

THIS MONTH:

JAN 28	PROJECT FORUM
JAN 30-31	TUESDAY SCHED
FEB 1-3	MONDAY SCHED
FEB 16	ROA CITY SCI. FAIR
FEB 18	ROA CO SCI. FAIR
FEB 20	PARENT-TEACHER CONFERENCES
MAR 4	REGIONAL FAIR

RVGS Newsletter

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Personal Food Computers at RVGS

Dr. Frazier visits MIT in the summer, learns about the new Food Computers in their Media Lab's Open Agriculture Initiative (OpenAg), brings back his enthusiasm for the project, works with Mr. Levy to secure funding from the RVGS Foundation, develops a collaboration between his Environmental Research elective and Mr. Merrill's Engineering students, and – boom! – Gov. School has all of the parts needed to build four Personal Food Computers in time for Intersession. That's how things work at the Governor's School. It's all about the latest research, ideas, technology, partnerships...and the RVGS Foundation.

The RVGS Foundation is the non-profit, tax-exempt arm of the Governor's School that allows us to raise funds, solicit donations, and accept contributions that take our regional public school to the next level. All of the money collected each year from the Silent Auction and Annual Appeal is deposited into the RVGS Foundation account, and the parents and staff who make up the Foundation's board decide how to spend the funds. Staff at Gov. School prepare a wish list ranking their needs and wants, and Mr. Levy presents the list at the annual board meeting. Food Computers were high on the list, and they made this year's cut.

MIT defines Food Computers as "controlled-environment agriculture platforms that use robotic systems to control and monitor climate, energy, and plant growth inside a specialized growing chamber". Users monitor what's going on inside Food Computers, and they control climate variables such as carbon dioxide, temperature, and humidity as they adjust operational variables such as energy, water, and mineral consumption. Every time users grow and harvest, they contribute to a library of "climate recipes" that allows other users from around the world to replicate and improve upon the growing experience in their shared effort to create the perfect



plant. Eventually, everyone, everywhere could have access to the best and freshest foods.

Because MIT has made its How to Build a Personal Food Computer process open source, users are able to learn everything they need to know about the prototypes online. They can download the computer code that runs the system and tracks climate recipes, download the user interface MIT is using to track individual experiments and plant growth, and watch a video that takes them through the building process step-by-step.

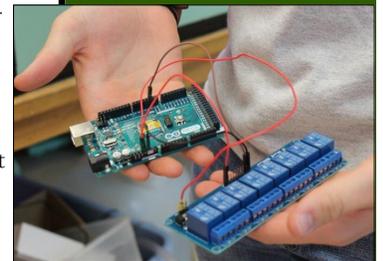
During Intersession, Environmental Science students Brant Flici, Nick Rakes, and Will Sweet have built a Food Computer to grow kale. They constructed the chamber in the workshop at school using Styrofoam boards, Plexiglas, caulk, duct tape, weather stripping, and a light, fan, and vent they ordered from Amazon. They worked with Mr. Merrill to program an Arduino system to control the temperature inside the chamber by automatically adjusting the fan's speed and opening and closing the vent as needed. Based on MIT's guidelines and climate recipe bank data, they're growing kale plants in easy-to-obtain nutrients, and they're making adjustments to the growing environment as they go.

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Message from the Director

Is there anything better than Intersession at RVGS? This month has been an exciting and energizing time, with students throughout the building working hard on their research projects. The winter storm several weeks ago certainly didn't help our students' schedules, but they have done their best to catch up, with many students putting in extra work before school, after school, or even over weekends. I couldn't be more proud of our dedicated students and staff in the way they have been tackling the various trials of trying to complete science fair projects in just a few short weeks. I'm sure you'll agree when you see the fruits of their labor at this year's Project Forum.

I am equally proud and humbled by the way our families have pulled together to show their support of RVGS during the Annual Appeal fundraising drive. On behalf of the RVGS community, I offer my honest and heart-felt appreciation to all those who have generously contributed to let us continue providing the cutting-edge research equipment that our school offers.



Counselor's Corner

As Intersession is winding down and Project Forum is rushing towards us, it's time to pause and think ahead to second semester. Although Intersession has its own stressors, it is also a time that is peppered with periods of downtime and less homework. Some students will jump right back into second semester having retained all the study skills that they mastered by the end of first semester. Others will have reverted back a bit and need additional support and reminders to stay on top of their work so they can hopefully avoid the intense stress that accompanies procrastination. If you feel like your student needs some additional help, please let me know.

