

A STEM PROGRAM

SMILE

Science and Math Investigative
Learning Experiences

Newsletter

Volume 31, No. 2 March 2025

31 Years of Service!

This spring, our High School SMILE students joined us at URI for our annual Engineering Challenge! This challenge is designed to bring our SMILE students together for a day of fun and creativity as they work together to solve a challenge!



HIGH SCHOOL ENGINEERING CHALLENGE



On March 28th, around 126 SMILE students from Central Falls, Johnston, Newport, South Kingstown, West Warwick, Westerly, and Woonsocket gathered in URI's Memorial Union Ballroom for the 2025 High School Engineering Challenge Day! Each Spring, our high school SMILE students spend a Friday at URI's Kingston campus, working in mixed teams to design, build, and test their solutions to the year's given challenge.



This year, our young engineers were tasked with designing and building a hybrid solar vehicle, addressing the need for solar-powered vehicles in US Navy bases to reduce the reliance on fossil fuels and minimize negative environmental impacts. Within their teams, students broke up into two groups, one focused on constructing the car's chassis and solar panel support member whilst another assembles the axle and circuitry, coming together to assemble the different parts. Students met several checkmarks throughout the challenge, requiring them to frequently design, test, and redesign.



The day went as follows: Students arrived early morning, greeted by SMILE office staff and directed to their assigned teams of 5-6 students. SMILE Program Executive Director Carol Englander welcomed our SMILE members, sending gratitude to our newest SMILE district, Johnston. SMILE High School Coordinator Piper Krause introduced the challenge, walking the teams through their required steps and checkmarks. The morning had teams reviewing materials and distributing roles before they broke off to enjoy an all-you-can-eat lunch at URI's Mainfare Dining Hall.

Throughout the afternoon, students worked on their vehicles, breaking midway to tour the URI campus. Freshman, Sophomore, and Junior students toured the Beaupre Center for Chemical and Forensic Sciences, Center for Biotechnology and Life Sciences, and Fascitelli Engineering buildings. Senior SMILE students participated in a Discussion Panel with SMILE staff and alumni where they got to hear about the college experience, pose questions, and receive advice.

HIGH SCHOOL ENGINEERING CHALLENGE

Following dinner, students finalized their builds and recorded their results. Students gathered to discuss how different modifications affected the speed of their vehicles and reflect on challenges they overcame. This year, The SMILE Program proudly recognizes our 40 graduating seniors, 6 of which have been in SMILE for 6+ years! To end off the night, each senior was awarded a certificate for their dedication.

The SMILE Program sends a huge THANK YOU to all our teachers, students, staff, faculty members, student mentors, and sponsors who gave their all to make this challenge a wonderful experience!



CLUB UPDATES

BROAD ROCK MIDDLE SCHOOL South Kingstown

Anna Stuart

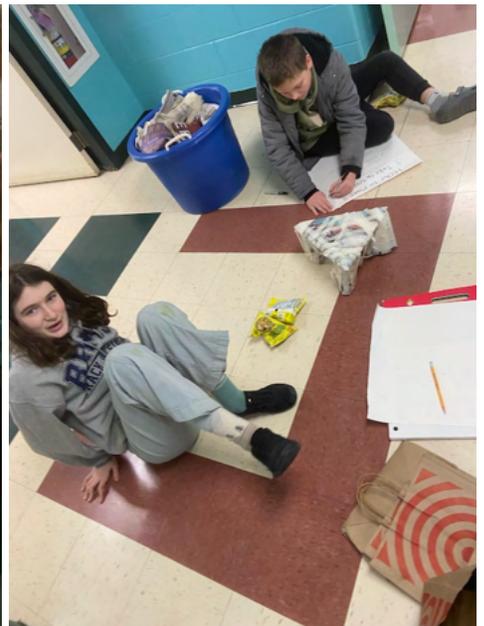
By: Broad Rock Middle School SMILE Club

SMILE, our afterschool science and engineering club, is having an incredible year! Our program is designed to engage students who might not typically **see themselves as scientists or engineers**, with a strong focus on **hands-on learning**, creative problem-solving, and teamwork. With over 27 enthusiastic members, our club is more active than ever!

