dogs), his societal contributions are most ubiquitous through the research program.

In sophomore year, Ryan joined forces with ex-behavioral investigator Jackson Klein to quench his thirst on a subject he had battled for decades: parental control of children's dietary habits. This study was not geared directly toward P, as the habits were about nutritional value rather than diversity of daily meals, something lacking for Ryan due to the overwhelming amount of aforementioned pretzels. Nevertheless, a baffled, slightly self-absorbed Simon strived to discover whether this lacking repertoire stemmed from the lovely Stacey and Sean Simon or was merely a figment of his imagination. Ultimately, Simon and Klein © concluded that, as a whole, parents encouraged their children to eat certain foods but did not actually impose these desires. With a statistically significant p -value, P was shook, realizing that he alone was the source of his unquantifiable pretzel consumption: he had to take action.

In junior year, Ryan built upon his experience and discovered the psychological and social impact of life-threatening food allergies. Here, he concluded that food allergies have legitimate negative consequences psychologically, but socially, food-allergy sufferers claimed they feel unaffected by their restriction. And while he can attest to the psychological factor, socially, P has had his fair share of struggles (@m*****s*****d on Instagram and Snapchat; \$100 reward for cracking this code). Now, Ryan will take his talents to Washington University in St. Louis to study business.



RESEARCH RÉSUMÉ

Grade 11-12 – Can't Touch This: The Effect Having a Food Allergy Has on a Child's Quality of Life

Senior Project Abstract

Food allergies are an increasing problem in the United States. Approximately 3 million children (3.9%) in the United States had food allergies in 2007. Food allergies require food avoidance to maintain health and efforts to avoid allergens that may impact quality of life (QoL) (Nowak-Wegrzyn, 2003). QoL refers to the physical, psychological, and social aspects of health, which are influenced by a person's everyday life (De Blok et al., 2007). While a number of studies have reported lower QoL amongst young children with food allergies (e.g., Bollinger et al., 2006), this study is the first to look at how having a food allergy affects high school students' quality of life and to compare students with allergies both to typical controls and controls with other food restrictions. Participants were recruited from a suburban high school in New York and asked to fill out a survey evaluating their social eating, social isolation, and perceived stress level. Not surprisingly, high school students with food allergies reported having a significantly harder time finding food when outside their homes than those without a dietary restriction; however, interestingly, students with other food restrictions reported a similar level of difficulty to students with allergies. While no significant differences were found amongst the three groups in terms of social isolation, students whose allergies had been recently diagnosed reported significantly higher levels of isolation than students who allergies were diagnosed prior to the age of 11. The most encouraging finding of the study was that no differences were reported in perceived stress amongst the three groups. The study suggests that high school students with food allergies adapt to them over time and experience only minimal disruption in their QoL.

Grade 11

- Honors, Long Island Science Congress (2016)

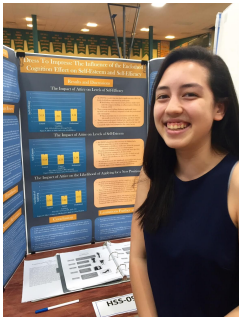
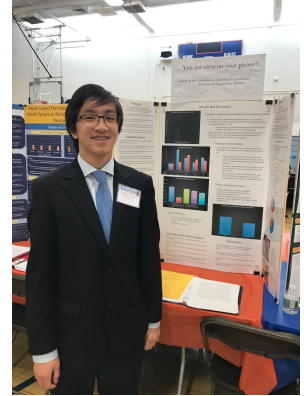
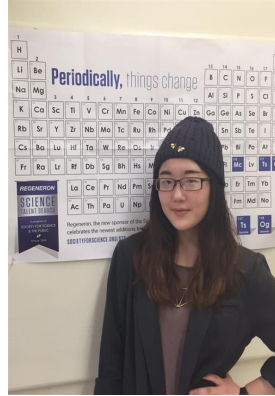
Grade 10 – A Massive Problem: The Different Types Parental Techniques in Regards to Eating Habits (with Jackson Klein)

Grade 9 – Projectile Motion: Does Shape Affect the Distance a Projectile Travels? (with Ben Faber, Mitchell A. Klein, Jeffrey Yi)

SENIOR SUPERLATIVES

Shawn Anand:	Most Likely to Make His Research Partner Do All the Work
Matt Batnick:	Most Likely to Be Afraid of Muffins
Kamyar Ghiam:	Most Likely to Run Complex Statistical Analyses on His Pet Rock Fil's Stress Levels
Anuj Gupta:	Most Likely to Turn His Research Paper into a Philosophy Dissertation*
Yena Kim:	Most Likely to Be Adopted by Dr. Weseley
Chloe Levin:	Most Likely to Beat Up a Judge with Her Taekwondo Skills After Receiving a Negative Z-score
Alyssa Rust:	Most Likely to Ditch the Junior Dance <i>and</i> Her Boyfriend for a Research Conference
Ryan Simon:	Most Likely to Make Fun of Matt's Fear of Muffins

*Cutest Couple - Anuj and Anuj



2017 FINALISTS

YOND



— a program of —
SOCIETY FOR SCIENCE & THE PUBLIC



... Kyle Hansen • Laila ... Hannah Herbst • Isabel Herburger • Allen Huang • He Huang • ... Hala Ishtaiyah • Raphael Iskra • ... Ruslan Jankurazov • Zahratul • Isaac Jordan • Rucha Joshi • ... Christopher Kang • Rebekah Kar Haseeb Khawaja • Afeefah Khazi-Syed • Olivia Kline • Raed Kloob • ... Janyaporn Kotimansuvanni • Ksenia • Nuengthida Kwandee • Jarek Kwiek • Kai Bo Lee • Dongyun Lee • Pui Sha • Shilun Li • Chentian Li • Qingfen • Michael Lin • Marcela Linhares Mendes • Drake Ludgate • Rusty Ludwigsen • Adriana Mares • Sreshtha Margan • ... Caleb Martoni • Sarah Mason • Ke Holley Meaney • Max Mecklin • Roh • Michael Miller • Nathaniel Miner • Nutchawara Moonkaew • Luis Mora Bar • Vidya Mullangi • Surabhi Mundaia • Witthakon Nanthakueakun • Hari Nanti • Gary Nguyen • Baotram Nguyen • Duy Vincent Olesen • Daniel Oliveira • Adria • Valerio Pagliarino • Eren Pahal • Ale Antonella Pascual • Jeremiah Pate • ... Jose Perez Gordillo • Andrej Perkov • ... Joshua Proehl • John Prosper • Jason P • Jose Ramirez • Jose Ramirez-Colon • Luis P • Mayce Redfern • Gareth Reid • ... Weston Rogers • Elizabeth Rogers • Zach • Neeraj Sakhrani • Hamid Salimov • Kately • Omar Santiago-Royes • Lorena Santos Villa • Sarah Shirley • Alexandra Schmid • Jaco • Iritajan • Elena Sparaciari • Sierra Spears • ... Nikhil Sundrani • ... Thidaphon Thyakham • Allison Thor • Dae Hun Um • Kunal Upadga • Grzegorz • Samridhhi Vishwakarma • Greta Vivore • Claire Wenzelast • Kenneth West • Ryan Westco • Yeghesh • Chia-Yu Yeh • Yang Yeh • Noga Yeku • ... Mary Zhu • Rafael Zibetti • ...



