THE UNIVERSITY OF RHODE ISLAND
SMILE Program
Science and Math Investigative Learning Experiences

In Rhode Island School Districts

Central Falls
North Kingstown
Pawtucket
South Kingstown
West Warwick
Woonsocket

Newsletter and Report
volume 18 No. 3, May 2012

MIDDLE SCHOOL ENGINEERING TRANSPORTATION CHALLENGE WEEKEND

SMILE students from Central Falls, Pawtucket, South Kingstown, West Warwick, and Woonsocket came onto the University of Rhode Island campus. The challenge was based on a real -life transportation project. Each group of students had to design, construct and test a maglev train and a tower crane capable of lifting the train onto a magnetic track. p.2

Real science
Real world experiences
Critical thinking
Connection with nature
College awareness
Building community
Creating future leaders

ELEMENTARY OUTDOOR SCIENCE ADVENTURE

The Elementary Outdoor Science Adventure is an event to remember for all involved – it is life-changing for SMILE students and college students alike. URI students spend a semester planning and preparing for making the EOSA a meaningful and powerful weekend for the 4th and 5th grade SMILE students. They plan environmental field studies and think about ways to build self-esteem and confidence in these incredible young people and encourage them to continue with SMILE through 12th grade and to attend higher education. Most importantly, their love for learning and a spirit of fun and adventure is fostered. It was a huge success. p.6

Middle School Engineering Challenge Weekend

On Friday morning, Dr. Jason Pina, URI Dean of Students, welcomed the students to the University of Rhode Island. Stephen Devine, Chief of Intermodal Planning at the RI Department of Transportation, explained the importance of trains in transportation and how they are expanding in RI and the northeast corridor, He also talked about the exciting career opportunities in transportation.

The design and construction phase of the engineering project was definitely challenging. URI Transportation Center engineer Jeff Cathcart presented the challenge rules and specifications.

Working in teams, students designed, built, and tested cranes capable of lifting and placing the mag lev trains on the track. Construction equipment included wood, wire, dowels, paper clips, nails, string, Styrofoam rectangles, magnetic strips, tape, drills, and other assorted tools.

These students became engineers in several ways. Working with college students in science and engineering and other majors, they learn the engineering process of design , build, test, adjust and test as many times as needed.

Dr. Jason Pina, URI Dean of Students, welcomed the students

Stephen Devine, Chief of Intermodal Planning at the RI Dept. of Transportation, explained the importance of trains

Students became engineers for a day

The crane's boom had to move up and down using a hydraulic system built with syringes connected by plastic tubing, and left to right using a gear system. Also a cable with a crank system was used to lift the maglev train.

Teamwork

Problem solving

Learning new skills

Jeff Carthart from URI Transportation Center, instructed how to use power tools at the tool table.

Aiming students to become tomorrow's engineers and scientists

Students Designed, Built and Tested Cranes and Mag Lev Trains

Once the models were built, the teams tested their cranes and maglevs trains for all to see. To place the trains on the magnetic tracks, the cranes needed to raise the train using a hydraulic system, and to swivel and place the train on the track. The second part consisted in recording the time it took after the train is released from the boom, to the time it took to move down the track by gravity and magnetic repulsion. The fastest overall time was 7.04 seconds, a tie between teams 2 and 16. Team 2 had the fastest maglev car at 1.93 sec. Team 9 had the most effective swivel device, team 2 had the most effective cable winding device, team 8 had the most overall efficient crane.

During the afternoon recess, URI students from the Center for Leadership led groups of students in ice breaker activities. The young SMILE students had the opportunity to learn a lot about student life on a college campus. They also ate meals in a dining hall, and enjoyed recreation at Tootell Gym.

The maglev train had to travel the length of a magnetic track as fast as possible.

URI Student Mentors

Center for Leadership, SWE (society of women engineers), and other college representatives

Saturday morning activities included tours of the URI campus and "introduction to college" talks. The tours were led by Office of Admissions tour guides. The "introduction to college" activities were planned and presented by SWE (society of women engineers), and students mentors from various organizations. Carol Englander, SMILE Director, instructed students on how to plan their four year high school schedule and to include the necessary science and math courses to go to college. She also described the URI Transportation summer camp and invited students to attend. A closing ceremony included congratulations to all our students and the Director recognized the students with multiyear commitment to SMILE. A "THANK YOU" to all our teachers, URI faculty and student mentors, and sponsors who helped to make this Challenge a wonderful experience.

