The SMILE Program
University of Rhode Island
90 Lower College Road, Roosevelt Rm 1
Kingston RI 02881

nonprofit org.
US Postage
PAID
Wakefield, RI 02879
PERMIT No.19

Donate

The SMILE Program relies on the generous support of our donors. Invest in the future of RI students by supporting SMILE.

Please make checks payable to
"The SMILE Program"

Mail to:
The SMILE Program
90 Lower College Rd, Roosevelt Rm 1
Kingston, RI 02881

*The SMILE Program is a 501(c)3 non profit organization.

Visit Us Online

www.uri.edu/smile

Join Us on Facebook

"The SMILE Program"

Calendar

Weekly SMILE Club Meetings
Scientific and Career Exploration Field Trips

Family Science Nights

November-December 2017

Special Annual Events

High School
Engineering Challenge Weekend
April 27-28, 2018
URI Kingston Campus

Middle School
Engineering Challenge Weekend
March 23-24. 2018
URI Kingston Campus

Elementary School
5th Grade Outdoor Science Adventure
April 6-8, 2018
URI Alton Jones Campus
4th Grade Ecology Event
April 12, 2018
URI Kingston Campus

Teachers' Professional Development Workshops

August 23-24, 2017	Dec 8, 2017	May 22, 2018
University of Rhode Island	University of Rhode Island	University of Rhode Island
Math and Science Curriculum Planning for the year	Math and Science Curriculum Special Events Planning	Program Evaluations

Printing donated by Schneider Electric

A STEM PROGRAM

SMILE

Science and Math Investigative Learning Experiences

Newsletter
volume 24 No.2, April 2018

24 Years of service

Middle School Engineering Challenge

On March 23rd, SMILE middle school students from around the state gathered at the University of Rhode Island's Kingston campus for the 2018 SMILE Middle School Engineering Challenge Weekend.

This year at Middle School Challenge Weekend SMILE students designed and built a crane and maglev train car. 135 students from Central Falls, Pawtucket, Newport, South Kingstown, Westerly, West Warwick, and Woonsocket came to the University of Rhode Island campus to experience what it is to be an engineer. To build the cranes students needed to work with a set of specifications, work within the limits of a budget, test their design, redesign, and make changes. Finally, they completed three time trials working with the crane and maglev train car together. The construction and testing of crane and maglev train car promoted the study and application of some fundamental principles in mathematics and physics. The activity also helped students develop teamwork and problem solving skills. They worked with students from other school districts and volunteer mentors that included URI engineering students and professionals from Amgen, Schneider Electric, and NUWC. Very quickly SMILE students learned that the collaborative synergy of the group often produces the best results.

Continued on page 2...

Elementary Outdoor Science Adventure

On the snowy afternoon of April 6th, the SMILE Program's 5th grade students stepped off a school bus and onto the beautiful and peaceful grounds of URI's Alton Jones Campus. They were welcomed by 20 URI mentors who spent the spring semester preparing themselves, activities and hands-on lessons to educate the SMILE students about the ecology of the Alton Jones Campus during their 3 day, 2-night stay.

The SMILE students and URI mentors quickly bonded on Friday during their first cold and snowy field study, dinner, campfire and cabin talks before it was LIGHTS OUT for a restful sleep to prepare them for a full day of field studies, games, meals and a final campfire on Saturday. The students and mentors spent the weekend together learning about the plant and animal life throughout the campus. The URI mentors not only captivated the SMILE students with their hands-on lessons at four different sites, they also led the students in fun campfire songs and shared their challenges and successes throughout their academic careers. The EOSA weekend was a rewarding, heartwarming and educational experience for all in attendance.

Continued on page 6...

MIDDLE SCHOOL ENGINEERING CHALLENGE

This year's Middle School Engineering Challenge was to design, build, and test a crane capable of lifting a train car onto a magnetized track.

