

COMING UP:

Sept 28—Oct 2: Elective Kick-off Week (modified schedule)

Oct 5—RVGS Regional Board meeting (6:30 pm)

Oct 7— Wednesday virtual schedule changes to add elective classes

Oct 28—Interim 2

RVGS Newsletter



Issue 1
Sept 2020

Message from the Director

It would be an understatement to say this is certainly not the start of the school year any of us would have chosen. That said, it's important to do your best with the cards you are dealt, and I think that's exactly what we are doing. I can't say enough to express my pride and appreciation for how our school community has pulled together to make this fall the best it could be under these circumstances.

I need to take a moment to recognize our teachers. Even during normal times, teaching is a challenging and demanding vocation. The way our faculty has transitioned to hybrid instruction—simultaneously teaching in-person and at-home students—rates as the most impressive display of professionalism I've encountered during my career.

It's a lot easier for our staff to stay motivated while working with our marvelous students. I am left in awe daily at the way our students have stepped up to these challenges. I know it isn't easy and things are far from ideal, but I want our students to know that we see your efforts and dedication on display. Not only are our Lab Rats working hard on their school work, but they've been doing an excellent job following safety protocols like wearing masks and maintaining distancing. I am proud every day to be associated with such a fine group of young adults.

Absent unforeseen changes in external conditions, we are not currently considering notable changes to our schedule or attendance structure. Hopefully this consistency will help our students and staff continue to gain comfort with our instructional format. An exception to that will be the elective kick-off week (9/28-10/2), which will feature a modified schedule to allow our students to meet their elective teachers and get those classes off to a good start.

As always, please don't hesitate to contact me with any questions or concerns you may have.

RVGS REUNIFIED

After a spring semester of remote learning amid the COVID-19 spread, RVGS finally finds itself "REUNIFIED". Faculty and staff worked tirelessly this summer to put together a plan to bring students back to the RVGS campus safely. Things certainly look different with smaller classes sizes, social distancing and more instruction being done online but students are finally able to come together as part of the RVGS community. With the COVID-19 pandemic and other social uncertainty, we have all faced an extremely challenging time but the RVGS community is preserving together!

On August 18th, students began the new year on a "100% virtual" schedule. In the weeks that followed, attendance remained primarily virtual with individual districts sending students for trial runs. Finally, on September 10th, the "RVGS REUNIFIED" format was underway.



Though the students and staffs were wearing masks and maintaining social distancing, it was evident of everyone's excitement to be back together. Students greeted some of their favorite teachers from last year and found a few new faces in the classrooms.

In order to maintain only 50% capacity on campus, students will attend with a new hybrid schedule with two in-person days of instruction and three virtual days. Students will attend their 'At-Home' Hybrid Days in real-time following "RVGS REUNIFIED Bell Schedule" times. Attendance is expected, but class recordings will be available to watch later in the day to be counted present if online attendance in real-time is not possible. More information on "RVGS Back to School" plan can be found on the RVGS website (rvgs.k12.va.us).

Counselor's Corner

Greetings

When I am writing an article for the newsletter, I often look back to previous years to make sure I haven't forgotten something important. This time I quickly realized there was no point in looking back. No year is even similar to this one...but it doesn't mean we can't still make it a great year. It has been wonderful to see faces of our students as they are beginning our hybrid schedule. It may take me longer to learn the names and faces of new students, but I will continue to work on it as I screen them each morning and afternoon.

I have virtually met with the seniors and have scheduled individual meetings for each senior who requested one. I should wrap those up the first week of October. If your senior didn't request a meeting, they are still welcome to do so. I have also met with numerous students, new and returning, to talk with them about study skills and time management. Being in a virtual environment, even partially, has brought its own unique challenges. One big one I seem to keep hearing is about the many

distractions at home, often from younger siblings. This is new territory for all of us, but I have suggested that they communicate with you their test and quiz days so maybe a little extra something could be done on those days to help with the interruptions and distractions that are part of normal family life.

Last year RVGS continued to focus on the importance of mental health and I put through several new initiatives. Although our environment is different, this is still a major focus and concern of mine. I will begin sending out weekly themes for You Uplift to encourage even more participation. I am working on some student challenges to send out for a fun distraction as well as some virtual mindfulness and yoga opportunities. If you have other ideas of how I can support the students' emotional well-being, please don't hesitate to contact me. Let me know how I can best serve you and your students during this time

