

The SMILE Program
University of Rhode Island
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Kingston, RI 02881

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High School Engineering Challenge

Gliders and Aerodynamics at Work!



On Friday April 29th, 70 SMILE high school students from Central Falls, Newport, Pawtucket, South Kingstown, West Warwick, and Woonsocket arrived at the University of Rhode Island to participate in the 2016 SMILE High School Engineering Challenge.

During the two-day overnight event, SMILE students from across the state got a real taste of college life. At URI's Kingston campus SMILE students met with university students from science, math, and engineering colleges and Admissions staff; ate in Hope and Butterfield dining halls; and visited the Keaney Gym and Tootell Aquatic Center for some recreation. The college experience, coupled with a stimulating engineering challenge, made for a memorable event for all involved.

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4th Grade URI Ecology Field-day

SMILE! You're a Scientist!



On April 15th, 80 fourth graders attended the first annual SMILE URI Ecology Field Day at the University of Rhode Island. All eight SMILE elementary schools joined us for a fun-filled day of hands-on environmental activities taught by URI graduate students from the College of the Environment and Life Sciences.

The day began on the Science Quad where students' jaws dropped at the size and number of science buildings they saw as they stepped off the buses. They met the URI grad student volunteers and received newly designed neon green sweatshirts that stated "SMILE! You're a scientist!" The focus of the day was to introduce students to several different types of careers/scientists that they could consider in the environmental field (horticulturalist, soil scientist, herpetologist, ecologist, and marine ecologist).

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

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Calendar

Weekly SMILE Club Meetings
Scientific and Career Exploration Field Trips

Family Science Nights
November 2015

Special Annual Events
High School
Engineering Challenge Weekend
April 29-30, 2016
URI Kingston Campus

Middle School
Engineering Challenge Weekend
March 11-12, 2016
URI Kingston Campus

Elementary School
5th Grade Outdoor Science Adventure
April 8-10, 2016
URI W. Alton Jones Campus

4th Grade URI Ecology Field Day
April 15, 2016
URI Kingston Campus

Teachers' Professional Development Workshops

August 19-20, 2015	Dec 2, 2015	May 26, 2016
University of Rhode Island	University of Rhode Island	University of Rhode Island
Math and Science Curriculum	Math and Science Curriculum	Program Evaluations
Planning for the year	Special Events Planning	



SMILE High School Engineers from around the state work together to construct a glider capable of sustained flight.



After students received their t-shirts and team assignments, they had the pleasure of hearing guest speaker and glider developer, Kevin Poirier. During the challenge event, university and industry mentors from Schneider Electric and Navatek encouraged students and provided technical support to the building teams.

Soon after students learned about the challenge, they spent some time getting to know their new multi-school teams and started right in on the construction process. This year’s challenge was to build a foam core glider from architectural templates, assemble and glue the pieces to form a 3 ft. wing span glider capable of sustained flight from a hand toss. Kevin Poirier, developer of the challenge, led the students through a series of introductory activities to learn how to safely use box cutters, make 50% cuts, and use minimal amounts of hot glue. Students used box cutters and glue guns, making their planes from “scratch.” Clay was used as ballast in the nose cone to achieve balance. Most students had never done this type of construction, and they developed many new skills.

After lunch in the Hope and Butterfield dining halls, students returned to their challenge and continued to carefully cut out the template and glider parts and start assembling the wing, fuselage, tail and rudder, and nose cone. Students took a break from the challenge and met with URI Admissions staff to learn more about getting into college and what URI has to offer. Seniors met with Collegiate SMILE students and other URI mentors for a question and answer session. Afterwards, all students returned to their glider construction. During the rest of the day students tirelessly worked on finishing their glider, balancing it, and testing its flight pattern for distance and accuracy. Teams tested their gliders and made adjustments so that it would land on the designated runway. Students enjoyed dinner at Hope dining hall. After the gliders were finished and pre-tested, students decorated their planes with colored markers, producing some very original artwork. Once the long day of engineering was complete, SMILE students enjoyed some much deserved downtime in the URI pool and on the Keaney basketball courts before heading to the Holiday Inn in South Kingstown.