Students arrived early Friday morning at the URI Memorial Union Ballroom, were greeted by URI SMILE staff and organized into teams. SMILE Director, Carol Englander welcomed the students to URI. David Koziol from the Rhode Island Department of Transportation discussed evolution of transport via train in the Rhode Island area and how the RIDOT makes decisions about paths to expansion of the existing system. Then Middle School Program Coordinator, Claire Steggall-Murphy outlined the engineering challenge to the students. Students first had to examine the contents of their material boxes. In each box was a collection of building materials and paperwork with details about specifications, budgeting, and design. The teams first had to design their cranes and maglev train cars and reach agreement amongst all team members on the intended design. The crane had to be able to lift the maglev train car about 12" in the air to a box at the end of a magnetic track. A budget limitation was given for the entire project. Students had access to a set of tools that they could "rent" to complete their projects. In addition, they could trade in unused materials or buy additional materials with their budget. The crane had to include the use of a hydraulic system consisting of two syringes and tubing. The crane also had to have a crank winding device to raise and lower the cable connected to the maglev train car.

All afternoon, students worked on their cranes and maglev train cars, with a short break to catch some fresh air. After dinner the testing commenced. Tracks were set up in the Ram's Den food court with mentors to time the trials at each station. Data was collected by the students after each run. Two points of interest were the overall time to lift the car to the box, remove it, and send it down the track and the time for the track run alone. At the end of the Challenge, teams put their cranes and train cars on their team tables with average time trial results for all to see.

The Challenge Weekend is a fun way to visit a college campus and provides an opportunity to get young people interested in science, math and engineering fields of study and careers. SMILE students learned a lot about student life on a college campus, toured the new science buildings: chemistry & forensic science, pharmacy and CBLS (College of Biology and Life Sciences), ate meals in a dining hall, and enjoyed recreation at Tootell Gym. Saturday morning activities included talks by URI tour guides and an "Introduction to preparing for College" presented by Coral Maack, a URI Admissions officer. The students also had the chance to speak to four URI alumni who currently work in a STEM field- Mandy Alberg from AMGEN, BS Microbiology '03, LCDR Kellye Donovan, PharmD '08, PhD '18 from the US Navy, Jason Lavigne from Lavigne Manufacturing, BS Mechanical Engineering/BA German Language '05, and Matthew Coolidge from Far Sounder, BS Electrical Engineering '02. The students learned about each panelist's path to pursuing a STEM degree and what their careers have been like since graduating from URI.

Our SMILE Middle School students have put themselves on a path to college and have high expectations for themselves. A huge "THANK YOU" to all our teachers, URI faculty and student mentors, SMILE staff, and sponsors who helped to make this challenge a wonderful experience.

"I believe that I am much more prepared for college. I have more independence skills and teamwork skills as a result of this program."

-SMILE Middle School Student

CENTRAL FALLS
Ella Risk Elementary School
Sheryl Wilson

Calcutt 5th grade
Karen Cardoza

Calcutt Middle School
Karen Cardoza
Molly MacDonald

Central Falls High School
Laura Stanish
Kerri Valentine

NEWPORT
Claiborne Pell Elementary
Lori Delemos
Mary Nordby

Thompson Middle School
Candace Lewia
Elizabeth Gibbs

Rogers High School
June McGreavy

PAWTUCKET
Shea High School
Ann Marie LaRoche

Tolman High School
Kevin Collard
Nicole Ellis

Goff Junior High School
Janelle Haire
Jennifer Bromley

SOUTH KINGSTOWN
Peacedale Elementary
Tera Tucker
Christine Pierce

Curtis Corner Middle School
Zach Bioteau
Valerie Light

S.Kingstown High School
Christina Antaya-Dube

WESTERLY
Springbok Elementary School
Lisa Kenyon
Nicole Roberts
Paige Sayer

Westerly Middle School
Carolyn Michaud
Robert Brennan

Westerly High School
Sharon Ficarra
Susan Wood

WEST WARWICK
Horgan Elementary School
Maria DePalma
Amy Horne

Deering Middle School
Eugene Gallo
Christopher Baccei

West Warwick High School
Eugene Gallo
Christopher Baccei

WOONSOCKET
Harris Elementary School
Melanie Clark-Medyesy
Katherine Krause

Coleman Elementary School
Jennifer Paolozzi
Anissa Hoard

Citizens Elementary School
Denise Consiglio
Jodi Cifelli

Woonsocket Middle School (2 clubs)
Paulette Metivier
Deana McCarthy
Marie Gentile
Rania Aghia