-Kathy Sebolt

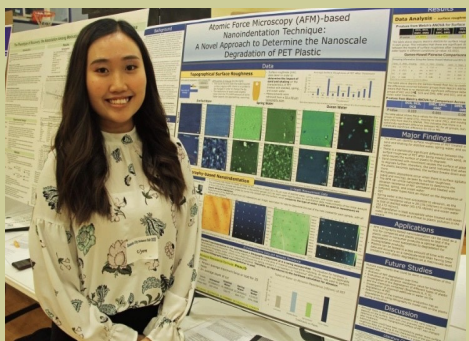
ACT-SO AWARDS

RVGS is pleased to announce that two students representing RVGS/WFHS and the Roanoke branch of the NAACP won awards at the National ACT-SO competition this summer. ACT-SO (Afro-Academic, Cultural, Technological and Scientific Olympics) is a yearlong program designed to recruit and encourage high academic and cultural achievement among African-American high school students and youth NAACP members. More than 350 students from across the country competed in the 33 categories from Aug. 12-15. Roanoke is the only branch in the state to have multiple medals, and the only branch to medal in STEM categories. Congratulations to Uyen, London, and the Roanoke NAACP on these prestigious achievement.

Uyen Tran won the national gold medal for chemistry/biochemistry. This marked the first time someone from the Roanoke branch of the NAACP has earned the top award.

London Paige won a national bronze medal in biology/microbiology. This is a repeat achievement for London. Last year, she won a bronze medal for chemistry/biochemistry.

UYEN TRAN –GOLD MEDAL (12th RVGS/WFHS)



Tell us a little about your project:

My project is entitled: "Atomic Force Microscopy-based Nanoindentation Technique: A Novel Approach to Determine the Nanoscale Degradation of PET". For my project, I conducted research on the conditions and mechanism of PET plastic degradation, because PET has such a big impact on the lives of humans and organisms (especially marine organisms), and the environment of both. PET is used to make beverage bottles and plastic bags that us, humans, commonly use. I wanted to further investigate the process of PET degradation, because the degradation of PET is very harmful— this degradation causes micro-plastics to be released and ingested by humans and organisms. I used the atomic force microscope (AFM) as the way I, both qualitatively and quantitatively (with the novel lithography-based Nanoindentation process, which is

just a way how I produced values to answer my question: How susceptible is PET degradation after being treated with a specific water type?), showed that the AFM can investigate this process of PET degradation on a nanoscale level with precision. I wanted to do a project that could not only benefit all humans, but also the organisms living in an environment where plastic pollution is a huge issue, because they are a crucial part of our ecosystem.

My mentor was Mr. Smith with help on the AFM component of my project from Mr. Levy. Even though my official mentor was Mr. Smith, every single teacher at Gov School was extremely supportive and helpful, as well as the NAACP advisors to help me prepare for ACT-SO— both groups which I am extremely grateful for.

LONDON PAIGE –BRONZE MEDAL (12th RVGS/WFHS)

Tell us a little about your project:

The title of my project is Investigating the Health Effects of Bisphenols A, F, and S Through the Model Organism *Caenorhabditis elegans*. I was in the category Biology/Microbiology. In previous years, I have conducted research that explores alternatives to conventional plastic (such as starch-based and algae-based bioplastic) and the impacts of microplastics on tardigrades, but this year I wanted to take a slightly different approach and investigate the effects of the specific chemicals in plastic, Bisphenols, on a model organism. I used the model organism *Caenorhabditis elegans* because it shares between 60 and 80% of its genes with humans, it has an easily observable head ganglia, its pharynx can be used as a model for the human heart, and its thrashing movements indicates the lifespan of the organism. The words 'BPA Free' can frequently be found on plastic labeling the time, which prompted me to think about what chemicals are being used to replace BPA, if any. BPA has many analogues, but I chose to work with bisphenols A, F, and S because they are found in detectable amounts in a large percentage of urine samples. The purpose of my project was to answer the following question: "How safe is BPA Free?"

According to my research "BPA Free" does not mean a product is safer than another that contains BPA. Bisphenols F and S produced a higher average number of pharyngeal pulses and a lower average number of thrashing movements than bisphenol A.

This study was significant because people often consume foods that were packaged in plastic and/or came in contact with bisphenols, so the chemicals end up in our bodies. Also, bisphenols were found in higher concentrations in the urine samples of people with lower incomes, so affordable access to fresh foods is clearly a necessity.

Mr. Wages was my mentor, but the local ACT-SO Committee guided me and gave me advice as well. I just want to thank everyone at RVGS, WFHS and the local Roanoke branch of the NAACP for all of their support with my project.