On Saturday morning after a welcome and introduction, the true competition began. Each team member threw their glider multiple times. With practice, students’ skills in throwing for both distance and accuracy greatly improved. The farthest distance a glider went was 130 ft., and it accurately landed on the runway. Twelve out of 18 gliders were thrown with super accuracy, garnering more points for their teams. After the competition was complete, there was a brief closing ceremony to recap the weekend and announce the much anticipated team score results. SMILE seniors were recognized and those seniors in SMILE for 3 or more years were given applications for \$500 SMILE college scholarships. SMILE director, Carol Englander thanked Kevin Poirier and Jo Ann Basel for developing such an exciting project. She also thanked all the club teachers, industry mentors, URI faculty and student mentors, and sponsors who, through their tireless help and efforts, made this year’s new Glider and Aerodynamics at Work Challenge Weekend a true success. A special thanks also goes to Amgen, Arnold Lumber, Schneider Electric, and Toray Plastics - whose funding support made this event possible.

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

Amgen Foundation	Pfizer
Amgen Biotech Experience	Preisser Lab
Amica	Ramsey McCluskey Family Foundation
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URI Graduate Students Association	Central Falls School Department
Holiday Inn South Kingstown	Newport School Department
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Nordson Corporation Foundation	Pawtucket School Department
NOAA B-Wet Program	West Warwick School Department
Pawtucket COZ-21 st Century	Woonsocket School Department

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

The SMILE Program		
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<i>The Science and Math Investigative Learning Experiences (SMILE) Program is an enrichment program for educationally disadvantaged students in grades 4-12 in six 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.</i>		

Citizens Elementary School, Woonsocket

Jodi Cifelli, Trish Degnan
By Allie Sithtaphone



This year our SMILE program has been very busy. We learned about the ocean, pollution, and we also went on a Save the Bay fieldtrip. Hurricanes were another topic we talked about. Throughout winter, we helped our feathered friends by making homemade birdfeeders. Some of our spring activities will be getting ready for EOSA and the fourth grade field trip to URI.

We are looking forward to seeing sprouting plants in the SMILE garden along with the hundred added daffodil bulbs planted by this years' SMILE group. Some of our favorite investigations were: fisheries, bird beaks, and owl pellets. We're not sure if the candy had anything to do with that! We would like to thank Heather for her hard work getting all of our lessons ready for Ms. Cifelli and Mrs. Degnan. They greatly appreciate it!



*"After the Challenge Weekend
I have more motivation to go to
college."*



Kevin Poirier introduces SMILE students to the event.



URI Students talk to SMILE students about college life during a Q & A session.



*"I liked building the
glider and flying it.
Nothing makes me
more happy than
seeing something we
created work."*

During the competition, gliders were tested for distance and accuracy. The farthest distance a glider traveled was 130 feet!



Tolman High School, Pawtucket

Kevin Collard, Jason Rushton
By Tolman SMILE Club

The curriculum focus for the SMILE program for the 2015/16 academic year was on advanced technology and engineering such as the design of airplanes and helicopters (aviation) and understanding forces of lift (Bernoullis principle) that make flying possible. In addition, the SMILE program focused on the conservation and sustainability of our natural resources, i.e. ocean curriculum. The SMILE program curriculum was fun and very interesting; students participate in different ways like hands-on activities in the classroom, individual assignments, and working with other student members in groups or teams.

At the beginning of the year, all the students in the SMILE program tested their knowledge about the oceans through an Online quiz. We studied how the water on our planet that includes water from rivers, lakes, oceans, and the ice caps are being wasted in different ways. Our goal was to increase student knowledge about the various issues that harm our waterways (freshwater & marine ecosystems) and environment and to identify ways to conserve resources and improve sustainability for future generations.

Also, Tolman had Family Science Nights that showcased the learning of the SMILE curriculum: one topic was how the marine life is decreasing and the other was how can we save our natural resources & water on the planet. Also, Tolman SMILE students went on an amazing field trip to the Boston Museum of Science. All the students were very excited about the trip. They learned about many different science topics such as the history of dinosaur, the invention of music, learn about different species in the ocean, and a documentary about animal life in Africa in 3D. Most of the student did not see a 3D movie before; it was very interesting!



Calcutt 5th Grade, Central Falls

Peg Boyer, Karen Cardoza
By Calcutt SMILE Club



SMILE is the best club! We learn about science and math and get to do lots of experiments with our friends. The year started with a fieldtrip to Block Island and was a favorite trip for many of us. We loved kayaking and finding cool sea creatures in the water. The ferry ride was fun too! We learned a lot about the ocean and loved dissecting squid in class. It was fun to write our names with the ink! We dissected albatross boluses too and there was a lot of plastic in them. That's not good and it's a sign of pollution which is not good for our planet. In January, we went to the Boston Museum of Science and had a great time exploring all of the rooms there. It was awesome because we could learn about whatever we were interested in. One of our other favorite things about SMILE was Family Science Night, where we got to present and teach our parents and families about density, hurricanes, ocean acidification, water on the planet and we played Kahoot (we all love Kahoot!). We are excited for camping at the EOSA in April and to do experiments outside!



