

Elementary Outdoor Science Adventure

Inspiring Young Minds Through Connection To Role Models & Nature



Some would argue that it was the best Elementary Outdoor Science Adventure (EOSA) yet. This was the 18th one, and we had 100 4th and 5th graders participate from Central Falls, South Kingstown, West Warwick, and Woonsocket. URI mentors, who started planning in January, made this weekend happen. Students and mentors developed incredible bonds as they taught and learned environmental science and interacted during the campfires, cabin talks, and mealtimes. URI students are the best role models. They worked together as a team and trusted each other. They made college more transparent for students and held high expectations. Plus, we had AMAZING weather, and saw incredible wildlife! Connection to nature is priceless!

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Middle School Engineering Challenge Weekend



Design, Build, and Test Bridges

This year at the Middle School Challenge Weekend SMILE students designed and built truss bridges using just bamboo chop sticks and glue. 135 SMILE students from Central Falls, South Kingstown, West Warwick, Pawtucket, and Woonsocket came onto the University of Rhode Island campus to experience what it is like to be an engineer.

To build the bridges, students needed to work to a set of specifications and work within the limits of a budget. They tested their designs, made changes, and then watched their structures perform under high stress testing.

Elementary Outdoor Science Adventure



Entomologists

Students compared the soil quality and the invertebrate communities in the meadow and forest. They measured soil pH, temperature, moisture, and forest canopy density.

Critter Counter

Students become Invertebrate experts finding and classifying, ants, beetles, millipedes, worms, spiders, ticks and many other critters. Students kept a tally of the invertebrates found in the soil samples in their field notebooks. They also sorted the things they found in the site into biotic and abiotic categories. Then they analyzed the data observing the difference between the two habitats and how changes of the outside factors could affect the two communities.



The Sun Is On My Side

At the secret forest of the *LEDGES* students studied how the sunlight affects the area. Using a densitometer they measured the canopy density. A light intensity meter was used to measure light intensity in three different locations. Students learned about tree parts, and the difference between deciduous and coniferous trees, shrubs and grasses. They counted the rings in a tree to predict its age and also learned about photosynthesis.



Soil Composition.

How does it feel: gritty, smooth, and sticky? Students analyzed the soil composition and the percentage of clay, sand and silt in their samples. They measured the soil pH and temperature near the trees and identified the types of trees that grow in acid or basic soil.

Elementary Outdoor Science Adventure



“Turtelly” Awesome Trophic Levels

Students investigated abiotic and biotic factors in the sunny and shady areas of the turtle pond. They measured pH, dissolved oxygen, canopy density, light intensity, and temperature. They did a plant and animal survey of these areas, and they also identified organisms by their trophic level. Students kept records in their field guides and at the end the group discussed how the abiotic and biotic factors impact the organisms and their habitats.



“Water We Learning Here?” The Wonderful Water Cycle

Students learned about the water cycle and how it relates to plants and animals, and pollution, performing a series of water quality tests for pH, Dissolved Oxygen, and temperature levels. They also collected and identified macro-invertebrates, organisms that can be used to assess the health of the aquatic environment.



Final Project: The Wonder Bug

The Wonder Bug is miraculous because it survives specific environmental conditions. Students were challenged to apply all their new found knowledge to identify a place in the landscape where this bug may live and thrive. They had to calculate the soil depth where it might live at this time of the year and then to decide if the final field site was habitable for the Wonder Bug. At the end of the camp, each group of students presented their final study to an audience of parents, siblings, college mentors and teachers.

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Middle School Challenge Weekend

SMILE students spent several weeks learning about bridges, earthquakes and their effects on structures. In each club, groups of students designed and constructed small truss bridges made out of balsa wood that could withstand severe ground shaking as occurs during an actual earthquake. During the challenge Dr. George Tsiatis, Chair of the Department of Civil and Environmental Engineering, tested the balsa bridges for ability to support transverse acceleration using an earthquake simulator (Shake Table).