Summer Stem Activities

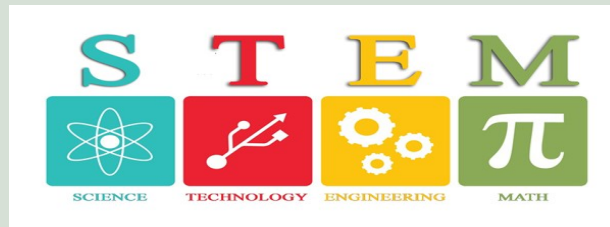
Several RVGS students stayed busy over the summer with STEM activities:

Shannon Filler (12th JRHS) participated in the Virginia Aerospace Science and Technology Scholars through the NASA Langley and the Virginia Space Grant Consortium. She worked with a team of students from the state of Virginia to design a comprehensive mission to Mars. She also worked with Glenvar High School and their honeybee program to expand their hives, harvest honey and create new products to sell.

London Paige (12th grade WFHS) participated in the RISE Program, a pre-college program with Virginia Tech that allows students to explore VA Tech's undergraduate programs in engineering and computer science.

Madison Brown (11th grade FCHS) participated in the Virginia Coast Scholars. She worked with other students and NASA mentors to create a new mission for NASA. She also committed in the North America's Continental Science Fair-Virtual Edition. Her project was a 2020 IRIC Finalist and earned her a \$10,000 entrance scholarship to Rochester Institute of Technology (RIT)

Andres Hernandez (11th grade LBHS) participated in the United States Naval Academy Virtual Summer STEM program. He learned the basics of cryptography, parachutes, and python programming. Along with these STEM activities, he was given a virtual tour of the Naval Academy and learned about its history and admissions process



ALUMNI SPOTLIGHT

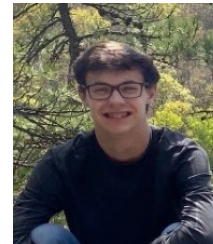


RVGS loves when alumni reach out to share updates with us on their lives and careers. This summer we had an extra bonus when Sachith Gullapalli (RVGS '13) contacted us with an update on his latest endeavors and a very generous donation to the RVGS Foundation.

Sachith attended Yale University from 2013-2017 and graduated with a B.S in Computer Science and a B.S. in Applied Mathematics. After graduation, he accepted a job with Google as a Software Engineer concentrating on search re-engagement. In January 2019, he founded Docucharm. Docucharm's purpose was to developing state-of-the-art machine learning techniques for document understanding and workflow automation. He was able to raise over \$2M from leading Silicon Valley investors including Y Combinator, Initialized Capital, and Greylock Ventures. In January 2020, the company was acquired by Rippling. Sachith is now a Product Lead for Rippling and concentrates on building teams from scratch to launch new products under the Rippling umbrella. When we reached out to Sachith to thank him for his donation, he stated, *"I still have the RVGS page liked on Facebook, and I saw my favorite teacher Ms. Bohland's video walkthrough of the school and the laptop/textbook pickup process you're doing this year; it made me smile to see Gov School again and I figured that with the new realities of the current situation a little extra support might be helpful. I honestly don't know where I'd be today without RVGS -- having that community of bright, intellectually-engaged peers and amazing teachers who push their students to discover, as opposed to simply absorb, is really the kind of experience that changes the trajectory of your entire life (as you know); from that perspective I think that my donation is quite a small amount for everything I've received from RVGS (but I hope to make up for that in the future)"*

Our thanks to Sachith for supporting RVGS and we can't wait to hear more about his future accomplishments!

Student Highlight



When Tate Barenbaum (12th RVGS/Salem) found himself with some extra time this summer, he decided to put his love of programming to good use.

How did this new project come about?

At the beginning of the summer, I got a virtual summer internship with a technology education company called Knowbly. Due to them merging with another company, I found myself with extra time. I don't know if you know this about me, but I'm not the type of person that is able to relax with free time. In response, I took what I learned at Knowbly and started a weekend project with a friend in Australia. Our project was to build a blockchain service for a new programming language called Deno. Our platform is called nest.land.

Before release, I reached out to an Arweave team member about applying for a hackathon for this project. Unfortunately, we were two days late, so we weren't eligible. He also told me that I should apply for a grant for what I was building, so, with nothing better to do, I did. By some stroke of luck, the interview went well and we ended up getting the grant without even having released the project (at that point in time). Our development has been fully funded since then.

What is the current status of nest.land?

Ever since release, it's been a wild ride. The service now hosts over 30,000 files with over 90 public/private packages. Nest.land has approximately doubled in size each month since its release. Arweave's founder and CEO, Sam Williams, has become a close friend and mentor to me. Our team of two has grown to a team of 16, and included are 5 new core team members and we have members from China, Switzerland, France, Hungary, Australia, India, Italy, and the UK.

Also, Arweave is also rolling out something called a Smart Contract system, where we can build our own cryptocurrencies and economies. We're currently developing our own economy for nest.land. Arweave now also funds our development of a cryptocurrency exchange as well. We're calling it Verto.