HOW TO GET DR. WESELEY TO LIKE YOU

- Shawn Anand: Do natural so you can act like you know what you're talking about, and no one can correct you except your conscience—and be proud of it.
- Matt Batnick: Always be prepared for meetings, and always be honest when you're confused—it shows that you're putting in legitimate effort!
- Kamyar Ghiam: Don't ask questions that were included in her instructions.
- Anuj Gupta: Dr. Weseley likes students who are diligent and creative. Work hard, and bring some personality to your research meetings!
- Yena Kim: Well, you can't do the impossible.
- Chloe Levin: Compliment THE orange Subaru.
- Alyssa Rust: Get my assignments in on time, not one minute late. (She knows.)
- Ryan Simon: Do all that is requested. If you show that you are willing to put in the work and you don't slack off, Dr. Weseley will respect you as a human being (hopefully). Don't overly stress either.

BEST MOMENT IN RESEARCH

- Shawn Anand: Mr. Schmitt told me that his son named his pet crab the same name I chose for my pet crab a few months before. (It was Jeff.)
- Matt Batnick: Opening the email that I was accepted into my lab at Mount Sinai during Research Extra Help.
- Kamyar Ghiam: Winning 2nd Place at the Nassau Tournament.
- Anuj Gupta: Presenting my sophomore project in front of the Board of Education.
- Yena Kim: Stanford Conference.
- Chloe Levin: Stanford Conference.
- Alyssa Rust: Stanford Conference.
- Ryan Simon: Seth Rosen and Matthew Berman accidentally signed up for the senior division at RAF...and won.

WESELEYISMS! FAVORITE WES PHRASES

- Shawn Anand: “I didn't get your work 24 hours before the meeting—did you send it?”
- Matt Batnick: “WoooOOOoo. [rapid inhale] Sorry.”
- Kamyar Ghiam: “Is English your first language?”
- Anuj Gupta: “We all like to win. I like it more than most.”
- Yena Kim: “MmmrrreeoOWWWW.”
- Chloe Levin: “Put your paw down.”
- Alyssa Rust: “Are you going into pediatrics? Because your board looks like cotton candy.”
- Ryan Simon: “Naahh (progressively gets louder as the word goes along), Matt, why is your head down? There is no milk in here.”

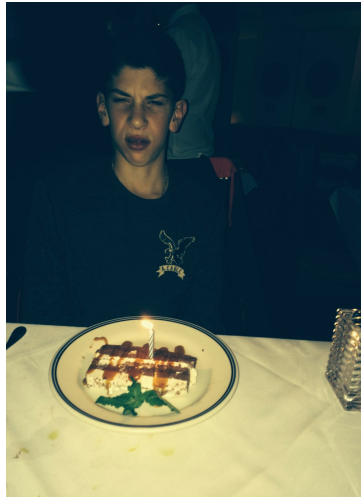
RESEARCH GRAVEYARD



UNDERCLASS ABSTRACTS

Matthew Berman (11th)

NLRP3 Signaling Drives Macrophage-Induced Adaptive Immune Suppression In Pancreatic Ductal Adenocarcinoma



The tumor microenvironment (TME) in pancreatic ductal adenocarcinoma (PDA) is characterized by immune-tolerance, which enables disease to progress by adaptive immunity. However, little is known about such mechanisms. What I have found definitively is that NLRP3 promotes expansion of immunosuppressive macrophages in PDA, and NLRP3 signaling in macrophages drives the differentiation of T-cells into tumor-promoting populations. The suppressive effects of NLRP3 in tumor-associated macrophages have also been found to be IL-10 dependant. Pharmacological inhibition or deletion of NLRP3 was found to protect against PDA and was associated with immunogenic re-programming of innate and adaptive immunity within the TME. Thus, there is hope that NLRP3 holds the promise for the immunotherapy of PDA.

Ellie Eisenberg (11th)

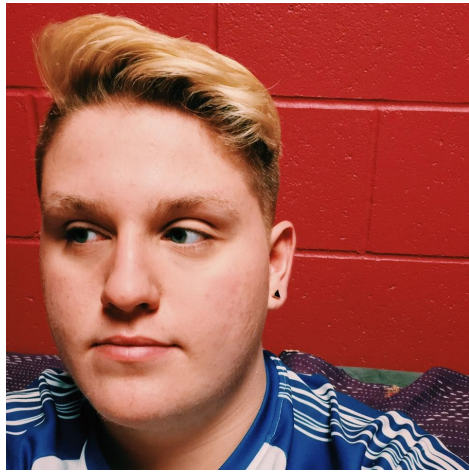
The Speed and Accuracy of Responses Based on the Presence of Peripheral Limb Motions as Visual Cues

Biological motion perception has great importance in human-human interactions; however, little is known about the mechanisms in play with such perception. The present study investigated the effect of peripheral limb motions on participants' speed and accuracy of reactions to the movements of a point light model. Participants were exposed to 3 blocks of trials that each contained 20 trials, totaling 60 trials per participant, 30 in the static condition and 30 in the moving condition. Repeated-measures *t*-tests revealed that the presence of peripheral limb motions significantly increases accuracy of responses but does not have a significant effect on reaction time. The data were also analyzed for differences in speed and accuracy of responses between athletes and non-athletes, using two independent samples *t*-tests, and the superior accuracy of athletes was found to approach significance, while athletic experience had no significant effect on reaction time. The findings of this study suggest that humans use information from limbs not directly involved in an action to perceive said action. This idea not only adds to the current understanding of human biological motion perception, but also has potential implications in the field of artificial intelligence design.



Ari Friedman (11th)

Whose Name Do We Take? The Effect of Marital Name Change on Perceptions of Instrumentality/Agency, Career Competence, Hireability, and Feminism



As the feminist movement continues to grow, women continue to push for equality and fair treatment. Many of these people want to change social customs and standards that are based on sex. A large number of these inequalities directly result from marriage and societal expectations for a married woman. Some women view marital name change as demeaning. Many women view their names as an important part of their identity and believe that the change of name is demoralizing and marks the loss of their autonomy (Wasson Dralle & Mackiewicz, 2007). The feminist movement has led more women to choose an unconventional or nontraditional last name at marriage. The definition of an unconventional last name is when a woman takes a surname at marriage that is not that of her husband. In the 1970's only 2-4% percent of women chose nontraditional last names. This percent reached its peak and has stayed relatively constant ranging from 20-29% of women using a nontraditional last name since 2001

(Goldin, & Shim, 2004, Hoffnung, 2006, Kearns, 2013). Roughly 13.1% percent of women with unconventional names hyphenate their name and their husband's name. Approximately two percent of women will choose to use their maiden names. A few couples will choose to combine their names to create a new one altogether. Prior studies have examined perceptions of a wife who chooses a nontraditional surname, however, there have been few studies that investigated perceptions of a husband who chooses a nontraditional surname. This study seeks to examine the levels of perceived competence, agency, feminism, and hireability in husbands and wives with nontraditional or unconventional surname choices.

