



RVGS Newsletter

Issue | Fall 2024

Counselor Corner

Welcome Back

We have made it past the first interim, and things are going well. In September we held our College Planning meeting for Seniors and Parents and are helping students to structure their college application process. Our seniors have also been given the opportunity to participate in the VT early onsite application process which allows our students to apply in October and find out in November if they have been accepted.... weeks before the normal early application process! I have also been meeting individually with seniors and helping them navigate the application process in general.

I visited the first-year physics classes and went more in depth on time management and how the role of social media can wreak havoc on their mental health and academic progress. Soon I will be meeting with each first-year student individually to check in and see how they are feeling about being here and what I can do to help support them. I also held the first RVGS Determined meeting in September and discussed goal setting. This month RVGS -Determined will cover emotions and attitudes.

As important as learning is, we also manage to have fun at RVGS. On Friday, September 20th we held our 2nd annual Squeekinox (a fun day created by Mr. Levy) where we served cotton candy and popcorn to students, and the new and improved Lab Rat paid us a visit! Soon we will hold the United Way Fall Ultimate Frisbee Fundraiser Tournament and the winners will receive my famous chocolate chip pancakes...and all donations go to the United Way. Coming up soon we will celebrate Red Ribbon Week and for Halloween hold a costume contest! In December, look for announcements for RVGS Spirit Week, Penny Wars and the Govie Gala. There are fun things ahead for us all!

I also want to give a HUGE THANK YOU to all of you who have donated food, snacks, candy, etc. to our coffee and snack bar. The students have been loving it and are very appreciative. Thank you, thank you, thank you!!!!

As always if you have a question or a concern, please feel free to contact me by phone or email. I am here to help students and parents in any way I can. Happy Fall!

-Kathy Sebolt

On August 20th, we welcomed back students to RVGS. Students from 8 school districts and 15 home schools arrived to kick off the 2024-2025 school year. Students are already busy with field trips, labs, and clubs. They are also meeting with their elective classes to begin planning their projects for Intercession and have had the opportunity to attend field trips to Roanoke College and Virginia Tech.

Our Senior students are especially excited to experience the "Senior Sunrise" on Friday, October 18th. Students enjoy RVGS provided donuts while bonding with their fellow classmates. Students are also looking forward to the Fall Edition of Ultimate Frisbee starting on October 28th. Teams can already be found practicing in the morning in the hopes of winning Mrs. Sebolt's famous pancake breakfast. Other students are busy in the morning participating in clubs like Maker's Club and the Unified Partners Club. We are off to a great start and look forward to a healthy and successful year for the RVGS Lab Rats.



DATES TO REMEMBER:

- Oct 18: Senior Sunrise (7:15)
- Oct 23: Interim report #2
- Oct 25: Early dismissal (PM only)
- Nov 1, 4, 5: No RVGS classes
- Nov 4: Parent-Teacher conference day

Message from Director

We have had an excellent start to the 2024-25 school year here at RVGS! We have been pleased with the students' strong progress early on, and I've been hearing some positive updates from the teachers. I am appreciative to our teachers for the way they have welcomed students to their new classes and to our students for being caring and supportive peers. Together this helps create the special classroom communities that we have at RVGS.

Early in the year, we stay watchful for students in need of support, whether in relation to grades or mental wellness. Any student, from their first year to senior year, can feel the strain academically or emotionally. It is important to reach out when that happens so we can help. Students should be sure to seek out academic assistance from teachers proactively, rather than as a last resort and to likewise seek support from Mrs. Sebolt or another trusted adult if they are experiencing excessive stress or emotional struggles.

We continue to use our RVGS Determined program to help support our students in their personal development. As a reminder, RVGS Determined is intended to help give students tools to strive toward continual growth and personal improvement. While rigorous instruction in STEM courses will always be at the center of our work at RVGS, we choose to also dedicate effort to helping our students develop skills for life-long success. Mrs. Sebolt runs these sessions and recently presented a helpful message about emotions and attitudes.

As always, don't hesitate to contact me if you have any questions, comments, or concerns.

ISEF Student Insights

A trip to compete at ISEF is a highly sought and very prestige accomplishment at RVGS. Last year, we were able to have 4 projects and 7 students represent RVGS in Los Angeles. Several of these students were kind enough to share their research experience and detail their journey to compete at ISEF.