What's your plans for Senior year at RVGS and Salem?

I plan to continue the projects during the school year by focusing on them for my elective at RVGS, and by working on a Pathway Project centered around them at Salem High School.

At this point, I'm just enjoying meeting people and learning about the space. These projects have enabled me to meet, collaborate, and learn from so many people, and more than anything, I just want to be able to continue doing that. We're a real team now, and we're also loving the process of building out these solutions to unsolved problems.

Any future plans?

With regards to my future plans, I'd love to either study some sort of computer engineering or computer science at a university.



RVGS REUNIFIED T-shirts

The theme for the RVGS 2020 t-shirt is "REUNIFIED" to celebrate the return of students to the RVGS campus. T-shirts are still available for purchase. Payments for the shirts are being accepted by a \$10 donation to the RVGS foundation. A link to the foundation can be found on the RVGS website: www.rvgs.k12.va.us

New Addition to Physics Department

RVGS is pleased to welcome Mr. Andrew Hurst to its Physics department.

Mr. Hurst joining the RVGS staff is a homecoming of sorts, as he was also a RVGS student and graduated in 1991. Mr. Hurst has brought not only his love for physics but also a unique perspective based on his very own RVGS experiences. Let us welcome Mr. Hurst and learn a little more about what brought him back to RVGS.

Tell us a little about your background and how it led you to teach Physics:

I graduated from RVGS and PH in 1991, and I had some great teachers at RVGS. My favorite teacher ever was Ed McMichael. Some other teachers would later be important for my career 4 years later.

I graduated from UNCW in 95 with teacher licensure in Biology and moved back to Roanoke. There were not many bio jobs that year, but there was a 1-year temporary opening at PH for a physics teacher. I didn't have a teacher's license in physics, but had Rick Shelley, Dr. K, and Fred Hoffman vouching for my ability to handle the subject. I agreed to meet weekly with my old physics teacher Fred Hoffman and Roanoke city gave me the physics job at PH.

I survived my first-year teaching and then switched to a bio job the following year at PH.

Over the next few year, I realized how much I enjoyed teaching physics, and noticed that the physics program at PH had a very high teacher turnover rate. I took several classes and added physics to my license.

I feared teaching at PH in a construction and trailer zone and left PH right before they tore it down. I taught bio, eco, and physics at William Byrd for 3 years.

My last 13 years has been at HV teaching mostly AP physics, along with some regular physics classes.

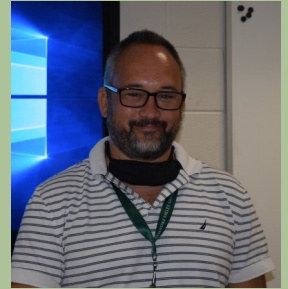
What made you want to return to RVGS?

I left this campus for 16 years, but it has always felt like home to me. All my family and much of my wife's family went to PH. I've lived in the Grandin area since college and love this community. My daughter graduated high school last year, and I was feeling like it would be a good time for a change. I ran into my old physics teacher Fred while walking on Grandin Road last Feb. He told me about the physics openings. I stopped in and introduced myself to Mark a few days later, and the rest is recent history.

I am sure it feels a bit surreal to be back at RVGS as a teacher. What has changed during your time away?

Governor's school has changed a lot. They did not have 9th grade at gov school in my day. 9th grade was in junior high at Madison. It was before the remodel and the building only had about 5 classrooms. I remember they had new Macintosh computers with 4-inch green screens, and we thought they were the coolest computers ever. After looking through the storage room, I believe there is still some original equipment from 1990.

Thanks so much to Mr. Hurst for sharing his story with us. We are so happy to have you back at RVGS!



RVGS Virtual Summer Institutes



RVGS offered two virtual summer institutes to students this summer. “RVGS Biomedical Science Summer Institute” led by Ms. Bohland and the “RVGS Leadership Summer Institute” led by Mr. Levy. Both courses were offered fully online and allowed students to participate in a series of sessions with RVGS faculty and professionals from a variety of fields. While the courses were non-credit bearing, students who participated in a minimum of eight sessions received a certificate of completion that they could list on their resumes. Both Institutes included renowned scientists and professionals from a multitude of specialties. Some notable topics in the Biomedical Institute were: tissue engineering, biohybrid robots and gene editing. The Leadership Institute welcomed speakers from: Novozymes Biologicals, FBRI at VTC, and the Virginia House of Delegates.

Approximately 75 students received certificates in each of the Institutes. Due to the overwhelming success of the programs, there are plans to continue and possibly expand the programs for next summer.