



THE ASR TIMES

"The World is Our Laboratory"

Volume 1

Lincoln High School, June 2024

Free

Academy of Scientific Research (ASR) helps Offset Carbon Emissions And Combat Climate Change

By Albi Ukaj



The ASR Climate Change Academy Day, a collaboration between the ASR and Academy of Finance (AOF), was held on October 18th, 2023 in the school cafeteria with Joseph Carvin as the guest speaker. Mr. Carvin is the Founder and Executive Director of One World United & Virtuous, a organization designed to prepare youth for the unprecedented opportunities and challenges of the 21st century. This Academy Day was the final event in a three part series which commenced in December 2022 where Mr. Carvin, YPS' very own Dr. Matthew Gonzales, and LHS students Sophia Lopez and Erika Espinal were the guest speakers. The goal of this first part was to empower students with knowledge by teaching them about climate change and giving them a voice by having them vote on a United Nations approved project to offset our yearly carbon emissions which totaled 304 tons. The students voted to support a composting facility in New Delhi, India.

The second part of this initiative consisted of setting up a Student vs Staff Basketball fundraiser to raise money to support the composting facility. Together the Academies raised over \$1,100 and donated the money through the United Nations.

The focus of the final event was to congratulate the school community on their efforts in offsetting carbon emissions.

This Academy Day was a great display of how young people, armed with knowledge about the intricacies of climate change and its far-reaching impacts, can help make a difference. Through education and awareness, they can empower their peers and communities to take meaningful steps towards sustainability. Together, informed students can catalyze a global movement that not only mitigates climate change but also fosters a more resilient and equitable future for all.

Doctors without Borders Fundraiser

By Nailah Lazala

It was a thrilling basketball match that brought together students and staff in an epic showdown for a noble cause.

The goal was to raise funds for the Doctors Without Borders Charity, an organization that provides life-saving medical care in over 72 countries affected by wars, diseases, and disasters. The game, which was the second annual event, was organized and managed by ASR and AOF. The ASR club met after school to narrow down the charity options, and then ASR students voted for the final recipient during their class. At halftime, the Lancer Dancers, Multicultural Dance club, and drummers took the stage and gave an electrifying performance. The students emerged victorious, ending the game with a score of 45-34. It was a day full of excitement, entertainment and a sense of purpose, all in the spirit of giving back to those in need by raising over \$300!



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Fun Fact!!!

It takes about 50 milliseconds for visual information to process in your brain. By the time you see something, it already happened.

The Academy of Scientific Research

By Kyle Macancela

The Academy of Scientific Research (formerly known as the Program for Scientific Inquiry) is an Academy that encourages students to pursue STEM (Science, Technology, Engineering, and Math) related professions. In addition to the work done in the ASR lab, students also conduct original science research projects and hold internships at various institutions such as Memorial Sloan Kettering Cancer Center, Regeneron and the Center for the Urban River at Beczak that expose them to various STEM careers. Students have competed in competitions such as the Westchester Rockland Junior Science and Humanities Symposium, Science Talent Search, and the Westchester Science and Engineering Fair. Our students are taught how to be leaders, how to communicate effectively, how to apply for internships, and present formally in regional and national STEM competitions. The goal of the ASR is to increase the number of women and underrepresented minorities being admitted to college for STEM professions. The ASR bridges the gap between the classroom and the workplace. It provides students with the skills needed to function in today's STEM world.

A message from the Director...

"Out of the Mountain of Despair, a Stone of Hope..."

Not my words but the words of the great Martin Luther King, Jr. etched on his Memorial in Washington D.C. Thanks to the Society for Science, I was able to make a personal visit and capture that moment. How pleased he would be to know of the opportunities our kids take advantage of through our Academy. In the ASR, we don't just focus on creating a testable hypothesis, we work on becoming lifelong learners and learn how to make a positive impact on our community. That's how the world truly becomes our laboratory!

In this issue we share with you some of the activities and programs in which ASR students have participated in from July 2023- June 2024. These students enthusiastically take part in various opportunities while I have the privilege of watching them grow and make a positive impact.

In my two years here, I have been working to figure out what works best for our Academy. When it does feel like a mountain of despair I am aware a stone of hope exists within it as well. Thanks to the many who fervently support this Academy especially all our Stakeholders. Thank you also to the students who submitted articles including Aleesha Abraham and Taylor Rae Smith who took on leadership roles in this endeavor!

Welcome to the first ever ASR newsletter!! Happy Reading and we hope you look forward to the next one :-)!