Woonsocket High School
Julia Grassini
Ethel Locke

PARTNERSHIPS

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

Amgen Foundation

Amgen Biotech Experience

Amica

Anonymous Donors

Arnold Lumber

The Champlin Foundations

Connecting For Children and Families

Constellation, an Exelon company

Dominion

Delta Dental

Graphic Expressions

Gilbane

Holiday Inn South Kingstown

Lloyd G. Balfour Foundation, Bank of America, N.A Trustee

MetLife

NOAA B-Wet Program

Pawtucket COZ-21st Century

Pfizer

Ramsey McCluskey Family Foundation

Rhode Island Foundation

Schneider Electric

Steere Engineering

Toray Plastics, America, Inc.

University of Rhode Island

URI Transportation Center

van Beuren Charitable Foundation

Verizon Foundation

YMCA of Greater Providence

Central Falls School Department

Newport School Department

South Kingstown School Department

Pawtucket School Department

Westerly School Department

West Warwick School Department

Woonsocket School Department

We would also like to thank our Individual Supporters, who are vital in helping The SMILE Program to continue its mission

SMILE STAFF
Carol Englander
Director

Claudia Hoddersen
Curriculum Specialist

Kelly Gallo
Curriculum Specialist

Claire Stengall-Murphy
Curriculum Specialist

JoAnn Basel
Curriculum Specialist

Cathy Valentino
Curriculum Advisor

Isha Chugh
Accountant

Kaitlyn Czap
Development Coordinator

URI RESOURCE FACULTY
Kathy Collins,
Vice President for Student Affairs

ENGINEERING
Faye Boudreaux-Bartels
Christopher Hunter
Mercedes Rivero-Hudec
Manbir Sodhi

COLLEGE OF ENVIRONMENT & LIFE SCIENCES
Larry Englander
CELS, Plant Sciences
Evan Preisser
CELS-BIO
Jose Amador
CELS-NRS

MATHEMATICS
Orlando Merino

BOARD OF DIRECTORS
Fred Frostic, President
John Peterson, Vice President
Ruth Jarrett, Secretary
Domenic Valentino, Treasurer
Malcolm Spaulding, Board Member
Glenda Kirby, Board Member
Steve White, Board Member
Augusto Gomes, Board Member
Fran Alexacos, Board Member

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.

Letter to the Mentors

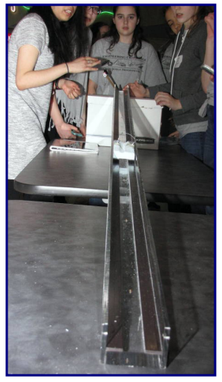
This SMILE Elementary Outdoor Science Adventure was our 23rd EOSA. It is also the FIRST EOSA where it snowed and was at least 10°F below normal (28°F-46°F). You looked confident that things would work out despite the unusual weather. Your enthusiasm and "can do" spirit won out. All your work developing the outdoor field studies paid off. The 5th graders enjoyed using real science equipment and taking data in the environmental activities you led. The kind and caring manner you exhibited at meals, at cabin talks, along with your college connections campfire talk, was outstanding. You were positive role models who made these young scientists aware of the importance of having high expectations for themselves. We have put these 5th graders on a path to higher education through a meaningful series of hands-on environmental field studies and fun activities. You formed a cohesive mentor group with other URI students you met the first day of class, and you had a positive impact on these SMILE students and on each other.
I am very proud of each of you. Thank you for making the 2018 EOSA so successful.

Sincerely,

Carol Englander
SMILE Director

"I enjoyed this year's SMILE challenge. We were able to view multiple aspects engineers have to go through when designing. Being part of a team opened up my eyes and made me see things I wouldn't have on my own. -SMILE Student

SMILE students design, build, and test their cranes and MagLev trains



Left: URI alumni working in STEM fields come to speak to SMILE students about college. Right:Andrew Koziol from DOT comes to talk about trains and transportation in Rhode Island.