I will be sending home intent forms and registration forms for math and science during the first full week of February. I will send you an email to let you know when to expect the forms and any additional details that you may need. Please keep a look out for those. I will also begin meeting with 11th graders individually to discuss their overall college plans, to answer any questions that they may have, and to give them an overview of the things they should be doing and thinking about if they aren't already.

As always, if you have any questions, please do not hesitate to contact me.



Food Computers

(continued from page 1)

“Our kale is all-natural, with no genetic modifications; it’s sustainable, and can be reproduced anywhere in the world,” said Sweet. “Right now we’re trying to determine the best way to control the temperature in the chamber, so that we can produce the perfect plant, every time.”

When the students are finished with this year’s project, they’ll log their climate recipe and results with MIT to give future users a starting point on their own quest to grow the perfect plant. Together, they’ll figure this out and feed the world.

-Regina Carson

Corporate Fundraising Efforts

THANK YOU to Gov. School parents Heather Bass and Barbara Rigatti, who are working together to develop a corporate fundraising template for RVGS! Ms. Bass is a Project Management Professional who serves as an IT manager for infrastructure and operations at Advance Auto Parts, and Ms. Rigatti has a background in IT account management and is currently a business development manager at Presidio. The women are combining their strengths to build an engagement plan to obtain corporate sponsorship to fund key equipment purchases, and they are also creating an outreach program to solicit local colleges.

“We are working with the Roanoke-Blacksburg Technology Council (RBTC) and the Project Management Institute Southwest Virginia (PMI) to reach some of the organizations we plan to target,” said Ms. Bass, “and we hope to reach out to

Virginia Tech and Roanoke College soon. Part of our approach is raising awareness that the same students these businesses and colleges invest in at RVGS could potentially attend their schools or become members of their employment teams in the future,” she said. “It’s a win for everyone,” added Ms. Rigatti, “and we want to show them that.”

Now that’s an appealing appeal! Already the pair has secured donations from TEKsystems and Apex Systems, and they have submitted requests to the review committees for Carilion, Advance Auto Parts, and Acceleration Point.

To join Ms. Bass and Ms. Rigatti in their efforts on behalf of RVGS, please contact them at jheatherbass@gmail.com or brigatti@presidio.com. They would appreciate your support!

Staff Spotlight on Mr. Ra Siv

RVGS custodian Ra Siv’s native tongue is Khmer, a language that has its own alphabet, incorporates the social status of its speakers, and is expressed in mostly monosyllabic words. Learning English was a struggle for Mr. Siv, but it was a snap compared to surviving his first decade of life in Cambodia. He was born there in 1971, right smack in the middle of the Cambodian Civil War.

Mr. Siv remembers a childhood of constant oppression; fighting, poverty, hunger, and fear. His family first found safe haven in Thailand in 1980, and then became part of a refugee resettlement program in the US in 1983. Through Commonwealth Catholic Charities, relatives of Mr. Siv’s ended up in Canada, California, and New England, and Mr. Siv’s family was moved to a farm in Lynchburg. He remembers deplaning in Lynchburg and being shocked by the cold. Mr. Siv had arrived in the winter, wearing all he had – shorts and a T-shirt – barefoot.

“I spoke no English when I got here,” said Mr. Siv, “but I made friends and learned from them. I watched TV shows in English and started school, and the owner of the farm was a teacher, and she helped. It was embarrassing at first, because I was 13 and they put me in school with little kids, but I got better, and they moved me up fast.”

After a year in Lynchburg, Mr. Siv’s family

moved to Roanoke, where he attended Roanoke City Public Schools and graduated from Patrick Henry in 1991. He started at Virginia Western, but his English wasn’t yet strong enough for college courses, so he got a night job cleaning for the school system and has been with RCPS ever since. He has always worked two full-time jobs, and his day job is how he met Denise, his wife of 16 years.

The Sivs worked days together in a downtown restaurant – she was his boss – and after three years they began dating and married just six months later. She is now the Assistant Director for Food and Nutrition for RCPS, and they have opened a commercial cleaning business together, which is where Mr. Siv goes when he leaves Gov. School. He arrives home around 6 AM, just in time to read the paper before he gets his kids up to start their day. Once he gets them on the bus and waves goodbye, he sleeps.