WESEF WINNERS ASCEND THE RANKS

By Leila Simmons



Congratulations to our student participants in the Regeneron Westchester Science and Engineering Fair (WESEF); Adamaris Ortega, Noelle Giorgianni, Aleesha Abraham, Sammy Elgabori, Jeevan Saji, Zanii Gunther, and Leila Simmons. They submitted paperwork of their full research projects to committees for review, curated trifold boards illustrating their work, and spent a whole day at Somers High School presenting their passion projects to scientific professional judges for evaluation amongst the entire district of Westchester! This was an amazing experience for each student. It taught them how to format a research paper for submission, practice submitting forms & required data, organize pertinent parts of their project onto their board as well as how to communicate and express scientific knowledge with others – they did it all! Best of all, we secured 4 WESEF winners this year! Zanii Gunther won the Ricoh Sustainable Development award, Jeevan Saji won the Visionary Engineering award, Sammy Elgabori won the Solutions for a Sustainable World award, and Leila Simmons won the Creative Approach to Research award as well as 3rd place in the field of environmental science. Great job to our winners and participants for pursuing this amazing STEM experience!

Regeneron Science Talent Search

By Sammy Elgabori

The Regeneron Science Talent Search (STS) stands as the pinnacle of science competitions for high school seniors in the United States. It's a prestigious competition where the nation's most brilliant young minds are recognized for their exceptional potential as future scientific leaders. Just being chosen as one of the 300 Regeneron STS Scholars from the initial pool of entrants is a significant achievement, earning these students a well-deserved \$2,000 reward. The competition then intensifies as 40 finalists are selected from the Scholars' group. These finalists receive a minimum of \$25,000 each, along with an all-expenses-paid trip to Washington D.C. for a week in March. Here, they participate in the Regeneron Science Talent Institute, showcasing their research and undergoing rigorous judging processes. The cream of the crop – the top 10 award winners – are then chosen based on their research presentations and insightful interviews with the esteemed judging panel. These top finalists ascend the STS echelons, receiving awards ranging from \$40,000 for tenth place to a life-changing \$250,000 for the winner. While students like Kyle Macancela, Zanii Gunther, Jeevan Saji, Adamaris Ortega, Aleesha Abraham, Sammy Elgabori, Leila Simmons, and Noelle Giorgianni and Olivia Nelson may not have secured the Scholar title, their participation in the competition is far from without merit. They gained invaluable exposure to the world of cutting-edge research, a network of talented peers, and the inspiration to continue their pursuit of scientific discovery.

STAC STEM Exploration Summer Program

By Karen Dominguez

I had the chance to participate in St. Thomas Aquinas College's (STAC) STEM Exploration Summer Program and immerse myself in hands on experiences, earn valuable college credits, and get a glimpse of college life. I became friends with other students from Queens, the Bronx, and Brooklyn. Despite the fact that we all lived in different areas, we had a common interest in STEM research. In this program I had the chance to take college level courses for a week. I explored diverse STEM fields with top-notch instruction from our School of STEM professors. I elevated my academic profile as I gained 3 college credits for attending the program. The courses that we covered were biology, computer science and data science. We also experienced off-site visits on trips, bridging the gap between theory and practice.



Blue Team

MAKES A SPLASH

By Leila Simmons

At the Center for the Urban River at Beczak (CURB), there is a special group of student interns hired each summer by Sarah Lawrence College to become a part of CURB's Blue Team. From the Academy of Science Research (ASR), Leila Simmons, and Aleesha Abraham, were selected and hired for the summer of 2023. They learned about the significance of environmental injustice, how to analyze water samples in the lab for a bacteria known as enterococcus, combined sewer overflows (CSOs) and more! The greatest of their achievements in this paid internship was at the end of the summer, CURB hosted a "Blue Team Community Day," to engage the local community and share their findings! CURB was happy to support these scholars in their pursuit for knowledge in social justice and STEM, and has even welcomed back one of ASR's students, Leila Simmons, as a mentor for the Blue Team of 2024. Thank you so much to Sarah Lawrence College and CURB for sponsoring and mentoring our students and giving them this amazing hands-on experience!



EELS Team at The Center for the Urban River at Beczak

By Jaesun Charles



The EELS team is an internship program for high school students at the Center for the Urban River at Beczak, owned by Sarah Lawrence College. The first year of the program ran from July 2023 to April of 2024. This was the year I joined. The program includes a free summer course in Ecology (which gives you college credit), paid research after school in the fall and spring, and it ends with presentations in April. It was a great experience for me. Over the twelve weeks of working in the EELS program, I met new people and learned new skills, such as seining, resume building, and public speaking. I attended the internship with my ASR peers Jeovany Maldonado, Logan Roman, and Abel Tom. Not only were we paid for our work, we were also compensated for transport with metro cards. The staff there were very helpful and understanding, aiding us whenever we needed and even if we didn't think we did. They made the experience so much better than it would have been without them. I encourage anybody that is not a current senior to attend this, as it is both educational and exciting!