This fall, we kicked off the year with an exciting field **trip to the Norman Bird Sanctuary**, where students explored local ecosystems and engaged in interactive learning experiences. Our Family Night event at Peace Dale Elementary was another highlight, **bringing families together** for an evening of fun science activities and discovery.

Looking ahead, we're gearing up for the **Design Engineering Challenge Day at URI** on April 4, where our students will put their skills to the test in real-world engineering scenarios. In addition, we are excited about our **spring community project**—building a bench at one of our local ocean access points. This project will allow students to apply their engineering knowledge while making a lasting impact on the community.

With curiosity and enthusiasm driving our students forward, SMILE continues to inspire the next generation of scientists and engineers. We can't wait to see what the rest of the year brings!



CLUB UPDATES

CITIZENS ELEMENTARY SCHOOL

Woonsocket

Miki Nunes, Sean Grace

By: Citizens Elementary School SMILE Club



The Citizens' SMILE club had a great time this year learning new concepts and getting hands-on experience! We have many new students this year, and a **great new teacher, Mr. Grace**. He brings his biology background to the table and has been able to share **professional experiences** with the students. Our students love to be a part of such a great organization and feel a sense of belonging in our group. They love to share their learnings with their classmates on the school days following our club meetings. It gives them confidence and instills a love of science!

The students' favorite activity so far has been the **Owl Pellet Lab!** Students learned about barn owls, their adaptations, and their diet. They **dissected owl pellets** to learn more about owls' diets, and they used a dichotomous key to match their bone findings to pictures of bones of various animals to find out the contents of their owls' diets. This was absolutely a fan favorite, and they couldn't wait to **share experiences with their classmates**.

We participated in the **Woonsocket Family Science Night**. The students created a marble run to demonstrate potential and kinetic energy. They became experts in their content and were teaching the topic enthusiastically to all our booth's visitors. They took pride in their work, and it showed!



CLUB UPDATES

JOHNSTON HIGH SCHOOL

Johnston

Anna Herbert, Marion DiLeonardo

By: Johnston High School SMILE Club

Johnston High School SMILE club has been off to a great first year! Students have been working hard each week on a variety of STEM (Science, Technology, Engineering and Mathematics) activities and came together to showcase some of their achievements on our first annual Family Night. Family Night was held March 11th from 5 to 7pm. This event brought together not only the relatives/friends of the students but also school administrators, school committee members and school faculty came to view their remarkable accomplishments.

This initiative aims to enhance our students' awareness of STEM in their daily lives and to encourage potential careers in these fields. We believe this program will open doors for our students and inspire them to explore new opportunities. A year of SUCCESS for Johnston Senior High School!



CLUB UPDATES

PEACE DALE ELEMENTARY SCHOOL

South Kingstown

Jen Defeo, Susan Carr

By: Peace Dale Elementary School SMILE Club

We welcomed **9 new SMILE students and 14 returning students** to our first SMILE club meeting this year. Save Fred was a successful activity to build and understand the importance of teamwork! Bone Bridges was near Halloween and students wanted to do a **themed investigation**. They had to create their own bridges using Q Tips to support weight. It had to be at least 1 inch off the floor and 12 inches long.

Understanding kinetic energy by **building roller coasters** was enjoyed by all. This started with groups creating their individual projects and ending by them all joining their roller coasters together.

Students began the spring semester learning about measurement. They got to use some materials that were new to them such as **scales and calipers**. They all agreed that their favorite part was eating licorice after measuring! When students were asked about SMILE, these were some responses:

"It is just awesome!"

"It is fun, and I get to learn new things."

"I am learning a lot of different science material."

"The activities are fun!"

"You meet new kids."

"Science is fun in here."

"I plan to become an engineer!"