The construction and testing of model bridges promotes the study and application of some fundamental principles in mathematics and physics. This experiential learning activity teaches basic principles of load and force transfer through truss design. The activity also helps students develop teamwork and problem solving skills. SMILE students worked with students from other school districts and with college students mentors in science and engineering majors. The students quickly learned that the collaborative synergy of the group often produces the best results.

The Challenge Weekend is a fun way to visit a college campus, and it provides an opportunity to get young people interested in science, math and engineering careers. Young SMILE students learned a lot about student life on a college campus; ate meals in a dining hall, and enjoyed recreation time at Tootell Gym. Saturday morning activities included tours of the URI campus led by Office of Admissions tour guides, and an "Introduction to preparing for College" presented by Coral Maack, URI Admissions officer.

SMILE Director, Carol Englander welcomed the students, explained what engineers do, and presented the specifications of the challenge



Shake table test for the balsa wood construction.



Dr. George Tsiatis, Chair of the Department of Civil and Environmental Engineering tested the balsa bridges with an earthquake simulator (Shake Table).

Only a few "survived"



Learning new skills

Teamwork

Problem solving

Working in teams with URI student mentors they immediately got busy with team building activities followed by the design and construction phase.

Students had to first draw a full size template of their bridge, with the correct geometry, component lengths, and distance of the joints. The bridge had to cover a span of 20 inches. The overall length of the bridge was between 22-23 inches and the model had to allow a 4 inch x 4 inch high block to pass through it over the roadbed.



Aiming students to become tomorrow's engineers and scientists



Construction Accounting Math Challenge

Given a maximum budget and cost of materials, students needed to determine the total cost of their bridge. Teams were given an inventory sheet with the cost for each bridge component itemized. Students kept track of expenditures for the additional supplies needed to modify or adjust their design. Construction equipment included bamboo chopsticks, glue guns, cardboard, straws, and super easy cutters. An accurate account of team expenses was handed in at the end of the Challenge.



"Bridge Buster"

Jeff Cathcart, URI Transportation Center Outreach and Education director, attached the completed bridges to the testing mechanisms: a bucket attached to a bolt inserted in a wood plank sitting on the road bed. Weights were added to the bucket until the bridge collapsed. The students then determined their bridge's efficiency, (the mathematical ratio of the weight held by the bridge, to its own weight (load(g)/ bridge weight(g)).



Student teams were given recognition for the bridge that was "most aesthetically pleasing", most efficient, held most weight, and exhibited Best Team Work.



SMILE Bridge Record is broken!!

An all-time record of 122 lbs. of maximum load was set this year.

The previous maximum load was a mere 89 lbs.

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Woonsocket Middle School

Lisa Desante
Rania Aghia

Hello, we are the second SMILE program at Woonsocket Middle School. Today we will be explaining what we have been doing in SMILE. We are building bridges out of balsa wood and using wood glue. It was hard at first but when you work together in a group it gets easier. That's what I learned from this group activity. At times it was hard because the cross section of the bridge had to be 4mm by 4mm (1/8 inch square), and it has to be made of balsa wood which is a very light wood. This project was very complicated with all of the measurements and the wood is oh! so delicate! Even though it was tough we all had so much fun building it. This project came out to be so amazing. We enjoyed this project so much;

I hope we can do it again sometime soon!

During the bridge tour and Roger Williams University visit we went around the area in a bus, drawing and observing the largest bridges in the area. We also observed the structure of one of the bridges from below. On our way we stopped at Roger Williams University. A person from admission stalked to us about scholarships. We also toured around the campus. We enjoyed this trip because it was great to see all of the bridges, and the visit to Roger Williams University was very insightful.