Sanwood Gim (11th)

The Effects of Classical vs. Contemporary Pop Music on Divergent Thinking

Recently, the United States has implemented the Common Core curriculum, however, research suggests that the new curriculum may be limiting creativity. However, today, creativity is one of the most sought out characteristics by employers. Therefore, this study will look for alternative methods to improve creativity. Participants were randomly assigned to one of three conditions, exposure to contemporary pop, classical, or no music. Subjects were then asked to take a series of tests designed to measure their creativity. The participants who were exposed to classical music performed better than the control and contemporary pop groups on the Remote-Associates test, which is designed as a measure of convergent thinking, which is a form of creative thinking. All groups performed similarly on the Guilford Alternative Uses post-test, which is designed as a measure of divergent thinking, which is another form of creative thinking. Scores on the pre-test and post-test were also similar across music types. These results showed the classical may improve convergent thinking, however, will not make a difference with divergent thinking.



David Goldstein (11th)

The Trapped Dodger: Catching Politicians Answering the Wrong Questions



Truthful and meaningful discourse underpins all great democracies. Without truthful politicians, such discourse is not possible. Often politicians attempt to dodge questions that may make them look bad and pivot to more comfortable talking points. Research has examined the condition under which politicians feel the need to dodge; however, no research has fully investigated the effect of an interviewer asking the politician a second or follow-up question. Three hundred and sixty-seven eligible voters were recruited, through Amazon Mechanical Turk, to read an excerpt from an interview. There were four conditions; one where the politician told the truth, one where they dodged, one where they dodged and the interviewer asked a second question to which they responded truthfully, and lastly where they dodged and the interviewer asked a second question to which they dodged again.

Data analysis revealed that the presence of a follow-up increases audience awareness of dodge attempts. Second, politicians who were truthful received the highest rating which was significantly different than all other conditions. All statistical analysis was significant ($p < .001$). These results demonstrate that a follow-up may be successful in reducing future dodging, and should be implemented as a tool to create a more direct and honest discourse.

Bailey Kaplan (11th)

The Public's Perceptions of an Adopted Child's Academic Success and Self-Esteem

Transracial adoption is becoming increasingly popular in the United States, but many people still are uncomfortable with children being placed in homes when they are a different race than the parents (Hollingsworth, 1998). This study sought to examine the public's perceptions of a transracially adopted child's academic success and self-esteem. Participants ($N = 221$) were randomly assigned to read a vignette describing a child with a typically White, Black or Asian name who was applying to a private school. In addition, the vignette manipulated the race of the parents' through their names. After reading the vignette, participants were asked to evaluate how the child's self-esteem and how they thought the child would adjust to the new school.



Interestingly, no significant differences in either self-esteem or predicted academic success were found between children who were placed with families of their same race or of a different race. The study suggests that people may be becoming more comfortable with the idea of transracial adoption.

Ramneek Kaur (11th)

Student Stress During the College Application Process with Relation to Application Type



There is a lack of information readily available to applying students about the application process. Previous research has found that applying in smaller early application pools increases the chance of being accepted into more prestigious schools. However, these studies have focused on the perspective of a college rather than the perspective of the students. The present study investigated the effect of application styles on student stress and being accepted into college. Seventy-one high school seniors answered the preliminary survey that consisted of measures on stress, motivation, and GPA. The participants were categorized by their application style, be it early decision, early action, or regular decision. The data indicated that female students had higher stress levels during the college application process regardless of application style. This preliminary data may provide interesting insight into the college application process.

Noah Kim (11th)

The Effects of Docosahexaenoic Acid (DHA) and Eicosapentaenoic Acid (EPA) on Cell Viability in Model Alzheimer's Disease Cells

Research has established that the presence of amyloid beta causes an abnormally high level of amyloid beta plaques, which can attach to healthy neurons and aggregate to form neuroblastoma cells. These cells constitute the majority of cells identified in Alzheimer's disease, and current treatments have been shown to have many detrimental side effects. The experiment required the creation of a novel dilution series for the acids an exposure of docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) to two model Alzheimer's disease cell lines- IMR-32 and SK-N-SH cells- for 24 hours. Three key results were discovered: both DHA and EPA were in fact able to significantly reduce the cell viability of both the neuroblastoma cell lines, the DHA at its dilutions were more effective than its stock solution within the SK-N-SH cell line and most importantly, EPA had a more significant effect in lowering the cell viability of BOTH neuroblastoma cell lines when compared with DHA. These are all significant novel results that have not been explored in depth in previous research studies.



Spencer Lazar (11th)

An Investigation Into People's Perceptions of Vaccinations



Research has established that a variety of factors affect a person's decision making in regards to getting vaccinated. However, no studies have looked at the best method to increase vaccination rates overall across a population or manipulated the framing of the message people see. The present experiment investigated the effects of different types of public health appeals, including appeals to altruism and social norms, on participants' intent to get vaccinated and vaccine hesitancy. Participants ($N = 306$) were randomly assigned to one of four conditions, each a different type of public health message. Participants were then shown a flyer with the message and asked to answer questions regarding their intent to get vaccinated and vaccine hesitancy. There was no statistically

significant difference between groups in terms of the manipulation, however, main effects of gender and whether or not people have been vaccinated in the last year showed statistically significant differences in terms of both intent to get vaccinated and vaccine hesitancy. The experiment suggests that just the presence of a public health factor, such as an appeal to altruism, can increase intent to get vaccinated for people who haven't been vaccinated and that policy makers should target specific demographic groups with public health campaigns instead of generalized approaches.

Justin Leu (11th)

High Levels of ETS Family Members Cause Resistance to BRAF and MEK Inhibitors in Melanoma

Research has established that abnormally high levels of oncogenic ETS transcription factors has been found in 50% of prostate cancers, 40% of melanomas, and in most cases of gastrointestinal stromal tumor and Ewing's sarcoma. These cancers are typically treated with MAPK pathway inhibitors such as PLX4032, a BRAF inhibitor, and Trametinib, a MEK inhibitor. However, after a period of time, most of these cancers develop resistance to the inhibitors. Although ETS transcription factors are downstream effectors of the MAPK pathway, no studies have investigated whether there is a causal relationship between the high levels of oncogenic ETS transcription factors and resistance to MAPK pathway inhibitors. The present experiment investigated the effects of overexpressing ERG, ERG FUS, ETV4, and ETV4AAA in the A375 melanoma cell line on resistance to PLX4032 and Trametinib. It was discovered that cells overexpressing all four tested genes showed increased resistance to both PLX4032 and Trametinib. However, resistance was more dramatic in ERG FUS than in ERG and in ETV4AAA than in ETV4. Resistance was also greater to Trametinib than PLX4032 in all four genes. This experiment suggests that the overexpression of oncogenic ETS transcription factors may contribute to resistance to MAPK pathway inhibitors.