Many thanks to
SMILE Funders including Amgen, Schneider Electric, Toray Plastics, Pfizer, van Beuren Family Foundation, and Verizon for their support. Special thanks also to our URI student mentors and Professional mentors from Amgen, Schneider Electric and NUWC

Woonsocket Middle, Villa Nova

Paulette Metivier and Rania Aghia

By Woonsocket Villa Nova SMILE Club

*My favorite thing about SMILE is the engineering part. My favorite project was building a car to protect an egg. Austin
*SMILE encourages me to try my hardest in all of my classes and inspires me to become an engineer. -Lila
My favorite part about SMILE is how you get to know new people and get to do new projects every week. Janeida
*I like the projects that we do for SMILE. My favorite project is when we tried to make slime. Ethan
*SMILE taught me that if you keep trying you can do anything you put your mind to. Charlotte
*My favorite part about the SMILE program is being able to express yourself and use your ideas to build something. Kailey
*The thing I find most interesting in the club is the very creative projects that we are challenged with! My favorite project is the one we are doing currently, hydraulics! Matt
*I really love SMILE because there are so many interesting things you do in this program. My three favorite things about smile is the interesting projects, we get to work together, and we always learn something new. So yes, SMILE is something that I am proud to be apart of. Ashley
*My favorite part of SMILE is getting to express our ideas and being creative with them. My favorite project in SMILE was when we made a bouncing ball. Casciah
*My favorite part of SMILE is getting to express our self and meet new people. My favorite project we did is the egg in the car. Mia
*My favorite thing that we did so far this year was when we got to bake clay and then see how much weight it could hold by using textbooks and we tried different designs . Noah
*One of the many reasons I love taking a part in SMILE is because it gives me different opportunities to explore different studies and open doors to different career choices in life. One of my projects that I enjoyed were the Hydraulic system because it was a challenge. Ashley
*My favorite project was when we made Slime or those bouncy balls with the chemicals and to try to explain to us how chemical reactions occur. Also, I like SMILE because most of my friends are in this club to so they also make it fun for me. Makenzi
*My favorite part of SMILE was when we made our own shoes. I think SMILE is a great experience for kids and it gives us a chance to learn something new. Yenailils

Curtis Corner Middle School, South Kingstown

Valerie Light and Zach Bioteau

By Curtis Corner SMILE Club

-“SMILE always keeps the students smiling with all the new things we learn. It’s a fun experience for everyone”
-“SMILE is an experience. I got the chance to try new things, and expand my borders. I’m extremely grateful for this chance, and it has inspired me to go further”
-“SMILE has helped me make friends at a new school and it helps me with school”
-“SMILE gave me a good chance to work with hydraulics”
-“SMILE is a really fun program, it helped my engineering skills. It also helped me make new friends”
-“SMILE is a fun active way for kids to learn about math, science and engineering”
-“SMILE has given me a chance to meet new people and I have had a lot of fun”
-“My SMILE experience was fun!”
-“My SMILE experience is filled with science and math and engineering challenges and fun!”
-“SMILE is a fun place to learn fun science and enjoy being with others”
-“SMILE is cool, I like doing experiments and hands on science stuff.”
-“SMILE is cool, something that made it super cool was when we made hydraulic water pressure elevators.”
-“The SMILE program is so fun because you can learn lots of new things about science and math, and you can be with your friends. “

Peace Dale Elementary, South Kingstown

Christine Pierce and Tera Tucker

By Kalyee Cayer, Matilda Fillion, Alyssa Raposa, and Scarlett WIlliams

At SMILE this year we have had lots of fun. We started the year with engineering. We made towers out of newspaper and tape and engineered them to be strong and tall. We also designed cardboard chairs that would hold an adult for 20 seconds and marble run courses that we turned into Rube Goldberg machines. We like SMILE-because we get to hang out with friends after school and work together to engineer cool things like paper helicopters and catapults. Right now we are working on biodomes for our ecology unit. We have learned so much, including that designing an ecosystem to keep goldfish healthy is a challenge. We have had a blast designing our own biodomes to support live animals. SMILE is a very fun club and we can’t wait to go on a cool field trip this spring.