Chemical Engineering Camp at Manhattan College

By Noelle Giorgianni

The Manhattan College Summer Chemical Engineering Program is a two-day program that Manhattan College offers every summer. The program is run by our advisory board member Dr. Richard Carbonaro. He simplifies and makes chemical engineering more approachable. You learn a lot about the field of chemical engineering in this program. These two days cover a lot of ground, including how to build a water bottle rocket, a budgeted water filter, potato skin plastic, and much more. Additionally, this program provides you with some college experience while you are still in high school as well as some really cool freebies to keep.



Senior Panel Academy Day

By Zanii Gunther

The Academy of Scientific Research hosted their first Academy Day of the 2024 on January 17. A panel of seniors inspired and enlightened students with remarkable projects. In an event that displayed the power of knowledge and experience, a panel of esteemed seniors at LHS presented their remarkable projects to an enthusiastic group of students at Lincoln High School. The event, organized with the intention of fostering inter-generational learning, left a lasting impact on those fortunate enough to attend. The panel consisted of accomplished students coming from various backgrounds, each with a wealth of experience and wisdom to share regarding their field of expertise. These seniors demonstrated that learning knows no age limits and that passion and curiosity can thrive throughout one's lifetime. Here's some info on our panelists Zanii Gunther, Adamaris Ortega, and Leila Simmons.

Zanii Gunther has spent three years as a member of the Science Research Academy. She was able to secure an internship at Memorial Sloan Kettering during her junior year when she worked in the David Jones Lab, studying thoracic cancer. During her time at Sloan Kettering, she worked on a project titled *Investigating the Role of BRMS1 in Reducing Chemoresistance*. The goal of this project was to help address the issue of chemoresistance in cancer treatment. In her experiment, she employed human lung cancer cells in combination with the BRMS1 gene and many widely used chemotherapy medications to combat thoracic cancer.



Adamaris is currently enrolled as a senior in the Academy of Scientific Research. At the Memorial Sloan Kettering Cancer Center, Adamaris completed a project titled *The Analysis of ACVR1B and BMPR1B Expression in Pancreatic Cancer by Immunohistochemistry*. She has participated in every competition offered by the Academy of Scientific Research including the Westchester Science and Engineering Fair (WESEF), Junior Science and Humanities Symposium (JSHS), and Science Talent Search (STS). In the future, she hopes to work as an oncologist.

Leila Simmons (they/them) is a 12th grader who joined the Academy of Scientific Research during their sophomore year. As the current secretary of ASR, they are tasked with duties like public relations management, note-taking, and announcement-making. Their research comprised of collecting data on the aquatic macroinvertebrate species found in our aquatic habitats to New York's historical water quality. They have taken part in WESEF, JSHS, and STS. They were thrilled to share their findings with you on Academy Day and stated that being a veterinarian is their primary career ambition!



Regeneron Scientists visit with ASR



Dr. Eric Hayden

students

By Karen Dominguez



Dr. Khadijah Onanuga



Through the Society for Science's Scientist in the Classroom Program, Mrs. Howard was able to secure an Academy Day with two scientists from Regeneron. This Academy Day was both interesting and inspiring as the talk centered around Alzheimer's disease research. Dr. Hayden is an experienced biochemist and neuroscientist with interests in neurodegenerative disease biochemistry, biomarkers and drug design. Dr. Onanuga is Senior Manager at Regeneron Pharmaceuticals and former high school science teacher. Hearing about their research and how they emphasized their passion for science inspires students like us in the Academy of Scientific Research to broaden our knowledge.

WHAT IS HYDROPONICS?

By Nailah Lazala



Hydroponics is a method of growing plants without soil. The seeds are planted in small green cubes made of a material called rockwool. The rockwool holds moisture well and allows air circulation through it even while being soaked with water. Most plants can be planted using hydroponics. In our Academy, we use vertical hydroponic towers. To date, we've grown sweet basil, cilantro, romaine lettuce, dill, sage, royal mint, bok choy, kale, Mexican marigold flowers, tomatoes, green beans, eggplant, green bell peppers, nasturtium, and tickseed flowers. We have also been fortunate enough to grow enough produce to donate to our culinary program!

The Hydroponics Club meets every Monday to take care of both towers. Their mission is to bring wholesomeness into the school community and to share the joys of vegetation. For more information, ask about us in room 150!