Seth Rosen (11th)

The Effects of Magic on Locus of Control, Skepticism, and Suggestibility

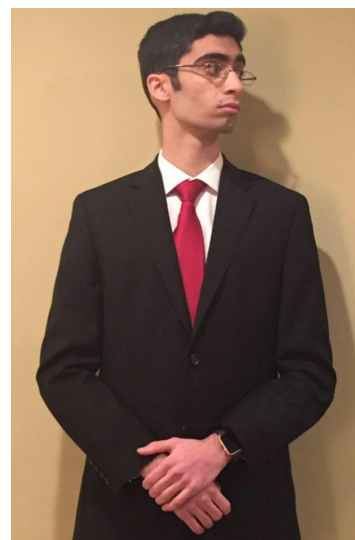


Some people believe in magic, which has been linked to their outlook on the world. This study investigated the link between children learning magic and their locus of control, suggestibility, and skepticism. It was hypothesized that if elementary school students take a class in which they learn how to perform magic tricks, then they will have a more internal locus of control after the classes, a lower suggestibility after the classes, and a higher degree of skepticism. The procedure of this study consisted of giving elementary school students a pre-class survey upon signing up for the class and another identical survey, the post-class survey, upon ending the class. Two classes were taught, spaced two weeks apart, where students learned a range of magic tricks ranging from card tricks to a disappearing toothpick trick. Data collected were then analyzed using paired t-tests. Contrary to the hypotheses, students' locus of control, suggestibility, and skepticism were not significantly changed between pretest and posttest. This may have been due to a small sample size or volunteer bias.

Daniel Shalovov (11th)

*The Effect of Pyrethrin on the Negative Development of Neurodegenerative and Cardiovascular Disease within *Mytilus Edulis*, *Daphnia magna*, and Humans*

The purpose of the experiment was to determine whether pyrethrin, a toxin found in the Chrysanthemum plant, may have a negative effect on the development of neurodegenerative and cardiovascular disease within *Mytilus edulis* (blue mussels), *Daphnia magna* (water fleas), and especially humans. Previous research has shown pyrethrin's effects on insects but not on organisms such as mytilus edulis, daphnia magna, or humans. In addition, there is a lack of research linking this chemical and its negative effect on the development of cardiovascular disease. Target cells and tissues were exposed to varying concentrations of either pure or commercial pyrethrin. Cell viability and MTT proliferation assays showed that increased concentrations of pyrethrin led to greater percentages of cell death in mussel hemocytes and ganglia, as well as human cell lines. Furthermore, increased concentrations of pyrethrin led to an increase in nitric oxide levels and TNF-alpha expression while displaying a decrease of IL-10 expression, thus leading to inflammation and the degeneration of neurons within ganglionic tissue in mussels and lymphomic human cells. Lastly, when *Daphnia magna* were exposed to increased concentrations of pyrethrin, a rapid decrease in heart rate was discovered, thus demonstrating pyrethrin's ability to induce cardiovascular disease and harm cardiovascular tissue.



Megan Tsao (11th)

The Effect of Race on Victim Blame Attribution



Rape culture and victim blaming are just as prevalent as ever; one in 5 women report being sexually assaulted while in college (Krebs, 2007). While standards of consent and sexual assault have changed over time, another factor that seems to affect people's perceptions of blame and sexual assault is the race of the victim and perpetrator. However, these studies tend to focus on only Caucasians and African Americans. The purpose of this study is to explore the interplay between perpetrator and victim race and blame attribution in Caucasians, African Americans, and Asian Americans. It was hypothesized that in an interracial sexual assault, when the victim is a person of color, the victim will be attributed more blame. When the perpetrator is a person of color, the perpetrator will be attributed more blame. In an intraracial sexual assault, the perpetrator will always be attributed more blame no matter the race. Participants ($N = 350$) were randomly assigned to view one of nine sexual assault vignettes in which the race of the victim and perpetrator were manipulated. After reading the vignette, they completed the Trangsrud Blameworthiness Scale. A two-way ANOVA showed no significant main

effects across the effect of race on victim blame attribution across all conditions; however, once the data from all participants except for the Asian and Caucasian ones were removed, it was found that Asian participants are less sympathetic and attribute more blame to victims compared to all other races. This study is one of the first in its field to incorporate Asian Americans into the manipulation, and its findings implicate that victim blaming is still prevalent in society.

Jason Wu (11th)

The Effect of Selenium on Mitochondrial Nitric Oxide Production

Declines in mitochondrial content and function have been associated with acceleration of aging, neurodegenerative disorder, and cancer. Thus, an increase in mitochondrial content will prevent the onset of these harmful diseases. Furthermore, selenium, a vital trace element found in the body, has been shown to preserve mitochondrial function and stimulate mitochondrial biogenesis. With an increase in mitochondrial content, the increase of nitric oxide synthase in the mitochondria has been shown to be beneficial. It was hypothesized that an increase in selenium would increase mitochondrial production, which in turn would produce more nitric oxide. After comparing the amount of nitric oxide produced by sodium selenate, an inorganic variant of selenium, and by seleno-methionine, an organic variant of selenium, sodium selenate was found to be the most effective compound at increasing mitochondrial nitric oxide production. In several trials, it was inconclusive whether or not selenium had caused an increase in nitric oxide production due to the fragility of mitochondria. Further trials measuring the amount of nitric oxide produced after the addition of selenium is necessary to determine selenium's important role in the human body.



Vincent Yao (11th)

Anti-cancer effects and Targeting of Bcl-2 Induced by Perilla frutescens on Non-Hodgkin Lymphoma



Chemotherapy resistance and relapse in Non-Hodgkin Lymphoma (NHL) patients remain critical drawbacks to NHL treatment. Growing evidence has shown the overexpression of anti-apoptotic B-cell lymphoma-2 (Bcl-2) proteins as a potential contributor to NHL drug resistance (Monni, Franssila, Joensuu, & Knuutila, 1999). In our last study, we investigated the effects of an herbal plant, *Perilla frutescens*, on U937 NHL. We found significant decreases in cell viability, indicating an increase in apoptosis. This study investigated the anti-carcinogenic properties of *Perilla frutescens*, a targeter of Bcl-2 in Hepatoma HepG2 Cells (liver cancer cell line), on the cellular and protein level. Furthermore, U937 cells were exposed to lipopolysaccharide and fibronectin to enhance inflammation and cell metastasis properties. After the cells were treated with the *Perilla frutescens*' extract (PLE), these effects subsided. Our protein results illustrated no significant regulation of Bcl-2 protein expressions, however FasL (Fas Ligand) protein expressions were up-regulated. To further determine the anti-cancer components of PLE, Carbon-18 columns and High Performance Liquid Chromatography were performed. This inquiry proposes PLE as a potential drug to improve survival rates of patients with NHL.

Jasmine Berger and Adrian Ke (10th)

The Effect of Student Race on Assigned Punishment, Perceived Infraction Severity, and Aggression

Research has established that institutional racism exists in the school system and disproportionately affects minorities (Chang & Sue 2004). While many studies have done archival research of Black and White students, few have looked at the disproportional treatment towards Asians and Hispanics in an experimental setting. Additionally, few studies have examined subjective versus objective infraction types of punishment administered while factoring race. The purpose of this study was to clarify the effect of racial biases for Asians, Whites, Latinos, and Black students on perceived aggression of the student, perceived infraction severity, and assigned punishment.