“What I like about SMILE is that we learn something new every day. Also I like that SMILE combines science and math, which are my favorite subjects. But the most important thing I like is that SMILE is a great opportunity to help you in becoming a more successful student.”

-David Duque

“My favorite thing that we do at SMILE are experiments and we learn about new things every week. I learned that the word biotic means living and abiotic means nonliving. We have been learning about the ecosystem and our world. I enjoy SMILE because I think it's a great use of my time. I LOVE SMILE.”

-Abigail Pinkrah

Woonsocket Middle School at Villa Nova

Lisa DeSante, Rania Aghia
By Justice Coyle, Kayleigh DeOrsey, Kaycie Tanabe and Shayla Kenyon



SMILE isn't just about science and math...

It's about exploring, making new friends, being independent, working with others and also trying new things. SMILE is a fun learning experience. For example, the SMILE Challenge weekend at URI was inspiring because we were able to learn how to work as a team with new people.

SMILE is also a great place for you to learn and learn about different careers like becoming an architect or enjoying subjects like science and math. We have learned about engineering by building and designing the wind turbine at the challenge weekend. Overall, SMILE is just a great place to be with friends and it's one of the best clubs that we've joined just because it's fun, creative and it's a good way for you to make sure that you get a scholarship and get into college.



West Warwick High School

Eugene Gallo, Nelson Dasilva
By West Warwick SMILE Club

SMILE, otherwise known as the Science and Math Investigative Learning Experiences Program is a program that allows its members insight of math and science. In earlier years we have worked on topics such as cranes, maglev trains, and last year, ROV. This year we have been working on mini-projects that correlate to ocean and currents, to aviation. No matter what task is given to us, we take it and work with enthusiasm and a desire to learn.

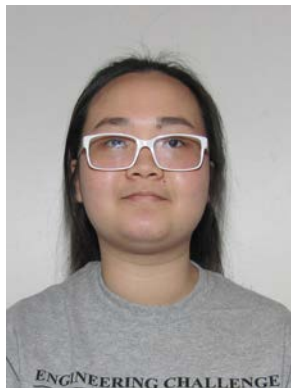
Throughout our second semester we began studying air and its effect on certain objects. In one of our first experiments, we had tested a ping pong ball and its adaptive lift through a steady stream of air. By doing this we were able to have a ping pong ball float in mid air and control its position. Later on we began taking our adaptive lift theories and applying them towards building a variety of different projects. For instance, helicopters, flying wings, and paper airplane engineering were some of our projects. We also studied various topics in the region of aerospace engineering and will hopefully be able to apply all of this at our challenge weekend.

Challenge weekend, the main event of SMILE, is a unique engineering experience held at the University of Rhode Island. Our activities and experiments throughout the year prepare us for these two days, where we collaborate with several different schools. Students are randomly put into groups and are faced with an engineering challenge to finalize in a certain amount of time. The students must work together to create the most efficient machine or structure to complete the desired goal. At the end of the day there is an awards ceremony and discussion about techniques that worked and ones that did not. Information is also available for everyone about the scholarships, different careers in science, math, and engineering, and the path to get there.





Matthew Spearman
Woonsocket High School
Undecided
Nursing



Nhi Doan
Shea High School
URI
Pharmacy



Faye Calamba
Shea High School
RIC
Nursing



Jonathan Masters
Woonsocket High School
CCRI
Game Design



Gustavo Esteban
Central Falls High School
URI
Engineering



Gina Mendoza
Central Falls High School
Roger Williams
Engineering



Elsie Hernandez
Central Falls High School
Undecided
Occupational Therapy



Gregorio Benitez
Central Falls High School
Brown
Computational Biology



Helen Magana
Central Falls High School
RIC
Neuroscience



Krishna Smith
Rogers High School
CCRI
Nursing

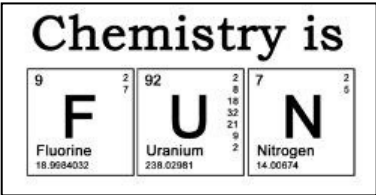
Recognition of SMILE seniors not pictured above:

- Samuel Lomax, Shea High School
Cedrick Dacosta, Shea High School
Adama Jammeh, Shea High School
Helder Gomes, Shea High School
Giovanni Silva, Shea High School
Daniel Kelley, Woonsocket High School
Zachory Leveillee, Woonsocket High School
Derek Trustt, Woonsocket High School
Monica Campbell, Woonsocket High School
Alexandra Gonzalez, Woonsocket High School
Trevor Ortelt, South Kingstown High School

Central Falls High School

Laura Stanish, Lydia Conley
By Central Falls SMILE Club

This year has been an amazing experience for our SMILE club at Central Falls High School. As we wrap up the year and prepare for the Challenge Weekend we look back on all of the things we’ve learned, experiences we’ve had and wonderful memories we’ve made. First semester we had a great time learning about our oceans. The activity that had the biggest impact was the albatross bolus dissection. Through this experiment we saw how detrimental the impact of humans has been on animals living in and near our oceans. We had so much fun on our field trip to Newport to learn about the seals that call Newport Harbor home. Although it was cold, the chance to see these animals in their natural habitat was a once in a lifetime experience that we will always remember. The district’s Family Science Night was a wonderful opportunity to show our families all that we’ve been learning. It was also great to see the younger SMILE club members and teach them a little bit about what we at the high school have been doing. Second semester we’ve been learning about flight. We’ve made airplanes, helicopters, gliders and so much more! We’re really looking forward to the Challenge Weekend and are ready to apply all of our new knowledge and show off what we’ve learned.



West Kingston Elementary School, South Kingstown

Sharon Pyne, Debi Vannoy
By West Kingston SMILE Club

The SK SMILE Club had the following to say about some of their favorite SMILE 2016 moments:

- “Building an ecosystem and watching the fish, cricket and plant feed off one another. We built something amazing.”
- “Going to Family Science Night and teaching people about what you can do to prepare for a hurricane. I got to teach people useful things that will actually help them stay safe.”
- “Learning about oceans.”
- “Building a house out of construction paper and seeing how well it would last against the harsh winds of a blow dryer and fan. Then trying to figure out how to make a stronger one.”
- “The field trips to Narragansett Beach for the clean-up (we found 1000 cigarette butts and an eyebrow pencil). The waves were huge and they splashed us.”
- “The field trip to the Oceanography School at URI.”
- “The biotic and abiotic game.”
- “Making clouds in a bottle.”
- “Hurricane tracking.”
- “Mixing the different soils and growing plants.”
- “Learning about storms and other natural disasters.”
- “The Bear Habitat and Bear Games.”
- “Going out on the boat.”
- “Learning about habitats, food, water, and predators.”
- “Making bird feeders and hanging them in our Nature’s Classroom.”
- “Heating the water in the balloon experiment and hearing it pop so loud.”





Students rotated through three different areas of the campus for their hands-on activities. At the greenhouses, they conducted an experiment with different types of soils to determine their capacity to retain water. They also transplanted young tomato plants to grow at home. In the Center for Biotechnology and Life Sciences, students identified and handled some marine organisms in the Thornber Lab and participated in a seaweed scavenger hunt. In the North Woods, students looked for signs of life at a vernal pool, where they found many frog and salamander egg masses and hundreds of newly hatched tadpoles. After testing the vernal pool water for temperature and dissolved oxygen content, they had some time to explore the terrestrial areas around the pool for red-backed salamanders, snakes, and invertebrates.

In addition to the science activities, SMILE students ate lunch with college students in Butterfield dining hall and toured other areas of campus. SMILE students were also able to learn more about what it takes to get into college from four URI Talent Development students who shared their experiences and gave advice to and answered questions from the eager elementary students. Before bidding college life farewell, each club entertained each other on the Science Quad with a short performance about the environment. At the end of the day, many 4th graders were overheard claiming how they could not wait to go to college!

SMILE Horticulturalists and Soil Scientists learn about soil, water retention, and tomato plants at the URI Greenhouses.



SMILE students learn about soil and plant their own tomato plants to take home.

SMILE Marine Ecologists learn about local marine life and seaweed through hands-on identification and a scavenger hunt at URI's Center for Biotechnology and Life Sciences Thornber Lab.



SMILE Herpetologists and Ecologists explore the North Woods in search of salamanders, snakes and invertebrates at a vernal pool.



Above: A SMILE student, tests the vernal pool's temperature and dissolved oxygen level

