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Tucson Region

Teacher hopes science spark grows into a fire in the belly

By Eric Schwartz
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There's a light in the eyes of Aaron Miller's students. But it's hard to tell if it's the reflection of the sun or excitement that kindles the spark. The fourth-, fifth- and sixth-grade students are working on solar-powered cars as part of Miller's science club at Walter Douglas Elementary School, 3302 N. Flowing Wells Road.

They will compete this Saturday in the 17th annual Arizona Student Solar Competition at Reid Park, part of the larger Tucson Earth Day Festival. This will be the third year that Miller's club has participated in the contest, which has competitions in design and speed.

Miller has run the science club since he became a fifth-grade teacher at Walter Douglas three years ago. The club is funded by district grants and by the federal "Skills for Success" grant program. Covering "all ranges of science-based inquiry activities," each session is six weeks long with 15 to 20 students, Miller said. It runs the whole school year — about 70 kids every year, he said.

Because of the need to give kids instruction in a wide variety of topics, and with only 4 1/2 hours of instruction a day, Miller said science education can be "spotty." "There's not enough time in the day," he said, creating a need for a science club. "I wanted to expose the students at my school to more science-content, critical-thinking and process skills."

Another major project the club participates in is called Bugscope. The students find insects and send them to the University of Illinois, where they are mounted. Then the

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Science teacher Aaron Miller helps Dallas Zamorano make a few adjustments to his solar car. Miller says he wants "to bring up the level of expectation" among his students.

Benjie Sanders / Arizona Daily Star

If You Go

What: Tucson Earth Day Festival
 When: Saturday 9 a.m. to 1 p.m. at Reid Park, off Country Club Road.
 For more information: Go to <http://www.tucsonearthday.org>.

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students are given time to remotely control a scanning electron microscope and study the insects.

They also participate in a live chat with university scientists, becoming part of "a community of learners," Miller said.

"It's cool looking at bugs close up," said Kimberly Villescaz, a sixth-grader. She said she really likes going to the science club and working on the projects because, "It's better than doing nothing at home."

During the year, the club talks about science, from physics to biology to ecology. Students build bridges and synthesize slime. At the end of the year, they even learn how to build model rockets, always a favorite activity, Miller said.

"I'm always trying to find new things" to engage the kids with science and "deepen their understanding" so they will want to come back, he said.

Club members now are hard at work putting together their cars for the competition Saturday. They've had less time to do so than in previous years because of the school schedule, Miller said, but he's confident they'll do well. He helps them a little with some of the engineering — such as the soldering — because "for fourth-graders it's pretty extreme," he said.

This year 17 cars from 20 students will compete, up from only seven cars last year, Miller said. The motors and solar panels come in a kit provided by the competition, but the designs can be wildly varied. Miller said his students did very well in the past two years, many of them placing in the design and speed competitions. He's confident that this year they could get first place.

Sixth-grader Jesse Williams said this is his favorite project in the club. His car, a cut-open soda can with a Styrofoam cone for a nose, was almost ready earlier in the week, though he "had a hard time getting the front wheel in."

"I want to bring up the level of expectation," Miller said of the science ability of the students. He wants them to come away from the event, and the club, with a passion and understanding of science greater than they could ordinarily receive in elementary school.

Making solar cars and studying science will be useful "in science class and for the future," he said, "although the cars get destroyed rather quickly."

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