CLUB UPDATES

RAICES DUAL LANGUAGE ACADEMY Central Falls

Amy Carney, Joan Morse

By: RAICES Elementary School SMILE Club



The Raices SMILE program was started in September 2024. As we go into the New Year, Raices students would like to reflect on all the **amazing opportunities**, team building and engineering experiences we have enjoyed this year.

As we first started the SMILE program we had an enormous interest from our students. Some of our favorite engineering activities were: Save Fred, Graphing with Skittles, Peppermint Racers, and Ski Jumps! Naturally, we love anything with food but we also learned team building and engineering with Save Fred and our favorite gummy worms. Through Graphing with Skittles we learned about qualitative and quantitative observations. Our peppermint Racers were designs that Lewis Hamilton would be proud to drive in. Finally with Ski Jumps, we created amazing ski jumps by learning about potential energy, kinetic energy, and total energy and then using this knowledge to create our own amazing jumps.

The highlight of the program was the field trip to URI's East Farm. We loved the butterflies. We learned about sustainable gardening practices. We also learned how important bees and butterflies are for pollination. Bees pollinate 87% of our crops. We would like to contribute to the bee and butterfly population by planting the foraging plants that they need to survive. We have many of our own community gardens and parks in Central Falls and we hope to take our knowledge from the East Farm Field Trip to one of the Central Falls Gardens and create a pollinator garden for the community.



We are very thankful to URI for this amazing experience and opportunity to grow our community!

CLUB UPDATES

THOMPSON MIDDLE SCHOOL Newport

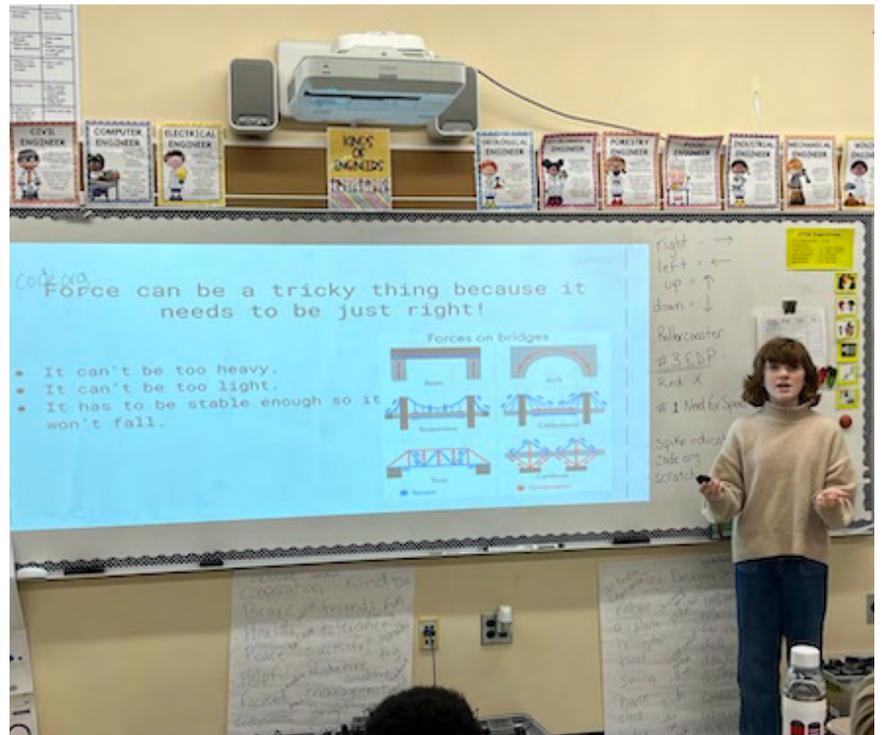
Jeannine Walsh, Kevin Bolano

By: Thompson Middle School SMILE Club



Family Science Night, in November, was a huge success. All families from each school were in attendance and enjoyed traveling from room to room to see science in action. We were thrilled to see the students take on leadership roles by sharing all their knowledge with parents and younger siblings. It was so great to see them step up and share not only their activity but also the science behind it.