SMILE High School Graduates
2012

Abimael Garcia
Central Falls High School
Engineering
CCRI-URI

Bintou Camara
Central Falls High School
Nursing
URI

Brian Chan
West Warwick High School
Pharmacy
URI

Bryan Dominguez
Central Falls High School
Engineering
CCRI-URI

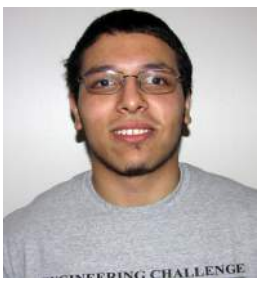
David Hernandez
Central Falls High School
Medicine
Brown University

Herman Carrizales
Central Falls High School
Architecture-Engineering
CCRI-URI

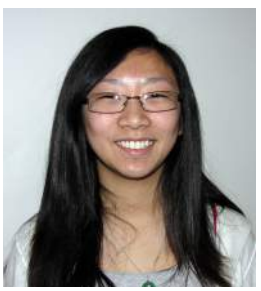
Jasmine Rivas
Central Falls High School
Undecided
RIC

Jose Rodriguez
Central Falls High School
History
CCRI-URI

Joshua Talentino
Shea High School
Bio Pre Medicine
Northeastern University



Olger Quintero
Central Falls High School
Information Technology
CCRI-URI



Lisa Li
West Warwick High School
Undecided
URI

Pedro Raposo
Central Falls High School
Engineering, Math
URI

Robert Naylor
North Kingstown High School
Microbiology
CCRI-URI

Sasha Gonzalez
Central Falls High School
Pre Medicine
URI

Tyler Plante
Woonsocket High School
Pharmacy, Nursing
URI

Shariela Jimenez
Central Falls High School
Env, Sciences, Business
URI

Aurelien Tetchi
Shea High School
Navy

Jefty Perez
Central Falls High School
Undecided
CCRI

Katty Greco
Central Falls High School
Undecided
URI

Eder Pineda
Central Falls High School
Architecture
Roger Williams University

Jennifer Avalos
Central Falls High School
Biology
URI

Bruckey Burke
Central Falls High School

Yuleidy Acevedo
Shea High School

Central Falls High School

David Upegui

Now that we have it, what do we do with it?

By Pedro Raposo & David Upegui

Knowledge that is not used, is wasted. In our education, what is more important than applying knowledge and learned skills? At least that is the way that we feel about the knowledge that we gained during our time in the SMILE club.

During this past year we have spent a lot of hours sharing and learning with each other. We have visited all the major waterways in our small city and finally settled in an area of investigation on the Blackstone River. In the Fall we visited this site several times and took pictures of the investigations we performed there (including dissolved oxygen levels and macro/micro fauna). We also prepared diligently for the SMILE weekend challenge which also involved thinking about our aquatic ways and the ecosystems that are supported in those habitats. Therefore, we built a tremendous amount of knowledge about these concepts.

But, what to do with that knowledge? How do we apply it? Well, the best answer is to use this knowledge to help our very own community. Central Falls has historically been abused by many factors and entities, but now it is our time to help improve our city, its image and most importantly the immediate environment. There were two potential projects we had to choose from and as a group decided on a rain garden because of its benefits to society including making the city look nice and more Eco friendly. We have set out on a path to create a rain garden in our city and we have visited possible sites where our garden would most likely prosper. However, we have come up with many difficulties given the fact that our city is truly a "concrete" jungle - with little open and green spaces.

As luck turns out, we have found a project which we hope will become the center piece of our club this year - the restoration of an area of our city to celebrate North America's First Chocolate Mill. Within this restoration project, we will play an integral role and we will be building the garden itself. We are looking forward to "getting our hands dirty" and helping our city become the beautiful place that we know it truly is.

Making a Rain Garden

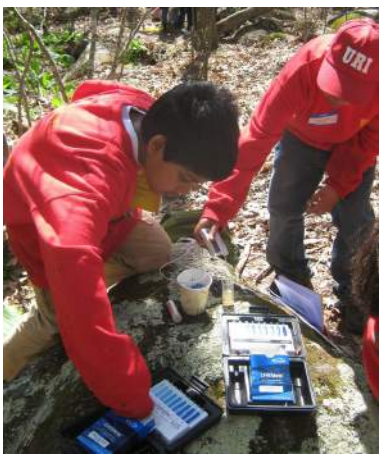
SMILE Community Day of Action

" Our project to help improve our city image and most importantly the immediate environment is the restoration of an area of our city to celebrate North America's First Chocolate Mill. Within this restoration project, we have played an integral role and we have built a rain garden."

Elementary Outdoors Science Adventure

A New Hop
Herpetologists:

Students investigated the abiotic and biotic factors at Bubbling Brook. They measured water pH, dissolved oxygen, temperature and the frog eggs' density to determine if the pond was a good home for Fredrick Fiddlestick the Frog! Students also learned about the frogs' life cycle and determined which factors would affect their healthy development.