Taking care of the towers includes these steps:

- Prep rockwool for planting
- Insert seeds into rockwool
- Cover the seeds with small minerals called vermiculite
- Water rockwool once every 2-3 days until seedlings appear
- Fill hydroponic tower tanks with water and mineral solution as refill every 3-4 weeks
- Place plants into tower
- Set water and light timers
- Proceed to check on plants and water level



GroundWork Hudson Valley Green Team

By Alexander Hall



Located in Yonkers, the Green Team experience started during the scorching summer months. We worked on initiatives like creating community gardens, sanitizing the Saw Mill River, getting rid of invasive species, and designing a new bike path. We gained practical experience improving our communities on public lands. We have visited locations that vary from Yellowstone National Park, The Grand Canyon, Gateway National Recreation Area, and Wallkill National Wildlife Refuge. We have taken excursions that include wilderness camping, canoeing, and night hikes in addition to trail restoration and park conservation.

Old Croton Aqueduct Essay Contest

By Taylor Rae Smith

The Old Croton Aqueduct has long captivated the imagination of those who marvel at its history and significance. To celebrate and encourage a deeper understanding of the infrastructure, the Friends of The Old Croton Aqueduct (FOCA) organized an annual Essay Writing Competition. For the second time, the competition has brought forth a display of talent. Participants were tasked with crafting essays that delved into various aspects of The Old Croton Aqueduct. Whether through narrative, descriptive or critical lenses, each essay aimed to shed a light on the importance of the Aqueduct.

Mrs. Howard pushed for her students' participation in the essay competition. For underclassmen and juniors, Mrs. Howard made participation a graded assignment, challenging them to research and delve into the aqueduct's history as a part of their coursework. As for seniors, Mrs. Howard presented participation as an option. The announcement of the winners on April 15th, 2024, brought well deserved recognition to those whose essays stood out among the rest. Our very own Shennaiya Rose claimed the first prize of \$500 with "Mr. J and the Croton Aqueduct." Her narrative painted a vivid picture of the Aqueduct's impact on the lives of those who lived alongside it, meshing history and personal anecdotes with skillful storytelling: "My boy would've been happy to see such a magnificent structure that his papa helped to build. I would like to think that he is probably discussing with his sister and grandmother the idea of the Croton Aqueduct in the abode of the blessed." Second place went to Taylor-Rae Smith for "Camp Aqueduct," earning \$300. Smith's piece offered a unique perspective of the Aqueduct, exploring its role as more than just a piece of architecture, but as a place of community and connection: "Even in this digital age, wonder can still bloom, and magic lies just beyond the screen, sometimes in our own backyards, waiting to be rediscovered, together." Beyond the accolades and prizes, the Essay Writing Competition served as a platform for fostering a deeper connection with history among Yonkers students. Furthermore, the opportunity for publication on the FOCA website and display of hard copies at the Keepers House Visitor Center ensures that these essays will continue to inspire and educate others for years to come.



pepsico MENTORSHIP

By Aleesha Abraham

The Pepsico Mentorship program is an incredible program in which students from our academy may connect with individuals who are part of Pepsico and have experience in careers that connect with the students project, the mentor assists the student by meeting at least once a week or staying in touch through some sort of contact. The mentor and student will collaborate over the four years on their research and preparation for the Scientific Competition. Aleesha Abraham, one of our students, had a successful mentor who supported her throughout her academic career and helped her with everything she needed and even helped her find another mentor for her project who was a Doctor of Physical Therapy. With the mentor's aid, she was able to easily examine data, uncover background information, and revise her research paper.

WHAT IS SPORTS MEDICINE?

By Noelle Giorgianni



Sports medicine is a branch of medicine that focuses on the prevention, diagnosis, treatment, and rehabilitation of injuries related to sports and exercise. It combines elements of orthopedics, physiology, biomechanics, and rehabilitation to optimize performance and minimize injury risk for athletes and active individuals. Careers in sports medicine can range from sports medicine physicians, sports medicine nurse/nurse practitioners and surgeons to athletic trainers, physical therapists, exercise physiologists, sports psychologists, nutritionists, and strength and conditioning coaches. These professionals work with athletes of all levels, from recreational to athlete, across various sports and settings, including professional teams, sports medicine clinics, hospitals, colleges, and fitness centers.

