

Summit Schools Join Robotics Revolution

The Robotics Engineering Club at SHS is now in full swing thanks to an SEF grant written by students Jared Chang, Jonathan Mueller, Ethan Smith and SHS Electronics teacher, Kevin Schauer. Designed to introduce the concepts of engineering and robotics, the after-school club covers operating motors and gears, drawing basic designs, understanding speed, power and torque, constructing moving arms, and programming in 'C'.

Students are constructing and programing a robot module to lift a lightweight cube and place it into a twenty-four inch high circular container. "We're building these robots to VEX specifications in hopes that we can compete and 'scrimmage' with other schools since we were too late to enter any VEX competitions this winter," explains Schauer. He adds, "Robotics is sure to become more prevalent in our lives. I'm very glad SEF is giving interested students the ability to learn engineering and robotics within the school district."

At LCJSMS, SEF has funded the purchase of 15 Lego Mindstorms EV3 Robotic Kits. Ann Dooley, grant author and seventh grade teacher, looks forward to implementing the program this spring.

At Franklin Elementary School, SEF funded an after-school program using Lego Mindstorms Robotics kits for third through fifth grade students. Once the after-school program ended, students came before school to continue working with robots. One fifth grader exclaimed, "I loved that we got to build a Lego robot. That helped us work as a team. Also, I loved programming and making our robot do different things, including a victory dance!" Stochaj reports, "The Lego Mindstorms kits exceeded my expectations. The student teams really worked hard to build their robots, and I was impressed with how they shared their findings. What a great experience, all thanks to the SEF!" Next year, Stochaj has plans to open part of the library as a MakerSpace, where teams can sign up to work with the robots.



**Mr. Kevin Schauer,
James Lawton,
Alec Powell and
Daniel Kaplan
(back of head).**

SEF Grants Help Gardens Grow

Learning extends well beyond the classroom in Summit, thanks to a series of SEF grants. Back in 2010, Jefferson teachers William Hannis and Janet Warbeck proposed an outdoor classroom garden for fourth grade students. With SEF support, the teachers constructed the garden



incorporating science, social studies, reading and writing curriculums across content areas. Students, together with peers who are English Language Learners, plant seeds for a variety of vegetables. Throughout the year, students monitor and record changes in their plants, along with the effects of weather, erosion, sunlight and rainfall. According to Hannis, these experiences "allow students to learn through doing and connect what is being taught in the classroom with active problem solving in the garden." A follow up grant last year allowed for the rejuvenation of the garden area.

Through SEF grant support, the Jefferson Primary Center garden and the Wilson Nature Observatory were established as outdoor classrooms to extend instruction and develop a greater appreciation of the environment. Cold weather and construction at Jefferson have moved activities indoors temporarily. Wilson is currently using grant-provided construction and water-works materials indoors, and will be moving outside to enjoy the full outdoor classroom space and materials in the spring.

Brayton designed and broke ground on a Centennial Learning Garden four years ago as a way to celebrate the school's 100-year history. Created as an outdoor learning center, the garden provides space for lessons and performances, and enables children to learn firsthand about the natural world. A recent SEF grant supported the purchase of grow lights for sprouting seeds indoors while the weather is cold, and composting equipment to make use of clippings from the garden and cafeteria waste.

According to Brayton fifth grade teacher Aaron Gilbert, students have become participants as well as learners in the cyclical growing process. "Students transfer the seedlings to raised beds in the outdoor garden in the spring, adding compost to replenish soil nutrients. We'll then gather seeds from the garden's vegetables this fall to grow seedlings for next year's plants. The hands-on activity keeps the learning fun and enables my students to appreciate its relevance outside the classroom."

Science Research Explodes at SHS

Since the first SEF grant for the Science Research program in 2010, the program has grown exponentially and now encompasses over thirty students in four sections. Dr. Benjamin Greene spends his days working with science research students exclusively, joined by biology teacher Cynthia Vitale, the other co-founder of the program. Dr. Patricia Fontan continues to serve as Science Research Community Coordinator through a follow up SEF grant, making outside connections for student and faculty to support projects and organizing a parents association for the program.