Time MayFly When You're Having Fun
Hydrologists:

Students were challenged with a real world scenario. Dirty waters INC. wants to build a factory up the hill from a stream. Students needed to investigate what kind of impact the factory would have on the stream. To determine if the water was healthy, they measured pH, temperature, and dissolved oxygen, and they also collected and identified pollution intolerant and tolerant macroinvertebrates.

Love that Dirty Water
Environmental Consultants:

Based on data collection, students needed to make recommendations for proper land use and water management for construction on the site. First they found the water table identifying the different soil horizons. Second, they learned about erosion and measured the erosion potential with a Splash Board in the road and among the vegetation. Lastly, they evaluated the water filtration by analyzing soil textures such as sand, silt and clay. Based on all collected data, students were able to determine if a house and/or road could safely be built at the site.

Campfire

This year, the campfire was indoors due to the dry and windy conditions, but this did not stop us from having fun! We sang campfire songs, performed skits, and college students each gave an inspirational biography. There is nothing like some good campfire fun to build morale!

Discovering the world around us

Spring to Life

Entomologists, Biologists, and Herpetologists:

Students determined how abiotic and biotic factors limit the population of amphibians living in the vernal pool. A vernal pool dries up annually and is an important breeding ground for various species. Students measured the water pH and temperature and compared the pH and temperature ranges to that of a healthy pool. Using a Secchi disk, they measured water clarity and analyzed how water clarity effects frogs and mosquitos. Using nets, students collected, identified and counted frog and mosquito eggs.

Connections within an Ecosystem

Wildlife Biologists:

The student mission was to identify and determine the numbers of species in the Turtle Pond and marsh ecosystems and what trophic level the animals are found on the food chain. Students labeled the levels of the food pyramid as Primary Producers, Secondary Consumers, Tertiary Consumers, and Quaternary Consumers and classified the collected species according to which level they belong to. Students also drew conclusions about how abiotic conditions affect the different levels of the pyramid and how all of the levels are connected to one another to make the ecosystem.

Final Project and Presentation The Wonder Bug

The Wonder Bug is a miracle because it survives incredibly horrible environmental conditions. Students were challenged to apply all the new knowledge they acquired in order to identify a place in the landscape where the wonder bug may live and calculate the soil depth where it may live at this time of the year. Students prepared a presentation on the data collected at the new site and concluded if their final project site was habitable for the Wonder Bug. Each student spoke about one detail of the final study in front of an audience of parents, siblings, college mentors and teachers.

URI mentors transmited their passion for science and excitement for college

South Kingstown Elementary School

Debi Vannoy
Cynthia MacNeil

I like SMILE because...

You do experiments and you can be creative.

We learned how to do experiments that we would not have thought of ourselves like putting a paper towel in a cup, sticking it underwater and keeping the towel dry. Magic!!!

We have the opportunity to create our own experiments! Fun!!!

It makes science and experiments really fun.

I like math.

It is fun and interesting and you get to learn new things.

I like that in SMILE we get to do a lot of fun experiments; we also get to have fun while we are learning.

It is about my two favorite subjects, science and math. I also like SMILE because it is fun to do all these experiments.

Nice teachers, it is awesome!

I feel smart.

I like that we all work together and that everyone participates in the experiments and activities

I learned about science and how to make homemade glue!

I liked the one time when I did my presentation and I put a skewer through a
balloon out the other side without popping the balloon!

I liked how we make treats like our own ice cream!! Yummy!!!!

I used bubbles to power a paper boat! Cool!!

We made bird houses out of milk cartons. Everyone got to take one home!

Habitats!

We got to pick and do research on an animal!! We learned about habitats on our own animal and other animals. Very informative!

I am excited about the (EOSA) weekend!

I like SMILE because..

"It makes me feel smarter because we are learning lots of new stuff every time we gather."

Coleman Elementary School

Jennifer Paolozzi

Coleman students have been very excited to begin their SMILE Club experiences. We have been studying our local watershed, the Blackstone River, and have collected some water samples to test. We have also learned about the different characteristics of local fish and wildlife, studied ecosystems and food webs, created buoyant boats and marshmallow towers.

"My favorite part of SMILE is…

Everything!" -*Joshua, Austin*

The math stuff and going on field trips." -*Dominic*

Math and science because I love math and science." –*Sarina*

Learning about the food chain and everything else."-*Nayeli*

I really like science. And I like that we get to do activities."-*Nayelis*

When we do science like when we did the marshmallows."-*Jasmine*

I love science a lot." –*Jovanny*

We do a lot of science but that is fun at the same time."-*Yazmin*

The marshmallow and toothpick and fashion a fish."-*Jaliyah*

South Kingstown High School

Brenda Dillmann
JoAnn Basel

Our community service project.
"All drains lead to the sea."

