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# TEMPE REPUBLIC

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## ELECTION RULE COULD GO TO VOTERS IN MAY

Tempe's City Council will wait until January to decide on a change that might eliminate the requirement for some primaries in city elections.

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## Boys Choir brings holiday music to city

Lakeshore Music concert series will finish season with Tempetown Family Christmas Concert on Dec. 23.

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## LAB WORK

The Arizona Science Lab at Meyer Elementary School in Tempe puts students next to professionals in the Institute of Electrical and Electronics Engineers' Teacher In-Service Program. **PAGE 3**

Andersen Elementary sixth-graders Erika Valle (right) and Jacqueline Perez (left) test a watermill they engineered as retired electrical engineer Roy Zaborowski looks on during a Science Lab workshop.

DAVID WALLACE/THE REPUBLIC

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# Science Lab is uniting pros, students

By Georgann Yara  
Special for The Republic

It was left vacant at the end of the school year, but children's voices, indescribable sounds of excitement and the patter of busy footsteps echoed from the multipurpose room at Meyer Elementary School on Tuesday morning.

And even though the building was a haven from the rainy conditions outside, that didn't stop water from splashing and spilling inside.

This fall, the Meyer campus has been home to the Arizona Science Lab, which is run by members in the Phoenix section of the Institute of Electrical and Electronics Engineers' Teacher In-Service Program, which aims to increase the number of engineering students.

IEEE is the world's largest professional association established to foster technological innovation, and comprises engineers and scientists in 160 countries.

The challenge to sixth-graders from Andersen Elementary School in Chandler: Build water wheels that could produce enough power to hoist a bucket carrying small metal weights. Teams of two hovered over individual plastic containers filled with water and plastic tubes that helped students evaluate their creations.

In the middle of the test phase, instructors emerged with mops and a wet vacuum. Puddles were an inevitable part of the process.

"We have to make ours more stable ... here in the middle,"

said Amy Lam, 11, who saw her wheel shake and wobble with just a little bit of water pressure.

Amy was one of 60 students from the school. She plans to follow the path of uncles and aunts who are electrical engineers.

"Engineering is interesting. It teaches you how things work and how to solve problems," Amy said as she tweaked the plastic cups affixed to the Styrofoam base of her wheel. "I like that the engineers are here. I think you learn better by being hands-on."

Classmate Gavin Lloyd, 12, talked about becoming a mechanical engineer and liked getting into the details of the project.

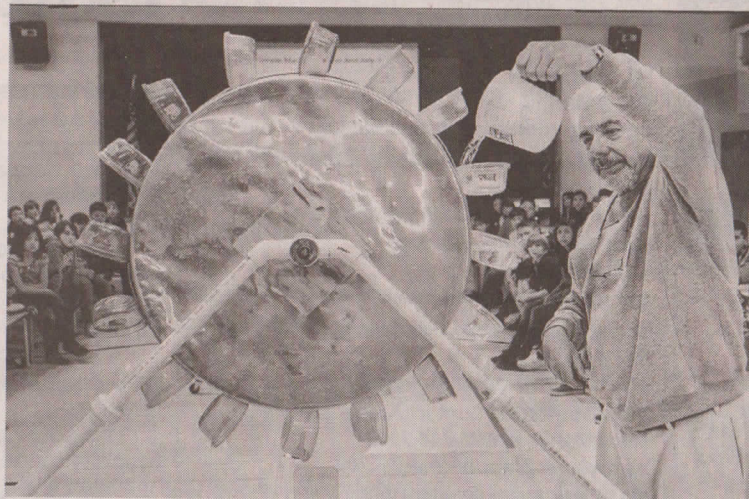
"It's interesting to take things apart, put them back together and learn how they work," Gavin said, as he affixed plastic cups attached to wooden Popsicle sticks to the base of his wheel.

Trial and error was a lesson Chelsea Irwin, 12, experienced when the first wheel she made with her partner fell apart after getting soaked in water — another obstacle students had to overcome. She hoped more water-resistant tape to secure the pieces was the answer.

"You get to learn by doing things. You get to play and have fun," Chelsea said.

When students first got the materials, most ran to the water before building their wheel, wanting to go straight to the test phase.

Roy Zabrowski, a retired engineer from Honeywell Aerospace, stood by the row of water



Arnold Brenner, a retired electrical engineer, demonstrates a watermill to sixth-graders from Andersen Elementary School during an Arizona Science Lab workshop. PHOTOS BY DAVID WALLACE/THE REPUBLIC

baths and broke the disappointing news that they had to complete their wheel first so they had something to test.

"They're excited. They want to get started right away," he said.

One of the initial hurdles is for children to understand that they can take devices apart and put them back together, Zabrowski said. Most are accustomed to computers, video games and portable media players that discourage a lot of tinkering.

"Engineers played with stuff as kids. We took things apart and figured out how they worked. We want to get them playing with stuff. We want to encourage that awe and wonderment," he said.

The free all-day workshops are open to students in Grades 5 through 9. Lessons incorporate



Jonathon Tellez, 11, a sixth-grader at Andersen, works to create a watermill at the vacant Meyer Elementary School in Tempe.

basic science and engineering concepts through building rockets, bridges, solar cars, sail boats and other devices using common materials.

There is a team of 44 volunteers. Most are engineers but there are also scientists, chemists and Arizona State University students in the mix.

About half are retired, like

program leader John Purchase, a Tempe resident with a background in aerospace engineering.

Projects provide children with the depth of science, technology, engineering and math (STEM) education that cannot be offered in many classrooms because of lack of time or resources, Purchase said.

"Everyone is talking about STEM and how we need to do more. But we are actually doing something about it," he said.

So far, nearly 400 students from schools across the Valley have participated in the program.

The facility use agreement between the science lab and the district has given the engineers a place to provide STEM education while occupying what would otherwise be an empty property and generating some funds for Tempe Elementary.

Meyer was vacated at the end of the past school year when the Tempe Elementary School District merged Meyer with Hudson Elementary School and moved students to that campus.

Opportunity for field trips in a time when dwindling funds are forcing public school districts to make cuts and reductions is invaluable, said Andersen sixth-grade teacher Shannon Moxley.

"Where else would I be able to get a panel of seven engineers and tap into their knowledge? I can't replicate this in the classroom," she said. "When students are able to experiment, they fall in love with science."

## Phoenix Boys Choir brings holiday concert to Tempe