

A STEM PROGRAM

SMILE

Science and Math Investigative
Learning Experiences

Newsletter
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30 Years of Service *

This has been a great year so far for the SMILE Program. Students went on multiple trips including the Roger Williams Zoo and URI East Farm Apple Orchard. We had a series of Family Science Nights where students got to show their parents what they've been learning in their clubs. This month we also had the Middle School Engineering Challenge where students worked to design a crane and maglev train and then faced off in a March Madness competition to see who could lift their train and get it down the magnetic tracks the fastest.



MIDDLE SCHOOL ENGINEERING CHALLENGE

On March 28th, early Friday morning, around 100 SMILE middle school students from around the state gathered at the University of Rhode Island's Kingston campus for the 2024 SMILE Middle School Engineering Challenge Weekend. This year SMILE students were tasked to design and build a crane and maglev train car. Students from Central Falls, 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 competed against the other teams, using 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 Industrious Labs, Schneider Electric, and NUWC.

They day went as follows. SMILE Director Carol Englander welcome the students to URI. They were split into 17 teams, each table with 5-6 kids. The Middle School Program Coordinator, Jo Ann Basel explained the challenge to the kids. Each table got a materials bag, filled with building materials, specifications about the builds, instructions, and a budgeting paper. The teams first got to designing their cranes and trains. Through the afternoon students worked together on the crane and maglev with a lunch break and a tour of the URI campus where students got to see the Beupre Center for Chemical and Forensic Sciences, The Center for Biotechnology and Life Sciences, and the Fascitelli Engineering Building. After the design was finalized, a March Madness bracket was set up where the teams competed against each other to see who could lift their maglev train with the crane then slide their maglev down the magnetic tracks the fastest. Team 4 won with Team 12 getting second place! This challenge allows students to experience what it is like being an engineer and how to use ingenuity and problem solving to work through a challenge. All the kids and teachers had tremendous fun and enjoyed both working on the challenge and seeing the URI campus.

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.



MIDDLE SCHOOL ENGINEERING CHALLENGE



Favorite part of SMILE: "To work together so that we put all of our minds together and we can make something good."

-SMILE Student

"I think SMILE is really fun and I get to learn many things."

-SMILE Student

CLUB UPDATES

CITIZENS ELEMENTARY SCHOOL Woonsocket Kirby Greene By Citizens SMILE Club

Our Citizens' SMILE Club has been participating in many fun activities in our club since we started in October. We have learned about and explored many interesting topics. Our favorite activity so far has been the Marble Run! We loved working in teams and utilizing different materials to make a path for a marble to travel all while exploring kinetic and potential energy. We were excited that we got to share this activity at our Family Science Night and show all that visited what we had designed! Another one of our favorite activities was the Ice Cream in a Bag. We were able to utilize metric measurement skills as well as learn about the reaction between salt and ice in this activity to demonstrate what happens when we add salt to the roads in the winter. Afterwards, we got to enjoy it as a tasty treat! We also really enjoyed utilizing our five senses to determine what was inside different "mystery" bags. We were interested to hear what each other thought was inside each bag, and students were intrigued when unveiling the hidden items to see if our guess were correct! Most recently, we explored finding the pH level of many common household items and foods. It was interesting to see the results! We are looking forward to the warmer weather approaching and continuing with the Spring 2024 curriculum as well as the Ecology Day where we will be able to gather with all the other SMILE Clubs!



CLUB UPDATES

ELLA RISK ELEMENTARY SCHOOL Central Falls

Shena Tremblay, Laticia Biggerstaff
By Ella Risk SMILE Club

The SMILE Club here at Ella Risk has been meeting weekly since the end of September. We have a great group of students who are hardworking and enthusiastic about this program. They have been working collaboratively with their peers to perform hands-on activities each week. One of their favorite lessons this year has been making model geodomes out of candy gumdrops and toothpicks. We also had the opportunity to go on a field trip to the Roger Williams Park Zoo in November. The students had a great time exploring and learning about new animals and their habitats.