Our weekly challenges in the first half of the year were centered around the engineering design process. Ask, imagine, plan, create and improve. Two favorites were building pizza ovens and bristlebots. Newton's laws of motion were demonstrated in the balloon "Action-Reaction Rocket", which was another exciting and loved experiment. To get ready for the URI Engineering Challenge in April, students have been learning about bridge structures and designs.



WESTERLY HIGH SCHOOL

Westerly

Lesley Fastovsky

By: Westerly High School SMILE Club



All year long Westerly High School SMILE students have been engaged with activities and were excited to showcase some favorites at our **Family Science Night** on March 18th!

Students took the lead, sharing their knowledge and guiding visitors through interactive demonstrations:

Robert and Grey explained **Gel Electrophoresis**: “We put gel into a soap box, made wells, and added dye into the wells. Then we put energy from 9 volt batteries into the gel and observed the dye travel through the gel and get filtered out based on their size.” They modeled this at FSN using the school’s Gel Electrophoresis apparatus.

Hope, Rachel, and Aaliyah’s **Operation game** “tested visitors’ ability to complete a circuit”, or not (!), by using tweezers to retrieve small objects.

Rhiannon, Lexie, and Olivia demonstrated “how **electrical currents and magnetic fields** interact to produce sound” by helping attendees build a speaker using cups, wire, and magnets.

Griffin and Enoch had people predict “what weather conditions get between the sun and the solar panel to affect the energy output” using various materials to simulate real-world scenarios.

Maya and Ziyen showed how “taking apart a solar toy can be fun to learn about its components, and the overall reason on why the figure moves when the sun hits it.”

Brianna and Kaylee showed how “different sized gears determine how the size of gears are proportional to the revolutions per minute of the gears.”

Next, students will put their skills to the test at Engineering Day at URI, where they’ll demonstrate their knowledge of solar energy’s power. However, the biggest debate among students is what they’ll eat at the dining hall!

CLUB UPDATES

WOONSOCKET MIDDLE SCHOOLS

Woonsocket

Brandon Beaudry, Ian Chernasky, Jenn Hardy, Sean McBride

By: Hamlet and Villa Nova Middle School SMILE Clubs

This year has been an exciting one in the Woonsocket Middle School SMILE club. One of the highlights of the year was our field trip to Igus in Rumford, Rhode Island. At Igus, SMILE students received a full tour of their facilities and an interactive demo with Igus Robotics. They were able to see how advanced plastic components are manufactured, and they were even able to collaboratively program a robotic arm! With the shift into preparing for challenge day, our SMILE student Samantha had this to say:



From Samantha:

“During this school year of 24-25 we have learned lots of important information about how to build bridges. We learned that bridges made with triangle shaped patterns withstand more weight/force than others. We learned about how to make these triangle patterns with many different materials, toothpicks, candy, and straws. This will be an extreme benefit for Challenge Day since we will be trying to build a bridge that can hold enough weight for its purpose and won't be expensive. Lastly, we learned all about the different types of bridges as well, Truss, Suspension, Beam, Cable, and Arch. Everything that we have learned this year during SMILE will help us build our bridges as strong as we can!”

PARTNERSHIPS

We want to thank the following funders that have allowed SMILE to grow and continue to provide high quality after-school STEM programming to our Rhode Island students:

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Ella Risk Elementary School
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Tish Biggerstaff

**Raices Dual Language Academy
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Nicole Esteves

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Jeannine Walsh Bolano
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Rogers High School
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Sean McBride

Woonsocket High School
Brigette Hernandez
Ethel Locke

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The SMILE Program

The Science and Math Investigative Learning Experiences (SMILE) Program is an enrichment program for educationally disadvantaged students in grades 4-12 in seven districts in Rhode Island. SMILE's goal is to provide group activities for these students in science, technology, engineering and math. Generous gifts by participating donors make this program possible. The SMILE newsletter is published three times a year. We encourage your comments and ideas. Please share this newsletter with others who might be interested in SMILE.