Springbrook Elementary, Westerly

Lisa Kenyon and Nicole Roberts

By Springbrook SMILE Club

Springbrook Elementary School’s grade 4 and 5 SMILE club is having a great year! In January, the Middle School and Elementary clubs traveled together to the Rhode Island Resource Recovery Corporation. Students were given a tour of the facility, learned details of which materials can be recycled or reused, and learned about the engineering behind the equipment that helps sort single stream recycling. We all left with new information and a renewed sense of the importance of recycling in our homes and communities. Students are getting reading for spring field trips and looking forward to continuing the sensory garden we began last spring as our Stewardship Project. Highlights from some of our amazing SMILE students:

-My favorite field trip that we went is to the Rhode Island Resource Recovery Corp. One thing I learned from that field trip is how important recycling is. If you start recycling, there won’t be a lot of trash anymore. -Kaizhen Lei

-My favorite SMILE activity was the rube goldberg machines. This was my favorite activity because we had a lot of ideas but not all of them worked. So we had to struggle through it. Also we had to all agree on something that we had to do. I also liked this because you had to keep testing it. -McKenna Smith

-My favorite part of SMILE was when we built the marble run because it required a lot of teamwork. Also, I liked this project because there was a lot of trial and error. -Aiden Pangelinan

Citizens Elementary, Woonsocket

Jodi Cifelli and Denise Consiglio

By Citizens SMILE Club

It's been a great year for the Citizens' SMILE Club! Students have lots to share!

"We loved engineering the earthquake house!" -Jackson and Patrick.

"We enjoyed the newspaper experiment because we didn't realize how strong the newspaper was! "We had to learn determination to work the marble run." -Evan

We learned about teamwork and failure teaches us to learn, that's why we love the marble run." -Mia,Lily, and J-Marie.

"The water cycle was surprising to see all the rain coming down"
"The Ruby-Goldberg was very difficult to do but a very simple task." -Ariele, Blessing, Fatou, and Jamariam

"Who new birdfeeders were so messy...but fun!"
"My favorite was science night because I got to show my sister what we were doing." -Landon

Thomas Edison said it best, "I've not failed but found 10,000 ways that won't work" Thanks to SMILE, we get it!

Shea High School, Pawtucket

Ann Marie LaRoche

By Afolabi Abayomi

This year, the SMILE Club has learned a different aspect of engineering: the students have been working on energy conversion, transformation and measurements. In November 2017, the students took part in a family science night at Goff Middle School in which they presented their work to parents, siblings and friends. We explained to their relatives the process and purpose of their projects while learning about the projects of others as well. We presented self-made solar ovens that successfully melted chocolate, a rubber band flinging activity and a hydraulic lift.

Currently we are learning about solar energy and how solar cells work to store energy. All this will help us for the upcoming challenge happening on April 27, 2018.

I have only been in this club for two years and I have had the best experiences. I have explored many different aspects in the fields of Science, Math and Engineering, which has helped me in my classes and in selecting the right career to pursue as a major in college.

Westerly High School

Sharon Ficarra and Susan Wood

As members of SMILE at WHS these are some of our thought about SMILE:
SMILE means an opportunity to explore and make connections to the STEM field. I have always strived to be an engineer and SMILE is not only a great extracurricular but continues to inspire me.

SMILE has helped me learn how to work together to solve problems which is a very useful skill to have in high school. SMILE this year has been especially fun in smile as a lot of my friends this year are in SMILE and we got to socialize together while still working towards the goal at hand. I am grateful for the time I had spent in smile and am looking forward not only to the big meet this year but to what we will do next year.

SMILE is a great learning experience, going through all the stages of engineering, and cooperating with my fellow teammates it has been quite an experience. When creating our solar ovens or hydraulics, ideas have been passed around and everyone worked efficiently. It's been quite fun this year in SMILE and it's disappointing that it is coming to an end

SMILE is a great club that provides us with plentiful learning opportunities. SMILE serves as a platform to explore the world of engineering in a fun and endearing way. Through many projects with varying levels of difficulty and complexity, we have been able to expand our knowledge on problem solving and increase our teamwork abilities.