Shea High School

Ann Marie LaRoche
Jennifer Blanchard

This year in our SMILE club our best field trip was to URI for Challenge Weekend. Shea High had the highest marshmallow tower! At URI Pharmacy lab, we enjoyed the human patient simulators. We worked in a hospital like setting saving babies and patients. Overall the challenge was a great way to meet other SMILE members, and teachers from different schools. Everyone loved the food and recreation time.

As part of the Watershed activities, We went to the Blackstone River and collected water samples. At the challenge we were able to see tons of data from the samples all SMILE clubs collected. One of our favorite activities was the Biotechnology DNA Lab, Before we went to the challenge we learned to use micro pipettes and we also made candy DNA models!

Our final project this year is a Stewardship Project. We are creating gardens around Shea High steps. We are hoping to make Shea High more alive and beautiful and not look so sad.

SMILE is a great program to join and be a part of!



Our Family Science Night was in April, and we demonstrated our biotechnology skills and engaged our parents in a contest to build the tallest spaghetti tower.





Letter to the 2014 EOSA URI College Mentors from SMILE Director, Carol Englander:

As I reflect on the SMILE Elementary Outdoor Science Adventure (EOSA) weekend, many very positive memories flood my mind. I was very impressed with your gentle and kind approach to all the students. It made for a very harmonious experience for all. I also remember the first EOSA class meeting when you were trying to understand how to select a topic, unsure of location, and getting acquainted with some URI students you had never met. I observed a little bit of apprehension and lots of “can do” spirit. Week after week as you developed a field study and learned about the social aspects of the EOSA weekend – campfire, cabin talks, and mealtime – your confidence grew, as did your trust in each other. Being a teacher is no easy task. Your lessons were well received and your ability to be a positive role model was outstanding. The science you taught to our young SMILE students along with your “college connections campfire talks” has made them more aware of the high expectations they should have for themselves. We have put these 4th and 5th graders on a path to higher education through a very meaningful series of hands-on environmental field studies and fun activities. I know that you have had a positive impact on these SMILE students, and on each other.

I am very proud of each of you and I take this opportunity to thank you for being a part of the very successful 2014 EOSA.

URI Mentors transmitted their passion for science and excitement for college



SMILE High School Graduates 2014 And Post High School Goals



Zoe Cloutier
West Warwick High School
URI Undecided



Gency Dominguez
West Warwick High School
CCRI Undecided



Jon Perry
West Warwick High School
WPI Physics



Peter Ricci
West Warwick High School
WPI Biomedical Engineering



Jean Paul Valencia
Central Falls High School
Harvard University
Undecided



Regina Ruano
Central Falls High School
RI College Undecided



Julian Mercado
Shea High School
URI Engineering



Malene Correia
Shea High School
CCRI



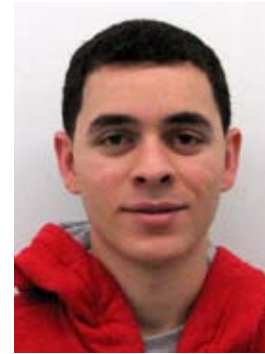
Dilma Gonsalves
Shea High School
CCRI Nursing