CLUB UPDATES

BROADROCK MIDDLE SCHOOL South Kingstown

Valerie Light, Anna Stuart-Viera
By Curtis Corner SMILE Club

This year at Broad Rock Middle School, Val Light and Anna Stuart-Vieira had many exciting moments with our 21 Smile Club members. Our club spans from sixth grade to eighth grade, which, as you know, encompasses a significant developmental range in Middle School. Yet, we've forged strong bonds this year. The eighth-grade students have emerged as role models for the sixth graders, while the younger students found their champions in the eighth grade.

We embarked on numerous exciting adventures and lessons. We visited the Apple Orchard at the URI campus with Susan Axelrod and her graduate students. The Roger Williams Zoo also graced us with a visit, bringing along their Zoo Mobile and ambassador animals – the red-tailed hawk, corn snake, and box turtle, all of whom were rescue animals that captivated us.

Our Family Science Night was a resounding success. Students showcased labs they enjoyed to their families, indulged in delicious food, and witnessed a few outside demonstrations. Rachel Dahl even brought some of her Engineering students to teach us about submarines, which was a fascinating addition. Additionally, Staycy Wamsley collaborated with our students to create beautiful decorations for the winter holidays.

Some of the labs we enjoyed included launching Mentos with soda to observe the explosive chemical reaction, building hydraulic lifts, designing improved bandages, and experimenting with magnets.

Throughout the year, the students have truly flourished, learning invaluable skills such as problem-solving, resilience, and cooperation.

CLUB UPDATES

THOMPSON MIDDLE SCHOOL Newport

Candice Lewia

By Thompson SMILE Club

Every Wednesday the TMS SMILE club meets to complete an interesting and fun challenge. These challenges require students to use the engineering design process to figure out solutions to real world problems. For instance, one of our first tasks was to create a spool racer. Working collaboratively, students used rubber bands, pencils and spools to explore how elastic potential energy from twisted rubber bands can roll the spools. Other examples of challenges included creating a better version of a bandage, investigating hydraulics and experimenting with magnets. One of the highlights of these past couple of months was our trip to Roger Williams Zoo. We were blessed with a warm, sunny day in November and students were able to observe most, if not all, of the animals on our scavenger hunt list. These next couple of weeks, we will be preparing for our highly anticipated trip to URI where students will participate in a STEM competition as well as get to explore the URI campus. As you can see, Thompson SMILE students have been keeping busy!



CLUB UPDATES

WESTERLY HIGH SCHOOL

Westerly

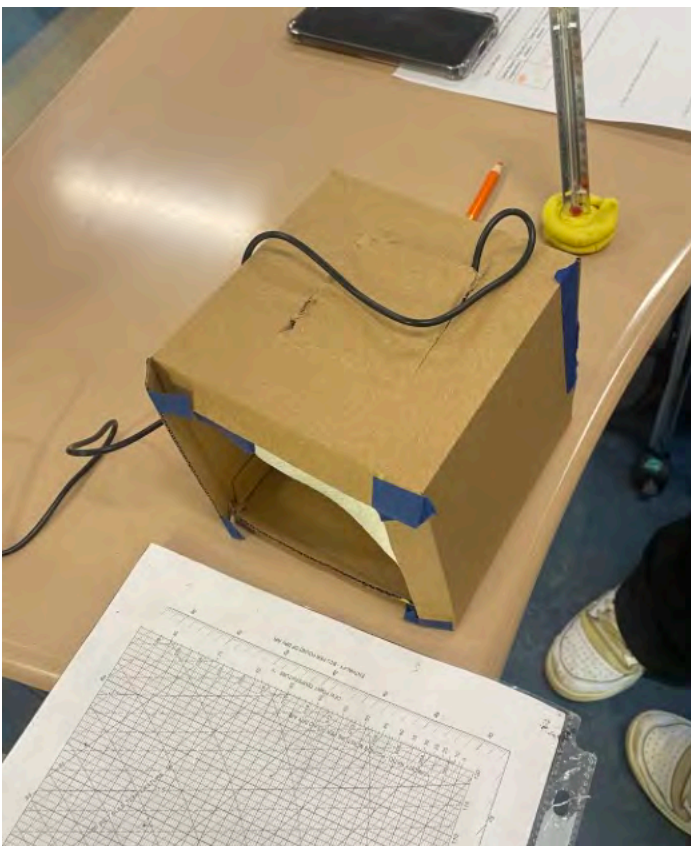
Lesley Fastovsky

By Westerly SMILE Club

Westerly High School SMILE students have been engaged with the spring lessons and activities. They have been a great review of science and engineering practices through the lens of Movement of Energy and the Interactions between Energy and Different Materials.