Somehow Mr. Siv found the time in 2013 to earn an electrical wiring certificate at Virginia Western, and on the weekends his family carves out time to hike near the Parkway, camp at area state parks, or take a quick trip to the beach. “I’d like to go to a casino,” said Mr. Siv, smiling, “but that’s going to have to wait.”

Mrs. Siv said her husband’s a great dad, very involved and always hands-on, but apparently the one thing he couldn’t stomach when the



kids were small was changing diapers. “He would wear gloves and one of those medical masks,” she laughed. “It was easier just to do it myself. He could strip floors and clean up after hundreds of kids at school, but diapers were too much for him.”

Even though Mr. Siv gets to Gov. School around 2:30 PM, he has still gotten to know many of our students, and he’s part of the staff family. “I love these kids,” he said. “They’re the best kids anywhere. And I would do anything for the people who work here. I work hard to keep the school clean and looking good for all of them.”

As we were leaving I asked Mr. Siv what he thought was the best thing about living in the US. “Freedom!” he shouted. “Food,” corrected his nutritionist wife. “Well, freedom and food,” he said. Mr. Siv, more than anyone, knows the value of both.

-Regina Carson



TheraPets visits RVGS!

Forget that Forum Freak-Out! Suppress that Stress! On January 24th, TheraPets of the Roanoke Valley brought their therapy dogs to RVGS for a Stress Busters event designed to help our Lab Rats cope with the anxiety of zebra fish that aren't mating, kale plants that aren't growing, and robotic vehicles that aren't moving. Intersession can be a stressful time for our students, and Gov. School gets that. Thank you to TheraPets for helping us all chillax and get back on track! Best Intersession Interruption ever!



Why Gov. School? Series : Bedford County



Sometimes we take the Governor's School for granted. It's understandable for the PH kids – they can just walk across campus to attend, and they don't have to miss much at their home school. But did you know that 91 of our students are bused in every day and another 53 carpool because their district doesn't provide busing? Or that students from far-away districts often take one fewer class than their peers and have to make up the

difference during summer school? Or that some home schools' spring breaks don't align with Gov. School's so the students end up with two weeks of half-day breaks instead of a full week off?

Have you ever wondered why they do it?

RVGS serves seven school districts, and Bedford County – part of the Greater Lynchburg area – is one of them. Senior Lauren Hughes' home school is Staunton River High, and here's her typical day.

Lauren wakes at 5:30 AM, is out the door by 6:30, then drives 15 minutes to her high school where she catches the bus for the 45-minute trip to Roanoke. She spends the morning at Gov. School and is back at Staunton River by 11:45 AM, which is too late for 2nd period, but too early for 3rd period, so she has half an hour to kill.

School ends at 3:35 PM, but by the time Lauren finishes with marching band or track practice, it's often 6:30 before she gets home, and that's assuming she doesn't have a volunteer obligation or a club meeting to attend first. She has dinner with her family and does homework until she can't stay awake any longer. What she doesn't finish, she tries to complete on the bus the next morning.

Lauren's home school requires a fine arts credit, but her first choice – band – is only offered in the morning, so she took theater instead. Lauren couldn't get the history and personal finance classes she needed, so she took them during summer school. National Honor Society meetings are before school, so she misses all of those. She leaves home in the dark and arrives home in the dark, but Lauren's OK with all of that. She has seen the light.

Lauren first heard about RVGS as a seventh-grader. The eighth-graders at her school took a field trip to the Governor's School, and Lauren became really excited about the idea of a high school devoted to just math and science. Even though her teachers discouraged her from taking advanced math – "They thought it would be too hard for me," she said – Lauren knew she was ready for the challenge that RVGS would provide.

"I knew the Governor's School would be hard, and that I would have to make a lot of sacrifices, but I really wanted to appreciate my education" she said. "I wanted a better education than I was getting at my home school, and I wanted to be challenged and held accountable. Ms. Harnist told me that the improvement in my math skills from middle school to high school has been incredible, and that makes it all worth it. I feel like the Governor's School has prepared me for the real world, and I think I'll do well next year at William and Mary."

I wondered if spending half of every day away from her home school has negatively affected Lauren's social life, and she responded, "Not at all. Making a ton of new friends from all over the place is actually my favorite thing about Gov. School. I love going to track meets or volunteering somewhere and seeing Gov. School friends from other cities and counties. The teachers and students all support each other here, and everyone cares. That's unique."

-Regina Carson