For our study, we sampled 160 adults via Amazon Mechanical Turk. They were randomly assigned to one of eight conditions with four different races (Black, White, Latino, Asian) and two different infraction types (subjective or objective). The participants viewed a conduct report with a name that represented one of four races and one of the two types of infractions. The participants were then asked to rate the severity of the infraction and the aggression of the student on a Likert-type scale. Participants were also given a list of punishments and asked to assign penalties to the student. Although race had no effect on perceived infraction severity or assigned punishment, it was found that Asians were perceived to be significantly less aggressive, while Whites were seen to be the most aggressive. Objective infractions were assigned harsher punishments and rated more severely than subjective infractions. It was also found that participants who were minorities assigned more lenient punishments compared to White participants. This experiment suggests that race and infraction type have an influence on people's perceptions of students, especially regarding aggression.

Asher Bykov and Lauren Christenson (10th)

The Effect of Toy Weapon Priming on Aggression in Adolescents



The weapons effect is a psychological priming effect in which the mere presence of a weapon increases aggression. Studies have compared aggression of adults in the presence of a weapon and a non-weapon, such as a badminton racket. However, studies have yet to look at the adolescent population or determine if toy weapons have a similar effect as real weapons. The present experiment investigated the effect of toy weapon priming on adolescent aggression. Students ($N = 279$) from a predominantly white, middle class high school were randomly assigned to see one of three stimuli. The students either saw a picture of a plant, a toy knife, or a toy gun. The group of students who saw the picture of a plant was the control. Participants self-evaluated their aggression level by answering 28 Likert-type items that were modified from the Buss and Perry Aggression Scale. Then, regardless of group, all students read a conduct report, in which a student speaks back to a teacher, and determined a punishment for the infraction. We concluded that the stimulus did not significantly increase level of aggression or severity of punishment for the infraction. More

importantly, we discovered that parental permission to play with toy weapons significantly decreased level of aggression. This experiment suggests that the weapons effect does not apply to adolescents for toy weapons, but does suggest that allowing a child to play with a toy weapon will decrease aggressive tendencies.

Drew Goldman and Justin Schiavo (10th)

Comparing Different Fuel Sources for a Hybrid Rocket Engine

The Hybrid Rocket Engine is a rocket engine that is generally mechanically simpler, safer, and much cheaper to develop than the liquid fueled and solid fueled engines we use in rocketry today. The design is not implemented in modern rockets because it does not create enough thrust to be useful. It is hopeful that, in the future, a safer and reliable rocket is developed utilizing hybrid fuels. Two rocket engines were constructed and placed on a test stand, which held the force probe. Two 10-second thrust trials were conducted for the paraffin wax, polyethylene, PEX tubing, and oxygen control engines. Solid wax fuel produced the most average thrust, and similarly, the wax engine had the highest thrust to weight ratio among the fuel sources. The data suggest that the rockets produced a significant amount of thrust, compared to the oxygen control, but the wax engine did not produce a significant difference in thrust compared to the other two fuels. The experiment suggests that although the wax fueled engine created similar thrust compared to the Polyethylene and PEX Tubing, solid wax fuel engines may have a function in small space expeditions and other smaller applications.



Johanna Kann and Mayeesa Rahman (10th)

The New F Word: A Study of Feminism



Research has established that there is a significant negative stigma surrounding the label “feminist,” but few studies have looked collectively at multiple factors predicting this bias. Though multiple studies have been conducted concerning the relationship between demographics and feminist identification, few have investigated the relationship between these demographics and perceptions of feminists. The present experiment investigated the effects of gender, race, political orientation, religion, and age on perceptions of feminists. Participants ($N = 205$) were recruited online and randomly assigned to view one of six variations of an interview format, which manipulated the gender and feminist identification of the interviewee. The participants were then asked questions regarding their perceptions of the interviewee, as well as items to gauge their agreement with feminist ideals. Overall, the feminists in the interview were perceived as more potent, confident, and more likely to be homosexual than non-feminists. In addition, there was a significant difference in the evaluation of male and

female feminists in terms of attractiveness and potency. Feminists were also shown to be more likely to be female, educated, and less religious than non-feminists. The findings showed that feminists were perceived more positively than non-feminists. This is contrary to previous results and demonstrates that perceptions of feminists are improving over time. However, the current experiment showed there is still a significant reluctance to identify as feminist, even when in support of feminist ideals, indicating that strides still need to be made towards fully accomplishing feminist goals.

Kevin Lam (10th)

A Study on the Correlation of Hygienic Perception and Behaviors to Smartphone Dirtiness

This research investigates the total bacterial count and amount of enteric bacteria on smartphone screens as an indicator of participant’s hygienic behaviors and perceptions of health. The study serves to establish how contaminated smartphones are in comparison daily public objects, contributing to the public hygienic awareness. Approximately thirty smartphones of participants were sampled and plated on Nutrient and MacConkey agar. Participants additionally completed a hygiene questionnaire regarding their practices, such as washing hands and using phone in the bathroom, and perception of how dirty objects, such as door handles and toilet seats are compared to a phone. Data analysis observed a moderate correlation between dirtier hygienic practices and higher normal and pathogenic bacterial count on smartphones. Furthermore, an interesting finding showed that phones were not indeed the dirtiest, as predicted, but the water fountain button. The hygienic questionnaire also revealed that participants erred when perceiving which object was the dirtiest. In a nutshell, this research indicates how certain usage habits directly correlates to smartphone bacterial count.



Brandon Lee and Lindsey Rust (10th)

The Effect of Yogurt Type and Fat Percentage on the Viability of Probiotic Bacteria



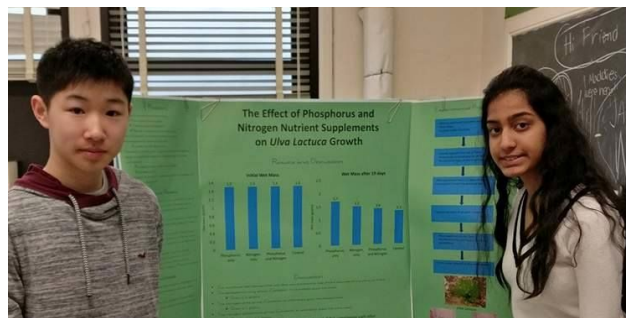
Research has established that many manufacturing techniques, such as pasteurization for dairy products, reduce the viability of probiotic bacteria during shelf life, limiting the benefits that they provide (MacBean, 2010). It has also been shown that probiotics contain a variety of health benefits, such as cancer prevention and reduced intestinal inflammation (Adolfsson, 2004). Previous studies have not compared the effect of the growth of probiotic bacteria in organic and conventional yogurts with different fat contents. The present experiment investigated the viability of probiotic bacteria in different samples of yogurt. Nineteen agar plates were set up: 3 plates per condition and one control plate. The independent variables were organic versus conventional, and the different fat percentages – 0%, 2%, and 4% fat. A four-quadrant streaking method was used to streak each petri dish. The bacterial growth was then analyzed with a colony counter. Organic yogurt had significantly more colony growth

than the conventional yogurt in all conditions. In addition, the 0% fat yogurt sustained the most amount of probiotic bacteria in both organic and conventional conditions, indicating that the excess sugar in nonfat yogurts enhanced bacterial growth. The experiment suggests that organic non-fat yogurt may provide the most health benefits from probiotic bacteria.