We have had a wonderful year in our SMILE club at South Kingstown High School. Our enrollment jumped 50%, with many of our new members from the incoming freshman class. We started the year investigating what a watershed is and ways to safeguard watersheds from human impact. Taking advantage of the warm fall, our members donned waders to collect water samples from a local pond and complete an invertebrate study. This investigation allowed us to test the level of water pollution based on the organisms present in the ecosystem. The second half of the year was spend preparing for our challenge weekend. All members can say enthusiastically that they had an amazing time constructing ROVs at the University of Rhode Island. Working with students from all over the state and making new friends was definitely one of the highlights of the weekend. We are especially looking forward to testing the capabilities of ROVs in Narragansett Bay this spring. We are now looking at ways to apply our knowledge to a community service project. We have already received approval to use the SMILE club stencil on drains surrounding South Kingstown High School. Our message is…."All drains lead to the sea."

Slater Junior High School

Michael Gavin
John Martinelli

Monday, Monday, Monday!

It's the day when we get to solve problems, be creative, and have fun.

The SMILE club at Slater Jr. High is an excellent place to experience social and educational activities. Our experiments are worth doing. Through the past weeks we have been learning about Maglev trains, cranes, and magnets. All of these lessons prepared us for the SMILE challenge weekend, which was a blast! When we arrived at URI, the project looked very confusing, but as it went along everything got easier. The challenge was to build a crane and a model of a Maglev car. The crane had to be able to pick up the Maglev car and move it. Also the Maglev car had to be able to slide down the Maglev track. During this challenge weekend we had the chance to meet new students and interact in different environments with other SMILE members from across Rhode Island. In addition to completing the challenge, we also had time to relax at the recreation center and dining halls. The next day we received a campus tour of URI, and we went to the mini conferences; these provided us with a great deal of useful information about URI and college life. As you can see "being in SMILE in worthwhile".

Students are inspecting a local watershed directly off of Mineral Spring Avenue in Pawtucket; this watershed eventually flows into the Providence River. The students are using waders to collect water samples so that they can perform various tests on their samples such as temperature, turbidity, pH, and dissolved oxygen content.

SMILE Newsletter

University of Rhode Island
305 Memorial Union
Kingston, RI 02881

Volume 18 No.2, March 2012
Carol Englander, Editor
Lacey Schlachter,Editor
María-Gabriela Lizano, Publications

***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*

CENTRAL FALLS

Ella Risk Elementary School
Sheryl Wilson
Rosanne Gargano

Calcutt Middle School
Katie Vespia
Karen Fiore

Central Falls High School
David Upegui

NORTH KINGSTOWN

N. Kingstown High School
Karen Finlan

PAWTUCKET

Shea High School
Ann Marie LaRoche
Meg Battersby

Slater Junior High School
Michael Gavin
John Martinelli

SOUTH KINGSTOWN

West Kingston Elementary
Debbie Vannoy
Cynthia MacNeil

Curtis Corner Middle School
Gina Haberlin
Melissa Dushi

S.Kingstown High School
Brenda Dillmann
JoAnn Basel

WEST WARWICK

Horgan Elementary School
Geraldine Giroux
Amy Horne

Deering Middle School
Pam Kershaw
Melissa A. Pare-Rogers

West Warwick High School
Eugene Gallo
Nelson DaSilva

WOONSOCKET

Harris Elementary School
Heather Neil
Stephanie Roberts

Coleman Elementary School
Jennifer Paolozzi

Woonsocket Middle School
Geraldine Burgess
Tara Anderson

Woonsocket High School
Claire Laquerre
Ethel Locke

Thank You

Because of your continued support, we have provided another very exciting and successful year for SMILE students

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Amgen International Network

Bruce Wallace Amgen

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URI College of Engineering
Diversity Committee

Woonsocket Connecting
Children and Families

YMCA of Greater Providence

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Department

South Kingstown School
Department

Pawtucket School
Department

West Warwick School
Department

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Special Thanks to Our mentors from :

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URI Transportation Center
URI College of Engineering

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ONLINE

www.uri.edu/smile

18th Year of service

Calendar

Weekly SMILE Clubs Meetings

Scientific and Career Exploration Field trips

Special Annual Events

High School
Challenge Weekend
March 2-3, 2012
URI Kingston Campus

Middle School
Engineering Challenge Weekend
March 30-31, 2012
URI Kingston Campus

Elementary School
Outdoor Science Adventure
April 27-29, 2012
URI Alton Jones Campus

Teachers' Professional Development Workshops

May 11, 2012	July 17-19, 2012	November 30, 2012
University of Rhode Island	University of Rhode Island	University of Rhode Island
Math and Science Curriculum. End of year evaluation	Math and science Curriculum Planning for the year	Math and science Curriculum Special Events Planning

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