Sthacas Rodney
Shea High School
Arizona State University



Nicole Torres
Shea High School
Johson & Wales



Allan Fernandes
Shea High School
CCRI Business

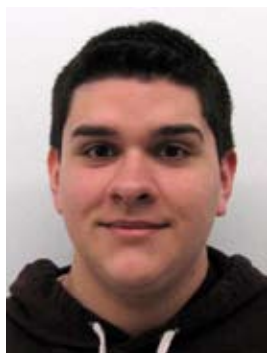


Olivia Gomes
Shea High School
CCRI Nursing



Leslei Nguyen
Woonsocket High School
Johson & Wales

SMILE High School Graduates 2014 And Post High School Goals



Edgardo Ortega
Woonsocket High School
URI Undecided



Cheyenne Nelle
Woonsocket High School
Texas A&M University
Biology



Varsana Schobel
Woonsocket High School
University of New Haven
Biology/ Premed



K-Lee Durance
Woonsocket High School
CCRI



Ashley Aubin
Woonsocket High School
Johson & Wales University
Criminal Justice



Meghan Cortez
Woonsocket High School
CCRI



April Daignault
Woonsocket High School



Raul Diaz
Woonsocket High School
CCRI



Kayla Roman
Woonsocket High School
CCRI



Jason Hathaway
S. Kingstown High School
URI



Shannon McKee
S. Kingstown High School
URI, Biomedical Engineering
and French



Rachel Carley
S. Kingstown High School
URI , Pharmacy



Julia Ottaviani
S. Kingstown High School
Simmons College, English

Coleman Elementary

Jennife Paolozzi
Anissa Hoard

S-M-I-L-E spells SMILE!
We want to make a compost pile!

We love to study decomposers,
They destroy like huge bulldozers!

When we were goin' hikin'
We found a lot of lichen

We thought there was no fungus
We looked and it was humungous!

A plant we found is called night shade
If you eat it you will fade.

We love SMILE, we love SMILE
Guess what we have seen?

We have seen pokeweed
We have seen grass

Timothy grass
You just can't pass

Aidan's Spider Poem

Stalking in the forest is a bunch of spiders
Looking in holes for tasty hidlers.
Sweating in the crazy heat
Looking for a tasty treat.
Then they spot, in the humid air
A beetle flying without care.
Zing! One spits silk on a leaf
And turned the beetle into crunchy ground beef.
The beetle falls, the spiders swarm
And they eat it! It was still warm
Soon all there was an old empty shell
And that, my friend, is the story it tells.



Creating a line transect
we learned how to track
the populations of local
plants and animals.

Middle School Bridge Tour and Roger Williams University Visit

Sponsored by URI Transportation Center

College Early Awareness



Don Mays, Admissions Officer, Roger Williams University, speaks to students about courses to take in high school to get into RWU

Bridge Engineering Explorations



Students draw the Mt. Hope Bridge

Slater Jr. High School

John Martinelli
Michael Gavin

SMILE is a great extracurricular program. It educates you about the little things you would usually take for granted. For example, this year we learned about the different types of bridges, porous and non-porous areas, and other information about the environment. We know all this because we have been in SMILE since the very beginning. It's been a long road and we've learned so much.

SMILE is not only educational but also fun. Every year SMILE students attend their annual challenge weekend at University of Rhode Island.

SMILE clubs also hold an annual Family Science Night where the SMILE family can come and see all the work done in SMILE.

This year our SMILE club got a chance to go on a Blackstone Valley Boat Ride Explorer trip. SMILE is an amazing program. It isn't only good to be in because it gives you a great and fun learning experience; it also helps your future because SMILE is an extracurricular that looks great on college applications!

Watershed Project



As part of the watershed curriculum we took a fieldtrip on the Blackstone Valley Boat Ride Explorer

Bridge Building

In preparation for the Engineering Challenge Weekend we studied and built bridges. During Family Science Nights we presented different types of bridges.



Students explored bridges throughout the world learning about types of bridges, the physics, and mathematical concepts as well as the materials use in the construction of bridges.



Working in groups, students tackle the concepts of bridge building while constructing their own bridges.

SMILE May Teachers Workshop May 2014



SMILE teachers spent the day in both evaluation of the 2013-14 year and also learning new science skills. The SMILE power point year in review had pictures of all our events including club meetings, family science nights, teacher workshops, high school biotechnology engineering challenge at URI, the elementary outdoor science adventure at W. Alton Jones campus, the middle school Bridges engineering challenge at URI, and numerous field trips. Afterwards, Wynston Wilson, from URI Talent Development, informed the teachers about the scope of TD, student selection, and the services it provides to its students. This was followed by an extensive evaluation of each school district facilitated by SMILE staff. After lunch the middle school and elementary school teachers visited the Pharmacy human simulation lab where Dr. Amanda