Will Henderson

I had always been really interested in the interface between humans and computers using biofeedback. When researching that area, one of the biggest topics is prosthetics and how to make them more accurate, lighter, stronger, more affordable etc. I was also very intrigued by the idea of using machine learning to predict a user's intended hand movements. So, once we had the project idea nailed down, we started CAD. The majority of our CAD for the first prototype was complete before intersession began, which enabled us to spend the majority of our time coding. Intersession was full of trial and error and lots of learning. We had completed the first prototype in time for Project forum and won our category. After that we began a second prototype, hoping to improve on each aspect of the project. We were successful and able to win the grand prize at the regional fair a month and a half later. Continuous improvements were made until ISEF in May. The entire ISEF experience was incredible and helped me gain direction for what I want to do in college and in any future research endeavors. As a whole, the project gave me the opportunity to pursue something that I truly wanted to pursue, which I think is an extremely valuable opportunity. I also learned so much about 3D modeling, machine learning, python coding, and anatomy along the way. This project was especially challenging due to the various components involved in the project. 3D modeling, software design, mechanical design, circuitry, and research were individual components that all took weeks to complete. I put hundreds of hours into the project, and it isn't even what I would consider a final prototype. At ISEF, we stayed busy the entire time and got to listen to many really smart people talk. There were also events set up for us to connect with the other participants, which was a cool experience. Judging day was a long day where we talked to about 10 judges stretched over a period of 8 hours. The next day we got to show our project to the community members and other judges, which was a cool experience because everyone got recognition for the work they did.

Hannah Mizuba and Kane Reczek (4th place winners in Plant Science)

This past May, we had a unique opportunity to share our research conducted through the Governor's School at ISEF 2024 in Los Angeles, California. Specifically, we presented our work on parasitic plants, but the week encompassed much more than interviews with judges. From Universal Studios to the international pin exchange, it was an unforgettable experience for all of us. For Hannah's sophomore elective, she took ACR to study parasitic plants. She was able to reach out to a professor at Virginia Tech's School of Plant and Environmental Sciences specializing in her parasite of interest, *Cuscuta*. We both took Biotechnology our junior year, working with the same professor to study *Cuscuta* and a genetically modified host. Working in a university lab involved communicating with graduate students and technicians, becoming familiar with sophisticated lab equipment, and learning to properly read scientific literature – it was difficult but worthwhile.

As freshmen taking Fundamentals of Research, we never expected the science fair to take us across the county; even in California, we didn't expect to place. But your project is only what you make it. Whether you study parasitic plants, robotic prosthetics, environmental remediation, or microplastic removal, do your best and have fun. You never know where it might take you.

Josephine Eaton

My project was on using plants to absorb microplastics, so it was a very hands-on project. I chose my project by first deciding on a problem I wanted to solve and recognizing that I wanted to work with plants. My first idea was to use plants to purify water in some way. During my research on this idea I happened upon an article about microplastics being found in soybeans and realized using plants to purify soil of microplastics could be very impactful. I talked through my idea with my teacher and came up with a feasible methodology for conducting my project. During January I spent most of my time growing my plants and recording their heights and appearances. While they were growing, I also planned out how I was going to conduct my data collection because I knew I would not have much time to collect and analyze the data, due to the nature of my project. There was a lot of trial and error in figuring out the perfect concentrations of microplastics in water to create standard curves that I would use to find the amount of microplastics absorbed by the plant from an absorbance value. However, I never got to use these curves because even though I had tried to plan an error-free method of data collection I had been unsuccessful. The machine I used to measure the amount of microplastics in the plant was unable to accurately work because of the natural absorbance caused by the plant. By this point, I had already mixed all of my plants with a surfactant, to use the standard curves, and I was unable to evaporate the surfactant leaving my plant matter unusable. Even though I was unable to receive results from my project I was able to advance far because I clearly communicated my reasoning for the project and the exact problems in my data collection. It is very difficult to conduct a flawless experiment the first time through, and real scientific research often takes years to see results, so when your project doesn't go the way you hoped, don't stress about it, it's normal. Rather focus on the reasoning for your project and why you decided to conduct the project the way you did. Recognizing temporary failure and overcoming it is how one evolves.



Altec Innovation Challenge

We are excited about a new opportunity for this school year. RVGS has been invited to compete in The Second Annual Altec Innovation Challenge. We will compete against other schools from Roanoke County, Roanoke City and Botetourt County. Teams of 2-10 students are challenged to tackle real-world problems affecting our school or community. Teams are tasked with identifying an issue and propose a STEM-based solution. RVGS has 2 teams that have submitted project planning documents for review. Projects selected as finalists will be given the opportunity to present their project to Altech. The winning idea will receive \$10,000 for implementation of their project in the Spring of 2025.