SMILE also demonstrates how it feels to work together with complete strangers. In SMILE key traits are represented and celebrated, such as precision, cleverness, and being inventive. All in all, this is a brief summary of what SMILE is to me.

Rogers High School, Newport

June McGreavy

By Rogers SMILE Club

We are excited as we enter our third year in the SMILE Program. Hosting Family Science Night has been the highlight of our year. Being able to showcase our school to our elementary and middle school students and their parents was a thrill. After all, they will be joining us here sooner rather than later. Everyone was proud to celebrate and exhibit their SMILE activities from the various programs throughout the Newport District. The tables were not only displaying projects, but they were also covered in delicious food provided by all our participants. I can guarantee you that no one went home hungry that evening.

At Rogers we've been busy creating fidget spinners, customized paper airplanes and our favorite
was building our hydraulic lifts. Not only were we successful in our design, but we were also
able to witness our invention in the real world at a construction site. Now we are diving into the
world of solar options. We are trying to determine if solar implementation is worth the potential
hefty price tag that can accompany it. We'll get back to you once that determination is made.
Only one month left before we head out to our High School Weekend Challenge. That is always
a fun time for us to get away and play. Who knows what is in store for us. We can't wait!

Rogers SMILE Club (left to right): Jullyan Frederick, Jack Farforth, Alita Kuiee, Elana Lahoud, Mariela Minino, and Riley Hebrock.

“Children are born with a sense of wonder and an affinity for Nature. Properly cultivated, these values can mature into ecological literacy, and eventually into sustainable patterns of living.”
-Z. Barlow

The SMILE students rotated through four different field studies at four different locations on campus.

At the Bubbling Brook Pond, URI mentors taught the students about the different trophic levels through three exploration activities around the pond. They were put to the test by going deep into the mud, searching for organisms, such as worms, grubs, and other invertebrates that help cycle nutrients throughout the ecosystem. Students also used nets to capture adult spotted salamanders and wood frogs in the pond to learn about the importance of consumers. In addition, the SMILE students used a dichotomous key to identify several types of plants in and around the pond while exploring the significance of producers. By the end of their learning experience, the students understood how organisms of each trophic level play a vital role in sustaining balance within the pond ecosystem.

In the pine forest, URI mentors involved the students in learning not only about the massive pine trees but also students got to stop and listen to their quiet surroundings. Throughout the four lessons the SMILE students learned about forest succession, layers of the forest, pH, tree identification, species ID and more. They estimated the height of a tree using a pencil, looked under fallen trees for salamanders, observed how succession had shaped the forest, and got to use different equipment to measure temperature and pH. Although the trek through the fallen trees proved difficult the students left with a new love for the forest.

“I loved meeting new people doing science outside. It was so relaxing and the nature was so pretty I could stay there all day.”

“I want to learn more about how lichen break down rocks! I could not wrap my mind around the fact that something as hard as a rock can be decomposed by a chemical reaction on a microscopic level.”

At the vernal pool, students had the opportunity to learn about plants, and how plants contributed to the success and life span of the vernal pool. Students learned the importance of lichens and their beneficial effects on the ecosystem. Finally, students learned the life cycle of spotted salamanders and wood frogs, and they were actually able to see the egg masses of both species. Overall, the students got a well-rounded lesson of what goes on in a vernal pool and how a vernal pool is a special body of water.

SMILE students learned about egg masses of salamanders and frogs.

Deep in the woods at one of the streams, URI mentors had the students determine if the stream was healthy by calculating its flow rate and looking for macroinvertebrates that are indicators of a healthy stream. SMILE students examined the differences between biotic and abiotic factors that affect the stream environment and identified different species they found at the site by using species identification charts. The SMILE students also conducted an experiment to determine how various pollutants would affect the health of the stream and the plants and animals in the surrounding

Left: SMILE teams present their field study findings. Right: SMILE EOSA mentors talk to SMILE students about college and their career pursuits.