This year, over half of the students will present their research at the upcoming North Jersey Regional Science Fair or Northern New Jersey Junior Science and Humanities Symposium. In addition, the first in-house SHS Science Research Forum will take place in May, providing an opportunity for first-year students to present their work and for younger Summit students to learn more about the program.



Emily Tulsky and Nicole Horner

an environmental engineering project—measuring the efficiency of waste water treatment plants to catch microplastics through sand filtering systems. Microplastics are commonly found in cosmetic products used to exfoliate skin.

- Junior Nicole Horner's project is titled, "The Effect of Lipofuscin Accumulation on Autophagic Activity in Retinal Pigmented Epithelium Cells". She is using reverse transcription and polymerase chain reaction (RT-PCR) to determine the effect of lipofuscin accumulation on the expression of two human genes involved in autophagy.*
- Junior Emily Tulsky is investigating "Effective Heavy Metals on the Hemoglobin of Daphnia Magna levels". Emily is using RT-PCR to determine the expression of genes involved in the synthesis of hemoglobin.
- Senior Zach Rissman is working on a project to analyze optical lipids via Thin Layer Chromatography (TLC). Zach is using TLC to determine the lipid components of the mouse eye from a young age to an age at which the mouse would develop macular degeneration.*

*The materials for Nicole and Zach's project have been provided by Dr. Marcelo Nociari, Assistant Research Professor at Weill Medical College of Cornell University.



LCJSMS 7th graders Sam Block, Melina Ghandi, Natalie Wisniewski and Madeleine Lumelleau

iPads at LCJSMS—Spring Update

Debunking any myths about "sophomore slump", the iPad program, in its second year at LCJSMS, continues to wow students, teachers and parents alike. The program kicked off in January 2014, with a \$139,000 SEF grant that provided an iPad to each of the 329 sixth graders in the 2013-2014 class. The iPads in those first few months transformed the teaching and learning landscape to such a degree that SEF greenlit an additional \$129,000 grant to extend the program to the next sixth grade class, while allowing the current users to continue their seventh grade curriculum with the iPads.

While the sixth grade teaching staff had fully incorporated the iPad into their curriculum, given their early adopter status, the seventh grade teachers have spent the past few months revising their curriculum to best utilize this fantastic new learning tool. "The iPads have become an integral part of our everyday functioning as a class!" raves seventh grade science teacher John Ross. Ross revamped his curriculum to incorporate the myriad opportunities offered by the iPad technology, "The students use the *myhomework* app to check assignments. We recently completed a STEAM project that involved designing and building a greenhouse. The students used their iPads to take pictures of their designs, research basic functions of greenhouses and record data. They then used *Google Docs* to submit their reports to me. I cannot imagine not having them as a tool for instruction. Every aspect of class has been altered because of the iPads!"

Matthew Ramstedt, seventh grade social studies teacher, noted that the iPad allows students the flexibility to pace their workload. "Content videos are shared and accessed through *Google Drive* and teacher websites allowing students to stop and rewind content they may need to see again. In the past, these would have been shown in a full class setting, and students would not have had the option of watching them at their own pace."

With the ever-evolving app world, learning with the iPads will continue to challenge and engage students!

Fall Grants Approved

Thanks to generous support from over 700 member families, SEF was able to fund 48 grants in the fall 2014 cycle, totaling over \$271,000.