Alex Liu and Riddhi Mangal (10th)

*Effect of Nitrogen and Phosphorus Nutrient Supplements on *Ulva lactuca* Growth*

In this experiment, the effects of phosphorus and nitrogen on the growth rate of green algae, *Ulva lactuca* was explored at different concentrations. This experiment was conducted by obtaining flasks with lake water from the Bryant Library Pond (NY) and treating the water with a different concentration of either nitrogen, phosphorus, or a combination of both. 2 mL of only phosphorus and only nitrogen supplements were added to their own groups, another group with 1 mL of nitrogen supplement combined with 1 mL of phosphorus supplement, and lastly, the group without any added supplements. The water from the lake without additional nutrients acted as the control. Algal growth was measured by wet mass of the water sample. Results showed that the algae supplemented with phosphorus had the greatest algal growth and the combination of nitrogen and phosphorus had the least algal growth. The group with added phosphorus supplement grew 0.2 grams, the next with only nitrogen supplement grew 0.1 grams, the nitrogen-phosphorus supplement broke down 0.1 grams, and the control broke down by 0.2 grams.



Anneliese Opran and Maleeha Rahman (10th)

When Power Hurts: The Effect of Power Perceptions on Self-Esteem and Self-Efficacy



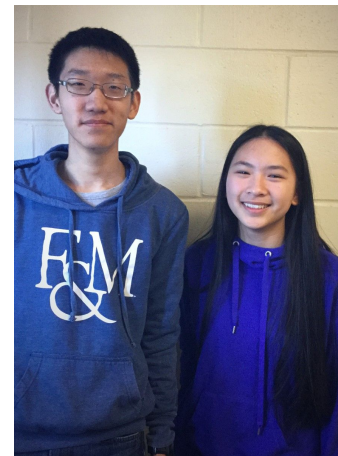
Research has established that leaders' perceptions of their power have an effect on their self-esteem and self-efficacy as well as that of their subordinates. It has also been demonstrated that elevated power perceptions manifest themselves in problematic behaviors. However, no studies have investigated how the method in which the leaders were chosen influence their power perceptions and behavior towards subordinates. Participants ($N = 67$) were randomly assigned to either a leader or subordinate condition. The leaders were told they were either chosen randomly, chosen based on certain qualities, or by the recommendation of a teacher. The subordinates then worked under one leader to complete a group activity. After this, the leaders were told to allocate rewards amongst group members. Leaders were shown to have a higher self-esteem and self-efficacy than subordinates following the group activity. Leaders also assigned a significantly larger number of rewards to themselves. Subordinates

ranked their contribution to the group activity lower than leaders', indicating that the leaders did dominate. Leaders who were told they were chosen based on the recommendation of a teacher reported greatest self-esteem and self-efficacy. The experiment suggests that a leader's elevated power perception will cause a rise in their self-esteem and self-efficacy and a lowered self-esteem and self-efficacy for subordinates. The higher level of reported contribution and number of rewards by leaders also suggests that they dominated activities.

Jasmine Ting and Jeffrey Yu (10th)

Does Time Really Fly When You're Having Fun?

Research has shown that tempo and modularity of music affect behavior of listeners, although there is no consensus on the direction of the effect. Previous research has been limited by primarily focusing on consumers in a retail setting and has not studied how music affects time perception. The present study investigated how tempo and genre of music affect time perception and enjoyment of a task. Students ($N = 112$) were randomly assigned to one of five conditions: fast pop, slow pop, fast classical, slow classical, or no music, which served as the control condition. Music was played for a fixed period of time while students completed a Rebus puzzle task. At the conclusion of the task, participants were asked to estimate the amount of time elapsed and rate their enjoyment on the task assigned. Contrary to previous research, it was found that fast paced music led to a longer perceived duration of time but had no effect on enjoyment. Genre also had no effect on either time perception or enjoyment. These findings contradicted previous studies and shows more research must be done investigating how music affects people's behavior.



Yasin Badawy, Jake Litvak, Jacob Stein, and Jake Stoller (9th)

The Effects of Law Enforcement Officers on Individuals' Perceived Danger



Safety is arguably the most important issue that society faces today. People's perceptions of safety are constantly being diminished by threats of terrorism. Thus, this study investigated how we can improve people's perceptions of safety. Past studies have investigated perceptions of safety in public environments; however, none have explored the impact of the presence of law enforcement officers. Our experiment investigated the effect of the number and type of law enforcement officers on people's perceptions of safety in public. Our experimental stimulus was a

newspaper article. These articles were all identical except for the manipulation of the number of law enforcement officers mentioned (0 v. 50 v. 500) and the type of law enforcement officer mentioned (police or military personnel). Participants then completed a survey which included a five-item scale that evaluated participants' perceived safety. *T*-tests revealed that people felt marginally less safe when military personnel were present, but the number of law enforcement officers in attendance had no effect on perceptions of safety. The findings indicate that deploying military personnel into public places may have the unintended effect of making people feel less safe.

Nikki Blattman, Lianna Friedman, Gabby Fries, and Sophie Fries (9th)

Beat the Heat! The Effect of Storage Temperature and Type of Sunscreen on Sunscreen Effectiveness

Due to the increasing amount of greenhouse gases in the atmosphere, the ozone layer is depleting and global temperatures are rising, resulting in greater strength of the sun's rays. This change leads to issues such as skin cancer and severe sunburns becoming more prominent in society. The sunscreen industry is a multimillion-dollar business that produces a dazzling array of products and leaves consumers to figure out which are best for them. The present experiment compared the efficacy of three forms of sunscreen (lotion, spray, and stick) at three different temperatures (approximately -4°C , 21°C , and 41°C). After storage for 24 hours, the sunscreen was applied to a piece of plastic and placed under the Exo Terra Solar Glow UV light bulb that emits both UVA and UVB rays, for five minutes. The light penetration through the plastic and sunscreen was measured by a PASCO light sensor that recorded light intensity in Lux. Lotion sunscreen and sunscreens stored at 41°C resulted in the least amount of light penetration. The experiment suggests that people should purchase lotion rather than spray or stick whenever possible and store it in relatively warm areas.



Alex Bolognese-Bloom, Harris Miller, Daniel Robbins, and Oliver Topel (9th)

The Influences of Temperature on Probiotics



Previous research has shown that probiotics, such as those found in dairy products, are more viable at higher temperatures, but no study has shown an optimal temperature for storing dairy products. In a society in which people obsess over their health, knowing the best way to increase the number of probiotics ingested will benefit community. We hypothesized that as the temperature of the probiotics decreases, the number of colonies will decrease. To test our hypothesis, we set up 26 plates filled with tryptic soy broth, and coated the inside of each plate

with yogurt, which contains the bacteria strain that we will be testing, *Lactobacillus acidophilus*. We stored groups of plates at 70°F, 50°F, and 32°F. The plates were left in their conditions for 24 hours and then were moved to the incubator for an additional 24 hours. After measuring the colonies in each plate, we found there were a significantly higher number of probiotic colonies in our 70°F group compared to our 32°F and 50°F groups, $p < .001$. These results indicate that when one stores yogurt, it should be in a refrigerator with a temperature of approximately 41°F, because this is a temperature at which harmful bacteria will not grow, providing the best results for probiotic cultivation.