Memorial Sloan Kettering



Internships

By Sammy Elgabori



Fueling the next generation of science research enthusiasts, the Science Enrichment Program (SEP) is a transformative ten-month journey for underrepresented high school students brimming with scientific curiosity. SEP partners with under-resourced New York schools like Lincoln High School, seeking out brilliant minds through a nomination process. Standout students like Zanii Gunther, Adamaris Ortega, and Sammy Elgabori from Lincoln High School were taken away on an exhilarating journey into the intricate world of cancer biology. SEP equipped them with the essential tools – a deep understanding of lab techniques and the complexity of clinical research – to become future leaders in the fight against cancer. But SEP isn't just about textbooks and lectures. It's about plunging headfirst into the world of scientific discovery. The program culminates in an electrifying eight-week summer internship at the esteemed Memorial Sloan Kettering Cancer Center. Here, each student is paired with a dedicated mentor, a seasoned researcher who becomes their guide on a self-directed research quest. These projects are far from mere academic exercises – they are vital contributions that propel the ongoing research efforts of their mentors. The SEP experience is meticulously crafted in two distinct phases. Phase I lays a powerful foundation through a dynamic blend of coursework, hands-on lab instruction, and professional development workshops. Phase II propels students towards mastery with a research apprenticeship under the watchful eye of a Memorial Sloan Kettering Cancer Center faculty member. Current juniors Albiona Husaj, Samuel Rodriguez, Jeff Schubert and Abel Tom are currently completing Phase I. This immersive experience allows them to specialize in a fascinating facet of cancer research, culminating in a prestigious presentation of their findings to the Human Oncology and Pathogenesis Program. SEP is more than just a program; it's an opportunity for underrepresented students to launch themselves into the exciting and impactful world of cancer research, shaping them into the future heroes of scientific discovery.



By Taylor Rae Smith

The Introduction to Neuroscience course offered by Burke Neurological Institute was an immersive learning experience designed for high school students eager to learn about the nervous system. Held twice weekly in the evenings, the course offered participants a comprehensive foundation in neuroscience. Led by expert instructors, the program delved into key concepts such as the organization of the nervous system, the effects of a stroke, potential avenues for nervous system repair, and the progression of neurodegenerative disease. Through a combination of virtual lectures and discussions, students gained a deep understanding of the fundamentals of neuroscience. Moreover, the course provided a unique gateway to potential research opportunities at institutions like Burke Neuro and equipped our Academy of Science Research participants Taylor-Rae Smith, Adamaris Ortega, Aleesha Abraham, and Nailah Lazala with the knowledge and skills to excel in college-level coursework.

Science Barge By Samuel Rodriguez

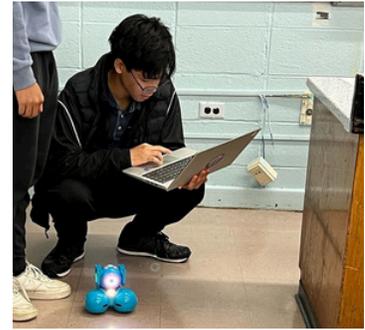
At the Science Barge, I proposed a research project to my mentors and they assisted me in developing the procedure and planning out properly what I would be doing on-site. At the Barge, I set up and everything surrounding my project and prepared the materials to conduct research on the effects of runoff salinity on the development of eelgrass in the Hudson River. Through this internship, I learned how to manage my time and demonstrate leadership and rigor in project development, especially concerning lab reports and research papers.



Coding with Bots

By Daira Aguilar

Lincoln High School ASR brings coding to the classroom! Provided by the Yonkers Public School district to help promote STEM in a fun manner to students, seven Dash Wonder Bots, were lent to the Science Research Academy through the Smart Start program. As can be inferred from his name, Dash, the original STEM learning bot, was equipped to do all sorts of fun and impressive actions like singing, dancing, responding to voice commands, and of course dashing at high speeds as well as much more. One can even say that Dash really brought coding to life by teaching Mrs. Howard's sophomore class about problem-solving and creative coding simultaneously by having the bots perform and clear some type of obstacle course created from utilizing the objects in the classroom. Kids had to strategize and methodically map out the course and code the bots to work around the challenges in it's path. As someone who partook in the activity, I can definitely say as challenging as it was, it was equally as rewarding to learn about something new and it ignited a new passion for coding I wouldn't have discovered if not for the challenge.



Winter Water Academy

By Anthony Peter

The Hudson River is teeming with life with thousands of scientific discoveries waiting to be unearthed and I was excited to take part in it. At the Winter Water Academy one can discover and learn all about the Hudson and Sawmill Rivers while also seeing how wastewater is treated. At the Sarah Lawrence Beczack center, students partake in various labs and tests on water quality in our rivers. Students test for certain bacteria in the river and learn about the different forms of aquatic life in the Hudson River. Students also learn about different natural phenomena that affect our rivers and the life within them. A trip is also offered to the Wastewater Treatment Facility where students see how sewage and runoff water is treated and learn about the processes involved in the facility. Students in the program can also apply for Blue Team, a paid internship over the summer, which deals with advocating for environmental and aquatic health while also treating and understanding our rivers on a greater scope. The Winter Water Academy is a great opportunity for students to understand about our aquatic habitat and provides an amazing experience many will cherish.