DeAngelis- Chichester showed the teachers the different reactions the human simulators can exhibit under varying conditions and drugs. It is computer controlled and very life like. With the help of Linda Forrester, elementary school teachers also had the opportunity to gain micro-pipetting skills and learn how to add samples to gels that are used in gel electrophoresis to identify parts of DNA. High school teachers went to the Pharmacy medicinal gardens where Dr. Navindra Seeram and Peter Morgan showed them different plants and explained their importance in finding and developing new drugs. It was both a reflective day and a day with introduction to new STEM subjects. Teachers left the workshop with new knowledge and shared ideas.

Middle School Challenge Weekend

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Saturday morning activities included tours of the URI campus led by Office of Admissions tour guides and an "Introduction to preparing for College" presented by Coral Maack, URI Admissions officer.



At the closing ceremony, student teams were given recognition for the bridge that was most aesthetically pleasing, most efficient, most weight held, and exhibited best team work. Students were recognized by the SMILE Director for their participation in SMILE for 5, 4, or 3 years. All students were congratulated for having put themselves on a path to college and having high expectations for themselves.

A "THANK YOU"

to all our teachers, URI faculty and student mentors, and sponsors who helped to make this Challenge a wonderful experience.

Central Falls High School

David Upegui
Laura Stanish

Connections

By Sharil DeLeon and David Upegui

As we use science as a way to learn about our universe, we come to the conclusion that everything is truly connected. The Central Falls High School SMILE program affords us the opportunity to improve our scientific skills such as observations, hypothesis generation and data collection; as well as the chance to expand our contextual knowledge. This year we concentrated on biotechnology and persistent chemicals which included collecting local samples from our city. During the time when we learned about technology, we used techniques and equipment that is actually used in the real world such as micropipettes and gel electrophoresis. We also collaborated with the other SMILE clubs from our city during our “Family Science Night”. That event was well attended and the younger students shared with us about their experiences in SMILE.



Without knowing it, all the activities that were performed during the SMILE club meetings prepared us to deal with our classes and even the science NECAP test - after all, everything is connected. For example, while learning about biotechnology, we came to understand the fact that we are able to manipulate organisms’ DNA to create solutions to some of our everyday problems (such as having bacteria produce insulin). From this process, we also became familiar with the parts and functions of different cells. Since we were exposed to this material, when we participated in the SMILE Challenge Weekend we felt prepared to fully participate and enjoy the experience to the fullest.



SMILE students earned the bronze medals in the Science Olympiads.

As we continue to expand our knowledge, we come to appreciate how the opportunities we have are truly changing the way that our brains work. For example, I feel more prepared for my senior year and college because I know that through focus and dedication knowledge is accessible to us. Lastly, the more we learn about biology, chemistry, physics and even the humanities; I can clearly see that everything is connected.



**Community involvement
Our stewardship project**

Insects, Plants, and Ecology at URI W. Alton Jones Campus



Invasive Insects, Cool Bugs, and Invasive Plants.

Middle and high school SMILE students from South Kingstown, Pawtucket, Central Falls, and Woonsocket had a blast learning from dedicated URI graduate and undergraduate students, Mauri, Chris, Liam, Jamie, Will, Elwood, and Justin.

This field trip was part of an ongoing outreach effort made by **Dr. Evan Preisser**, who is a URI professor and community ecologist interested in understanding how food webs ‘work.’ He and his team of graduate and undergraduate students specifically study the hemlock woolly adelgid, which has been implicated in the decline of the hemlock throughout the eastern US. Through a grant from the National Science Foundation, Dr. Preisser and his students were able to teach SMILE students more about insects, plants, and ecology.

Mauri Hickin, an MS student in the Preisser Lab, is particularly interested in outreach and teaching. She planned and organized this informative and fun field trip. The trip consisted of three stations, including *Invasive Insects*, *Cool Bugs*, and *Invasive Plants*. Each station was filled with specimens and two experts to talk about them. The students were able to ask questions, and the URI students also made a point to talk about career paths too! It was eye-opening for many students giving them an idea about the many opportunities in the field.