William Borges, Daleep Grewal, Daniel Sung, and Spencer Tsao (9th)

More Than What Meets the Eye: Microexpressions and Their Application towards the Doctor-Patient Relationship

Previous research has revealed how microexpressions, or the subconscious facial movements tied to certain emotions that last for a fraction of a second, are present in almost every form of social interaction. However, no studies on the potential effect of microexpressions on the doctor-patient relationship have been conducted. This experiment investigates whether people can perceive micro expressions as well as whether certain microexpressions can affect patient



perception of doctors. High school students ($N = 91$) viewed one of four versions of a video clip of a doctor describing the need for further medical testing. They were randomly assigned to one of four conditions of the video in which the doctor: expressed a positive microexpression, a negative microexpression, no microexpression, or they listened to an audio clip of what the doctor said without any video component. Participants were then administered an 11-question survey to evaluate their perception of the doctor. Then, they completed an item asking them to categorize the doctor's overall expression as positive, negative, or neutral. Results showed that the condition to which students were assigned was significantly related to their identification of the doctor's overall expressions. In addition, it was revealed that doctor perceptions were significantly impacted by the microexpressions. The experiment suggests that although a number of participants were able to correctly identify the doctor's micro expressions, they did significantly impact the way they viewed the doctor.

Truman Chong, Josh Flashner, Andrew Goldberg, and Josh Kim (9th)

Relative Effects of Change in Underarm Product on the Microbiome



Approximately \$18 billion is spent each year in the United States on antiperspirants and deodorants. The goal of these products is to prevent the growth of bacteria that cause odor. However, the bacteria in this region are an important part of the body's microbiome, and disruptions to it can have negative effects. Our study was one of the first to look at how changes in underarm product use alter the microbiome. Adults ($N = 20$) were randomly assigned either to use a particular deodorant or antiperspirant for a week and then to

take a culture of their underarm. Participants then crossed over and utilized the other product for a week and then took another culture. This meant that participants could have either gone from the deodorant to antiperspirant, or the antiperspirant to deodorant. We sent our cultures away to a lab to be analyzed and recorded the type of bacteria present in each sample. Nearly half (45%) of the participants experienced a change in the microbiome following the change in product. Two-thirds of these changes were detrimental, including a loss of bacteria or the growth of abnormal bacteria, suggesting that a change in product, regardless of the change, whether from deodorant to antiperspirant or antiperspirant to deodorant, was likely to lead to negative effects on the microbiome.

Daniella Futoran, Ariella Hakimi, and Paige Schultz (9th)

The Effect of Calorie Representations on the Number of Calories a Consumer Orders

Past studies have shown that displaying calorie counts on menus has no significant effect in lowering the number of calories a consumer orders. In our study, we wanted to test whether displaying calories in three new methods, rather than simply posting the numerical value of calories, would lower the number of calories consumers ordered more effectively. Students ($N = 150$) from a suburban high school were approached in the school's cafeteria and were asked to select an item from one of the five menu versions of "The Daisy Diner," and to complete a follow up survey regarding demographic information and one Likert-type scale asking whether they would eat at the restaurant. Each menu version contained a method of calorie display including the control without calorie count, numerical calorie count, miles method, which indicated the number of miles needed to walk to burn off the calories, traffic light method, which displays the calories in either a red, yellow or green traffic light graphic, and pie chart method, which includes the number of calories in the food item out of the whole recommended daily calorie intake. Although the participants who saw the menu with the miles method ordered fewer calories than the other groups, there was no significant difference between the groups. Our experiment suggests that consumers disregard calorie counts on menus despite how they are displayed and proceed to order based on their preference rather than calorie count. The way in which calories were represented on the menu had no effect on whether the participant agreed to go to the restaurant.



Maddie Groothuis, Makenzie Komack, Maddie Rubin, and Andie Weiner (9th)

The Effect of Epidemic Timespan on the Perceived Risk of the Influenza Virus



According to the temporal construal effect, people largely ignore the time period over which events occur and instead focus on the number of events that occur. This experiment investigated the effect the temporal construal had on the perceived risk of contracting the influenza virus. Students ($N = 113$) were randomly assigned to read one of three versions of a flyer encouraging people to get vaccinated against influenza; one-third of participants saw a flyer that presented the risk of the flu in days, one-third of participants saw a flyer presented in years, and one-third of participants

saw a flyer presented in non-numerical values. Participants were then asked to rate one's risk of contracting the flu on a riskiness scale out of 100. The results indicated that nearly half (48%) of the participants had gotten the vaccination in the year prior to taking the survey, while over 87% had been vaccinated over the last 5 years, thus suggesting that many people are willing to get the vaccine but do not do so every year. The results also showed that there were no significant differences in the perceived risk of getting the flu amongst the groups. Interestingly, participants who had received the vaccination in the year prior to taking the survey reported the risk of the flu as significantly greater than those who did not receive the vaccination. Our study suggests that more should be done to encourage people to obtain annual flu vaccines and that such efforts should be focused on increasing the perceived risk of the disease.

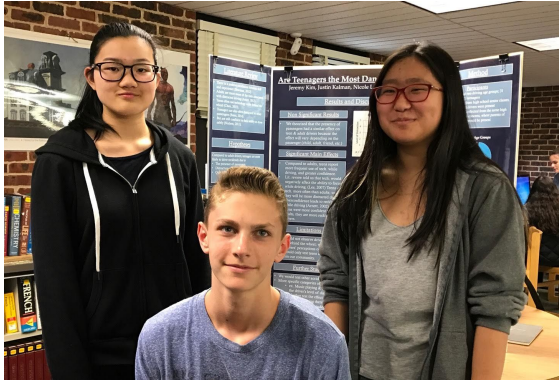
Parsha Haq, Neil Mangal, and Shreeyam Sharda (9th)

Factors that Affect the pH of Groundwater

Previous research has shown that the Long Island Sound is an extremely polluted body of water. Scientists have claimed that this body of water is polluted due to cesspool sewage systems being used around Nassau County. This sewage tends to flow from the cesspool whether through leaks or condensation which then flows into larger bodies of water and causing severe pollution. As a result, we hypothesized that if certain substances are poured into the groundwater, the pH and overall purity of ground water would alter. In addition, pesticides and herbicides would cause it to be more acidic, whereas fertilizer will result in a more basic groundwater. Furthermore, we conducted the experiment by adding the products to 3 sets of soil pots (for each product) filled with man-made groundwater. In order to make the groundwater, we poured 600ml of water into the soil that we originally placed in each pot. Afterwards, we incorporated 100 mL of each substance into its specific set of soil pots. We then measured the pH over the course of three days. From this experiment, we concluded that herbicides was the only substance that had a significant effect on the pH of groundwater, although all of the substances had some effect on the pH. This experiment suggests that herbicides could be a leading factor in the pollution of groundwater.



Jeremy Kalman, Justin Kim (not pictured), Nicole Lee, and Catherine Tom (9th)
Driving Dangerously: Are Teenagers Really the Most Dangerous Drivers?