The engineering practice of planning has been a more difficult one! Students often see the materials and want to jump right into testing and planning by doing! We have found that materials are often wasted or ruined when we do this but it is still a struggle with SMILE students (and their teachers!) not wanting to jump right in.

Most lessons have had a component of data collecting. Students have been able to create class-data tables and have collectively decided what data are needed to answer the essential question. This process came easy to some, but over the course of the lessons, this practice is coming easier to all.



Graph analysis and multivariable word-problems are science practices that were the focus of our most recent investigation on swamp coolers. The Psychrometric Chart provided is not for the faint of heart! We used sheet protectors and dry erase markers to interact with the graph and answer the questions with a sense of accomplishment. Students realized that although it is easy to build, a swamp cooler might not be the best accessory to cool off the classroom in humid RI.

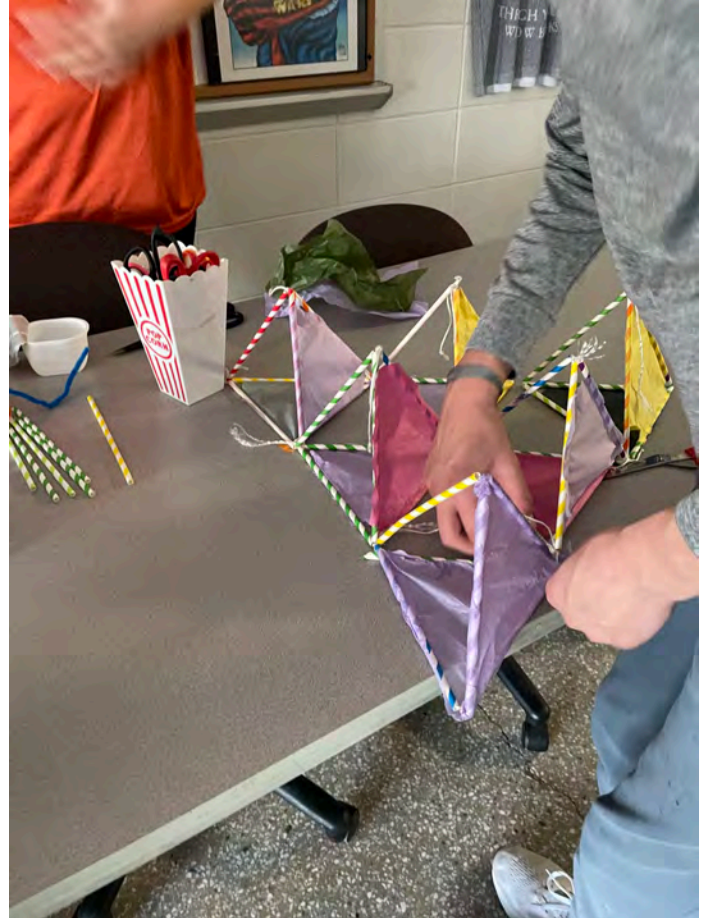
We are looking forward to applying these skills and their new knowledge about Energy at the Engineering Day at URI in April. Most student discussion, however, is centered around which dining hall they will be in use!

CLUB UPDATES

WEST WARWICK MIDDLE SCHOOL West Warwick

James Owen, Christopher Baccei
By West Warwick SMILE Club

This year in our middle school program at West Warwick, we started delving into engineering with small groups to construct a pasta tower! Although simple in concept, this activity helped us to practice important skills to move forward with; collaboration, planning, revising, and learning from our mistakes were all aspects that we had to work on during this activity. We got to work on other activities such as Spool Racers and Building a Tetrahedral Kite. Activities like this helped us to learn about concepts like kinetic and potential energy, manufacturing, compression, tension, and general engineering design.



All of what we learned from these experiments allowed us to prepare for Family Science Night! For this night, we were organized into several groups to better explain these experiments to friends, family, and members of URI SMILE. The presentations were so much fun to give and to look at! We are looking forward to our big Challenge Day at URI and meeting up with all of the other clubs!

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:

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