LAB COAT CEREMONY

By Adamaris Ortega

The ASR invites friends and family members to a lab coat ceremony each year for students who have completed one successful year and are ready to take the oath to continue on and commit to conducting a research project of their choosing. During this ceremony, they receive a lab coat and certificate. The lab coats this year were personally embroidered by ASR Sophomore Shennaiya Rose under the guidance of our school librarian Ms. Loia. This year the ceremony included sophomores, as well as some juniors and seniors who joined the Academy last school year. It was a beautiful ceremony with some super excited students and their families. With their fancy embroidered lab coats on, they've become like detectives; ready to solve big problems and inspire others to do the same.





SOLAR ECLIPSE 2024 VIDEOS

By Jeevan Saji

The Yonkers Public Schools district buzzed with excitement as a unique learning initiative unfolded. The brainchild of the dedicated Mrs. Howard, the project tasked the Advanced Student Reporters (ASR) with creating educational videos for students across all grade levels. Mrs. Howard knew the power of storytelling. Instead of dry lectures, she envisioned captivating narratives that would spark curiosity and ignite a love for learning. To achieve this, she assembled a dream team – not of professional actors and directors, but of the school's most talented students. Jason Perez, Nailah Lazala, Taylor Rae Smith, and Samuel Rodriguez, known for their creativity, were chosen to spearhead the project. Their mission? To craft a script that would transport viewers to a world both familiar and fantastical – Yonkers in the year 2024. The story would center around Jason, a grandfather regaling his granddaughter, portrayed by Christabel Addo, with tales of his first-ever solar eclipse experience. As Jason narrates, we'd be transported back in time, witnessing his younger self and his classmates in Mrs. Howard's class, eagerly absorbing fascinating facts about this celestial phenomenon. The magic wouldn't stop there. Mrs. Howard, a whiz with editing software, would weave her expertise to bring the script to life. Imagine – realistic special effects, mind-blowing visuals, and informative graphics seamlessly blending with the heartwarming narrative. But this was just the beginning. Recognizing the diverse needs of learners, the ASR's mandate wasn't a single video, but two. Mrs. Howard crafted a video specifically designed for younger students. This one would be infused with a touch of humor, lighthearted characters, and a focus on storytelling to make complex concepts more approachable. For the older students, Nailah took the director's chair. Here, Jason, Sam, and other members of the ASR would reappear, but this time, the focus would shift to in-depth explanations and captivating scientific facts. Sleek editing and a barrage of intriguing details would transform this video into a comprehensive guide to the wonders of solar eclipses. Finally, the moment of truth arrived. The completed videos were distributed across the Yonkers School District, ready to ignite young minds and foster a love for learning that would stay with them long after the credits rolled.

Sophie Davis HPMP By Samuel Rodriguez

The Sophie Davis Health Professions Mentorship Program is a summer program where students from all across New York attend the CUNY School of Medicine to learn about a variety of different professions, visit an anatomy lab, and construct a project surrounding health disparities and its lasting impacts on issues in New York. Within my group of 6, we collaborated on a project concerning asthma in Central Harlem and how the social determinants of health have exacerbated such problems in the community. By getting the opportunity to present my research to professionals and experts, I was able to practice leadership and public speaking skills and gain an even greater knowledge in general research of medicine.

SCIENCE FUN FACTS

By Adamaris Ortega

- Helium can work against gravity.
- Humans have inherited genes from other species.
- Wearing headphones for an hour multiplies the bacteria in your ear by 700.
- Bananas contain potassium, and because potassium decays, the yellow fruit becomes slightly radioactive.
- Depending on the breed, snails can have up to 2,000-14,000 teeth!
- Only female mosquitoes drink blood.
- Every time we do laundry, we unleash over 9 million microfibers into our waterways.
- Microplastics small enough to move through the bloodstream has been found in some human placentas
- Deaf people are known to use sign language in their sleep.
- The adult human body has 206 bones, while a child's developing body has 300.
- Hippos create their own sunscreen.