Then we all went on a short hike, where we stopped by a rock wall to learn about lichen, a vernal pool to see aquatic insects, tadpoles and egg masses, and we also stopped by a beautiful pine grove.

The purpose of this field trip was to get students excited and acquainted with the world of insects, plants and ecology. It was a fun time, and we look forward to more trips with the Preisser Lab in the future!



Mauri Hickin, MS Graduate student in Dr. Preisser's Lab, is particularly interested in outreach and teaching. She planned and organized this informative and fun field trip.



CENTRAL FALLS

Ella Risk Elementary School
Sheryl Wilson
Peggy Boyer

Calcutt 5th grade
Karen Cardoza
Lee Karns

Calcutt Middle School
Sarah Peixoto

Central Falls High School
David Upegui
Laura Stanish

NORTH KINGSTOWN

N. Kingstown High School
Karen Finlan

PAWTUCKET

Shea High School
Ann Marie LaRoche
Jennifer Blanchard

Tolman High School
Kevin Collard
Jason Rushton

Slater Junior High School
Michael Gavin
John Martinelli

SOUTH KINGSTOWN

West Kingston Elementary
Debi Vannoy
Cynthia MacNeil

Curtis Corner Middle School
Gina Haberlin
Jo Ann Basel

S.Kingstown High School
JoAnn Basel
Diane Wilkens

WEST WARWICK

Horgan Elementary School
Maria DePalma
Amy Horne

Deering Middle School
Eugene Gallo
Christopher Baccei

West Warwick High School
Eugene Gallo
Nelson DaSilva

WOONSOCKET

Harris Elementary School
Heather Neil
Stephanie Roberts

Coleman Elementary School
Jennifer Paolozzi
Anissa Hoard

Citizens Elementary School
Melissa Moniz
Jodi Cifelli

Woonsocket Middle School (2 clubs)
Paulette Metivier
Denise Fontaine
Lisa Desante
Rania Aghia

Woonsocket High School
Julia Grassini
Ethel Locke

Amgen Foundation

Amgen International Network

Amgen Biotech Experience

Amica

Blackstone River Coalition

Collette Vacations
Alice I.Sullivan
Charitable Foundation

**Connecting For
Children and Families**

Eaton Aerospace Foundation

Dominion Foundation

Graphic Expressions

**URI Graduate
Students Association**

Holiday Inn South Kingstown

**Lloyd G. Balfour Foundation, Bank
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NOAA B-Wet Program

Pawtucket COZ-21st Century

Ramsey McCluskey Foundation

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Steere Engineering

Toray Plastics, America, Inc

University of Rhode Island

URI Transportation Center

**YMCA of Greater
Providence**

Central Falls School Department

**North Kingstown School
Department**

**South Kingstown School
Department**

**Pawtucket School
Department**

**West Warwick School
Department**

**Woonsocket School
Department**

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SMILE Newsletter

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

ONLINE



www.uri.edu/smile

20th Year of service

Calendar

Weekly SMILE Club Meetings
Scientific and Career Exploration Field trips

Family Science Nights

November-December 2013

Special Annual Events

High School
Challenge Weekend
March 21-22, 2014
URI Kingston Campus

Middle School
Engineering Challenge Weekend
May 2-3, 2014
URI Kingston Campus

Elementary School
Outdoor Science Adventure
April 11-13, 2014
URI Alton Jones Campus

Teachers' Professional Development Workshops

December 5, 2013	May 19, 2014	August 12-14, 2014
University of Rhode Island	University of Rhode Island	University of Rhode Island
Math and Science Curriculum	Math and Science Curriculum	Math and Science Curriculum
Special Events Planning	Special Events Planning	Planning for the year