Research has confirmed that there is a variety of factors that contribute to distracted driving among drivers; however, no studies have compared the effect of leading factors between adult drivers and student drivers. This experiment investigated the effect of the most common distracting factors on both adult and teenaged drivers. Adult ($N = 31$) and student drivers ($N = 23$) were recruited to fill out a survey containing statements regarding certain driving habits and behaviors. Participants were then asked to evaluate the statements based on a 5-point Likert-type scale. Student drivers reported themselves to have more dangerous driving habits than adult drivers. Teenagers were more likely to be

distracted by technology and/or other passengers; however, they had more confidence than adults. This experiment indicates that overconfident drivers would be more likely to be reckless while behind the wheel.

Sarah Kim, Olivia Viruet Quintero, Feyi Rufai, and Serena Shah (9th)
How Do Teens Perceive Electronic Cigarettes?

Research indicates that the increased use of electronic cigarettes in teens is influenced by the lack of education they have in the harmful effects, as e-cigarettes have been viewed as the best alternative to smoking combustible cigarettes. The present experiment investigated the perceptions teens have of electronic cigarettes versus combustible cigarettes and pens on health, intelligence, maturity, friendliness, and popularity. Suburban high school students ($N = 55$) were randomly assigned to view one of three pictures of a girl



holding either an e-cigarette, a combustible cigarette or a pen and then take a survey based on their initial perception. Participants were then given a series of statements related to the dependent variables and evaluated them using a seven point Likert-type scale. The girl holding a pen was rated significantly more mature than either the combustible or e-cigarette condition. Further, the girl holding the e-cigarette was rated significantly more popular than the girl holding the combustible. There was an overall main effect for health, with the pen being rated significantly healthier. This experiment indicates that teen perceptions of e-cigarettes are more favorable than they should be. E-Cigarettes are dangerous and unhealthy, however teens perceive them to increase popularity. This result may be due to a lack of education, and we believe that this problem should be addressed through community outreach and education programs.

Long Island Science Congress (LISC)

LISC is held annually at SUNY Farmingdale. Over 500 students each year prepare poster boards and oral presentations and are judged by high school teachers. A select group of highest honor award winners are invited to participate in the State Science Congress.

Daniel Shalnov	Highest Honors
Matthew Berman	Highest Honors
Justin Leu	High Honors
Johanna Kann & Mayeesa Rahman	High Honors
Ellie Eisenberg	Honors
David Goldstein	Honors
Kevin Lam	Honors
Asher Bykov & Lauren Christenson	Honors

WAC Lighting Research Association Fair (RAF)

Students from 13 Long Island high schools present projects to experts in the field. Seniors and students who completed their research in labs participate in the senior division, while all other students compete in the junior division.

Senior Division

Matthew Berman	2 nd Place in Biochemistry and Molecular Biology
Daniel Shalnov	3 rd Place in General Biology
Yena Kim	Merit in Behavioral and Social Science
Justin Leu	Merit in General Biology
Jason Wu	Honors in General Biology
Vincent Yao	Honors in Biochemistry and Molecular Biology

Junior Division

Justin Schiavo & Drew Goldman	1 st Place in Physics and Astronomy
Spencer Lazar	1 st Place in Behavioral and Social Science
Ellie Eisenberg	2 nd Place in Behavioral and Social Science
David Goldstein	2 nd Place in Behavioral and Social Science
Asher Bykov & Lauren Christenson	3 rd Place in Behavioral and Social Science
Sanwood Gim	3 rd Place in Behavioral and Social Science
Feyi Rufai, Sarah Kim, Serena Shah, & Olivia Viruet-Quintero	Merit in Behavioral and Social Science
Brandon Lee & Lindsey Rust	Merit in General Biology

Jasmine Berger & Adrian Ke	Merit in Behavioral and Social Science
Sophie Fries, Gabby Fries, Lianna Friedman, & Nikki Blattman	Merit in Earth and Environmental Sciences
Catherine Tom, Justin Kalman, Jeremy Kim, & Nicole Lee	Honors in Behavioral and Social Science
Kevin Lam	Honors in Behavioral and Social Science
Mayeesa Rahman & Johanna Kann	Honors in Behavioral and Social Science

eCybermission

Run by the U.S. Army, eCybermission is an online educational science fair for students in grades 6-9 in the United States or at US Army schools across the world. All regional winners receive a one-week trip to the Washington, D.C. area to attend the National Judging and Educational Event, competing for up to \$9,000 in prizes.

Daniella Futoran, Ariella Hakimi, & Paige Schultz	1 st Place in New York; Regional Finalist; National Finalist
Alex Bolognese-Bloom, Harris Miller, Daniel Robbins, & Oliver Topel	2 nd Place in New York
William Borges, Daleep Grewal, Daniel Sung, & Spencer Tsao	Honorable Mention

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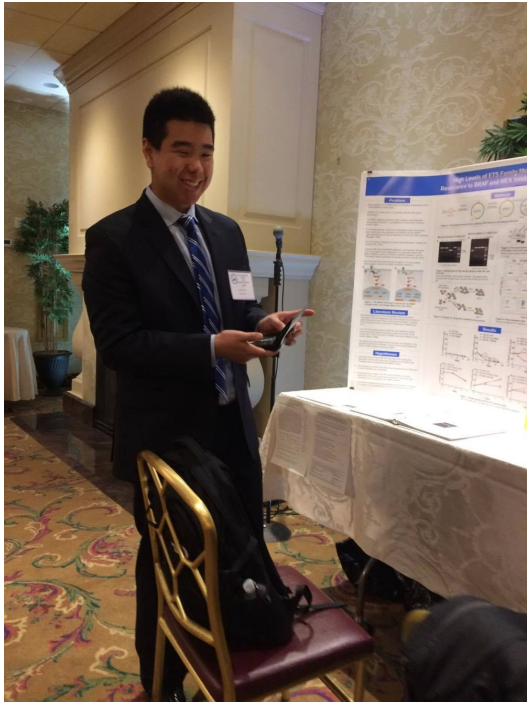
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A LETTER TO DR. WESELEY

Evolutionarily speaking, it is a known fact that humans are hardwired to crave sugar. Lots of sugar. And, if it wasn't already obvious based on the weekly demands for homemade baked goods, there's no one else who manifests this truth better than you.

Persistent and striking, your insatiable desire for carb-filled goodness most likely explains how you have reached a genetic zenith, the height of human development. Who else can make strange cat noises *and* drive an orange Subaru with style? Perhaps that's why you are so sweet... Painfully sweet, that is.

From collecting data in old locker rooms to practicing our speeches two hundred times, we chugged through our laborious years under your guidance. Every sleepless night was spent reviewing drafts filled with red question marks and hieroglyphics. Our success didn't arise without some sweat and tears. However, it's impossible to ignore how far we've come.

Throughout their lives, most kids can only dream of meeting a high school teacher whom they can also call their closest mentor, pseudo-parent, and inspiration. Your dedication to your students, as evidenced by the immense amount of time you have invested in our growth, truly cannot be found anywhere else.

Because of your motivation and genuine care for our futures, we have discovered what we're capable of despite our young age, developing a work ethic that will enable us to soar beyond any obstacle. Even though the sweetness was tough to bite at first, we're now stronger thinkers and scientists than ever before. And for that, we are eternally grateful.

Thank you for everything. We will miss you dearly!

With much love,
The Editors in Chief