Eggstravaganza 2024

By Daniel Cruz

The ASR held an Eggstravaganza, a fundraising event complete with characters, cotton candy, raffles, and the much-anticipated egg hunt. The event took place on April 20, 2024, and it concluded at 12 p.m. It started off fairly calmly; a few kids were excited to see me because I was Mr. Easter Bunny and they enjoyed taking pictures with me. However, at 11 a.m., things got a little crazy and hectic. A lot of kids came in, and as Mr. Bunny, I had to dance, snap pictures, and say hello to everyone. The costume was really hot and felt like a sauna, but it was a lot of fun because I was anonymous and didn't feel uncomfortable about dancing and letting free. I had a lot of joy participating in the egg hunt, I even slid several kids' eggs when Mrs. Howard was not looking. The event featured a variety of activities for children, including an egg race, sack race, chalk drawing, picture session, and ring toss. The egg search was undoubtedly the most popular event among children due to the free candy. The raffle was the final portion of the Eggstravaganza and it comprised one large and one medium-sized squish mellow. A family won the raffle and was fortunate enough to receive both gifts. I guess they had the most raffle tickets! After everything was said and done, the ASR had to clean up the field, which was quite simple. Some of the tasks we had to complete included collecting eggs, photo cutouts, sacks, rings, and tables. I had to return the bunny costume to Beyond Costumes, where we leased them, so a big thank you to Beyond Costumes for allowing us to use the costumes for the Eggstravaganza. We also raised money for our Academy and spread the word to our community as to what ASR is all about!



WR-JSHS

By Jeevan Saji

The Junior Science and Humanities Symposium (JSHS) stands as a nationally recognized platform for high school students to showcase their original research endeavors in the fields of science, technology, engineering, and mathematics. This esteemed competition fosters a vibrant environment where young minds can present their findings, compete for scholarships and recognition, and connect with other passionate researchers. The Academy of Scientific Research (ASR) actively encourages participation in JSHS, recognizing the invaluable experience it offers. Seven students – Sammy Elgabori, Leila Simmons, Jeevan Saji, Aleesha Abraham, Zanii Gunther, Noel Giorgianni, and Adamaris Ortega – proudly represented ASR at the January 2024 event held at Yorktown High School. Each student prepared a 10-minute PowerPoint presentation meticulously outlining their research methodology, findings, and potential implications. While securing a top prize remained elusive this time, the JSHS participation proved to be a significant steppingstone for these young researchers. The rigorous competition format and exposure to esteemed judges provided valuable feedback and sharpened their presentation skills. This experience will undoubtedly serve as a catalyst for their future academic pursuits and research endeavors, paving the way for potential success in future JSHS competitions and beyond. JSHS represents a crucial opportunity for high school students to delve into the world of scientific research, fostering critical thinking, problem-solving skills, and a deeper understanding of the scientific process. By actively promoting participation in this prestigious event, ASR empowers young minds to embark on their scientific journeys, contributing to the advancement of knowledge and innovation.

Academy day with Dr. Carbonaro



By Olivia Nelson



For our Academy day on November 8, 2023., Dr. Rich Carbonaro was the guest speaker. Dr. Carbonaro is an ASR Advisory Board member and also works as a professor of Chemical Engineering at Manhattan College. He teaches mathematical modeling of chemical processes, chemical kinetics, and environmental chemistry. Carbonaro not only teaches but conducts research in his field of study. He spoke of his research which focuses on the fate and transformations of organic and inorganic chemicals in engineered and natural environments. Dr. Carbonaro also spoke about his background in the field and what exactly he did/does during his twenty years (approximately) as an engineer specializing in the transportation and fate of contaminants in soil, groundwater, and sediments. Students were intrigued to hear about how he got to where he is today and enjoyed the opportunity to ask him questions.

Faculty Feud Fundraiser

By Aldijana Srdanović

This is my first year in the Academy of Scientific Research (ASR), and I've had many opportunities to help out and raise money for those in need. This year, we decided to organize The Faculty Feud. The Faculty Feud was supposed to be a mock version of The Family Feud where people go on the show and go against each other, and whoever has the most points by answering the questions with the highest rank wins. We all had specific roles to fulfill, and mine was to help manage and direct the event by making sure everything and everyone is where they are supposed to be. First, we made a flyer to promote the event and spread the word to everyone. Academy students selected the Staff members and made special name tags for them. We then asked the students in ASR to come up with funny questions for the participants. We put out a survey and received many responses. Next, we went around with a camera to surprise the "chosen ones" with the news that they would be on the show. They were all very excited. We divided the 12 participants into two teams and made sure everything was in place. Initially, ticket sales were slow, but at the last minute, everyone wanted to come. Despite the hectic preparations, we worked together as a team and managed to make everyone comfortable and excited for the show. We sold snacks, had drinks, and had a funny intermission movie starring Mrs. Howard and Jason Perez. We all had a good laugh and were surprised by some of the answers from the students and teachers.



Bear Mountain Bridge STEM Trip

By Emily Verdejo



The Bear Mountain Bridge is in Rockland County, New York. It celebrates its' 100th birthday this year. Ms. Howard was able to make a trip to this bridge possible on October 2023, thanks to our Advisory Board member Kathryn Burke. Standing on the Bear Mountain Bridge in New York, I felt like I was on top of the world. The bridge wobbled a bit under my feet, making me a little nervous but also excited. Down below, the Hudson River flowed peacefully, reflecting the colors of the sunset. All around, there were big hills covered in trees, and in the distance, I could see Bear Mountain itself. It was beautiful, and being there made me feel like I was part of nature. One of the workers explained how it took a lot of teamwork and hard work, but eventually, the Bear Mountain Bridge stood tall and strong, ready to carry people from one side of the river to the other. Even after I left, I couldn't stop thinking about how amazing it was.