RVGS Clubs and Activities

There is a wide **variety** of **clubs** and activities available for students to join at RVGS. **Clubs** and activities are a great way to find where you belong in your high school social community and to find your niche among students with similar interests and goals. Be sure to check out:

- *Maker's Club
- *Mindful Wednesdays
- *Unified Partners
- *Rat Chat
- *Student Advisory Committee
- *FCA

See Mrs. Sebolt to get the details about any of the clubs you may be interested in joining!



Squeekinox



On Friday September 20th, we held our 2nd annual Squeekinox. While taking place a few days before the official Fall Equinox, this “holiday” is unique only to the RVGS Lab Rats and created by Mr.

Levy. Students are given the opportunity before classes to have fun with the new and improved Lab Rat while enjoying cotton candy and popcorn. Mrs. Sebolt did another outstanding job operating the cotton candy machine and made sure that everyone was able to have a sweet treat to start their day.



SOCIAL MEDIA



Want to stay up to date on all the exciting happenings at RVGS? Be sure to following us on Facebook, Instagram and Twitter.

[Roanoke Valley Governor's School for Science and Technology | Facebook](#)

[RVGS LabRats \(@rvgslabrats\)](#) • [Instagram photos and vide-](#)

Summer Stem Activities

RVGS students had a busy summer! They spent their time away from RVGS attending summer camps and classes, interning, and volunteering.

John Aziz- volunteered at Bradley Free Clinic and Carilion clinic
Aaron Bhowansingh-shadowed physicians in the US and Trinidad. Volunteered at the Salem VA
Luke Thompson-Envision programming camp
Caroline Reichardt- Virginia Aerospace Science and Technology Scholars summer academy
Gabby Romeo-internship at Novozymes
Sharmila Balaji-shadowing at Mersen Engineering firm
Autumn Patterson-psychology based summer program at FBRI Bickel's lab
Heidi Wienkle-worked at VT in plant science lab with DNA
Jack Janiga-internship at FBRI Finkelstein's Molecular Diagnostics lab
Elijah Harl-BLAST camp at UVA
Parneet Gill-Virginia Space Coast Scholars camp
Ryan Hubbard-BLAST camp at Radford University
Ella Dickerson-worked at science museum
Julia Landis-agriscience project for the Future Farmers of America
Anish Suryapeta-volunteered at VAMC Salem and online chemistry
Vivienne Eaton-BLAST camp at VT
Alpin Singh-volunteered at VAMC Salem
Carrie Collins-Hollins University summer camp
Miya Morton-Insight shadowing of Dr. Luviano
Caleb Wang-internship at FBRI
Aman Mengistu-volunteered at VAMC Salem
Ayush Pinnamaraju- internship at FBRI
Ben Meyer-BLAST camp at VT
Jeanne Picard-Aviation camp in Huntsville AL
Alasdair Hackworth-Blast camp and soccer camp
Aspen Cooper-online Algebra 2 and Chemistry classes
Claire McCahill-Carilion summer volunteering program
Isabella Mather-intern at FBRI Legon's lab
Lucyna Laplante-toured VA Forensics lab. Visited Manatee Rescue center in PR
Zach Young-founded community competitive robotics team
Emma Baldwin-EMT program at VWCC
Brett Smith-data science camp at VT
Josephine Eaton- Summer Residential Governor's school for Math, Science and Technology
Claire Rawlins-medical shadowing and math camp
Mirabel Makked-Virginia Earth System Science Scholars Summer Academy at NASA Langley
Amira Shumway-UPWARDS program at VT about electrical engineering.
Sydney Anderson-shadowed at VT Animal Cancer Care and Research Center
Kensington Reynolds-Virginia Aerospace Science and Technology Summer Scholars Academy
Hana Sageer-shadowed at the VAMC salem
Lex Farmer-Washington Youth Summit on the Environment
Yasmin Shumway-UPWARDS program at VT
Frances Reddan-shadowed surgeons at Carilion Children's Clinic
Raimee Sykes-EMT training at Radford University Carilion
Meribel Pan-volunteered at FBRI
Meera Raichura-volunteered at Lewis Gale Medical Center and EMT
Anvita Panchumarthy-volunteering at Carilion Medical Center