Sample grants include:

- **Family Science, Math and Technology** at all five Elementary Schools, \$15,485
- **enVision Math Professional Development** at all five Elementary Schools, \$49,000
- **Six grants for books** at the Elementary Schools, totaling \$7,076
- **Six grants for Desks and Furnishings to Support Student Focus and Engagement** at the Elementary Schools, totaling \$17,968
- **Guidance Support for Children of Divorce** at Brayton and Jefferson, \$330
- **Forensics Debate Team** at LCJMS, \$8,479
- **Collaborative Classrooms for eight Classrooms** at LCJMS, totaling \$94,975
- **Technology Assisted Music Program** at LCJMS, \$17,995
- **Math Clubs and Teams** at LCJMS and SHS, totaling \$3,401
- **Robotics Engineering Club** at SHS, \$5,415
- **Hands-on Microwave Technology** at SHS, \$4,550
- **Outreach to the Hispanic Community— Navigating the American School System** at SHS, \$450
- **Performance Mirrors for Music and Theatre classwork and rehearsals** at SHS, \$3,628

Many thanks to the teachers and staff who submitted proposals and the dozens of SEF volunteers involved in the grants review process.

SEF Endowment Fund Update

During the last year, SEF funded grants totaling \$205,000 using income from our Endowment Fund. At the end of 2014, the SEF Endowment totaled \$4.3 million, with an additional \$120,000 in pledged funds.

We continue to seek donor support for the Endowment Fund, and we invite members of the community to learn more about how an endowment gift will help improve education in Summit. Please visit sefnj.org or contact us at sefnj@verizon.net to learn more.

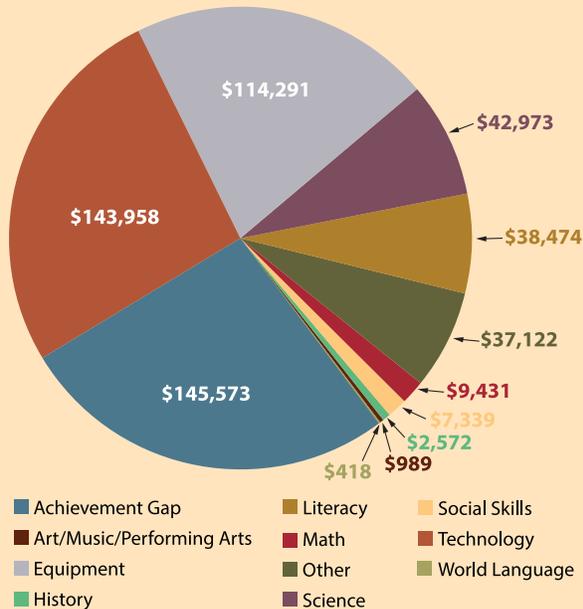
2014 Endowment Fund Grants

- K-5 Math Professional Development
- Teacher Leadership Professional Development at Washington & Jefferson
- I-to-I iPad Grade Level Pilot at LCJMS (year 2)
- Student & Teacher Microscopes for 6th Grade
- College Specialist at SHS
- Science Research Coordinator at SHS
- Collaborative Classrooms in Social Studies at LCJMS
- Hands-On Microwave Technology at SHS

SEF Grants Funding 2013-14 SCHOOL YEAR

75 grants funded
\$372,448 funded from annual campaign
\$170,691 funded from endowment
 for a total of **\$543,139**

For a complete listing of approved grants, visit sefnj.org



President's Message

2015 is a wonderful time to be involved with the Summit Educational Foundation. We are fortunate to live in a supportive community where so many neighbors recognize the tremendous difference that private funding can make in our public schools. During 2013-14, more than 700 families made donations to become SEF members. This represents about 30 percent of all school families! Thank you to all who are helping to "Create Possible" in our schools.

Likewise, we are grateful for the outstanding group of Summit teachers and administrators who write and implement a diverse array of grants in the district each year. Last year, SEF funded 75 grants totaling \$545,000. Last fall, we approved another \$271,000 for 48 grants that will reach students at all nine district schools. A few exciting grants are highlighted in this publication, but please visit sefnj.org to learn more about the great projects that are happening all around the district.

SEF warmly welcomes Summit's new Superintendent, Mr. June Chang, who joins the district in March. Our Board is proud to introduce him to SEF's core mission: to maintain and enhance the high quality of the Summit public school education through community funding of innovative and essential educational programs. We look forward to a productive relationship.

Julie Kimmel, President

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