Jacob Burns Trip: LIFT

By Justin Brown

On one of our trips to Jacob Burns Film Center this year, we watched a compelling documentary called LIFT. This film followed Steven Melendez and his ballet program "LIFT", whose goal is to offer a free performative art workshop to young children in New York suffering from poverty and home insecurity. This documentary follows the lives of young dance students, and their struggles of home insecurity and how they escape through artistic expression. This documentary gave me some insight into the struggles faced by many young children as well as their experiences in shelter homes.

From the film I also learned how children could also face these traumas with help from different art forms, which are commonly inaccessible to kids of their background. This also showed us the importance of having a mentor and how a mentor mentee relationship works.

Neuroscience at Mercy University

By Alice Rodriguez

In the fall of 2023, at the Mercy University campus in Dobbs Ferry, held a neuroscience program for four Saturdays. We started the program off by creating a window in a day 5 fertilized chick egg and sketching it out. It was a tedious process but worth it in the end to be able to look inside the egg. On day two, we poked a small hole in the shell of a fertilized chick egg and sucked the yolk out with a syringe. Then, we proceeded to window the egg and take the embryo out of the shell. We did this to remove the embryonic sack underneath a microscope. It was difficult to remove due to this thin layer that coated the embryo. Finally, we decapitated the embryo and looked through its head under a microscope. On day three, we examined and created our own cells. On the final day, we examined the cells we had created, and we got a certificate for being in the program. I would say that I enjoyed this experience greatly and it entered me into a grand new world. On top of this, the campus is beautiful and it is in a peaceful neighborhood.



Summer Engineering at Columbia University

By Daniela Gonzalez



This past summer, I got the opportunity to be a part of the Columbia University SHAPE (Summer High School Academic Program for Engineers) summer program. With this program I got the chance to work with different people who were interested in the different fields of engineering including professors, staff, college students, and high school students like me that came from distinct parts of the country. I learned different things that will help me with my research project in the future, such as 3D printing, laser cutting and engraving, and the use of Arduino and Matlab programs and their relevance to the field of Biomedical Engineering. The programs also brought in guest speakers that helped us with things like interviews, resume writing, and the College admission process. In addition, we had

days where we were able to tour campus and have moments of playing games with other high school students in the program and get to know them. I really enjoyed this program, and I am very thankful for all the things that I learned and the people I met during this summer.



END OF THE YEAR PICNIC!

By Taylor-Rae Smith



The Academy of Science Research upperclassmen recently went on a trip to Tibbetts Brook Park, blending recreation with learning in a natural setting. The outing provided a perfect balance of activities designed to entertain and educate. The day began with a delightful picnic where students enjoyed a variety of delicious foods, including sandwiches and snacks. The students engaged in a range of games, with volleyball being a highlight. In addition to the games, Logan and Niveshka had a fascinating time by the park's streams, where they watched fish, a snapping turtle, and discovered an aged snail shell. The day concluded with more students sharing stories, bonding over shared interests, and enjoying the serene surroundings of Tibbetts Brook Park. This blend of structured activities and free time ensured that everyone could relax and enjoy the day in their own way. Overall, the trip to Tibbetts Brook Park was a resounding success. It provided the upperclassmen a chance to unwind, have fun, and learn in a beautiful setting. This made for a well-rounded and enjoyable experience, reinforcing the importance of balancing work and play.

ASR 2024 Graduation

By Jaesun Charles

ASR hosted the graduation ceremony for the Class of 2024 on June 6th. Samuel Rodriguez and Jaesun Charles emceed the event with Mr. Sherman, Leila Simmons, Mrs. Howard and Mr. Morano as speakers. Abel Garcia made the ceremony even more special with his music. We were also excited to have our Advisory Board member Dr. Bianca Wentzell in attendance. Students were given certificates for completion of the Science Research program, accompanied by necklaces and keychains created with love by Ms. Loia and then they recited their oath in unison. Afterwards, everyone had the chance to get an up close look at this years project boards and the hydroponic tower. Guests and students got the opportunity to sink their teeth into sweet cookies baked by Mr. Morano as well as cupcakes. Mr. Virga made our refreshment table look spectacular with his specially made sign. Unlike last year's ceremony, the skies were all blue and clear for these Seniors' parting ceremony. Congratulations to the ASR Seniors!!

