

# Teens get cooking at science program

BY MATT EGAN

SPECIAL TO THE TIMES

PRINCETON BOROUGH — This summer's recent heat wave might have made people walking around Princeton University feel as though they had been transported to an African safari. But for many Trenton high school students who have been working side by side with Princeton professors and undergraduates, the conditions could not have been more ideal.

As a part of an outreach program at Princeton University's Material Academy (PUMA), more than 20 high school students have been designing, building and testing solar ovens that could be used in African nations such as Tanzania and Kenya.

Most of the students attending PUMA are from Trenton, and some are from Hamilton. Thanks to funding from the National Science Foundation, which helps fund the Princeton Center for Complex Materials, all of the students attend the program for free.

Students are bused to the university and, for 2½ weeks, spend six hours daily

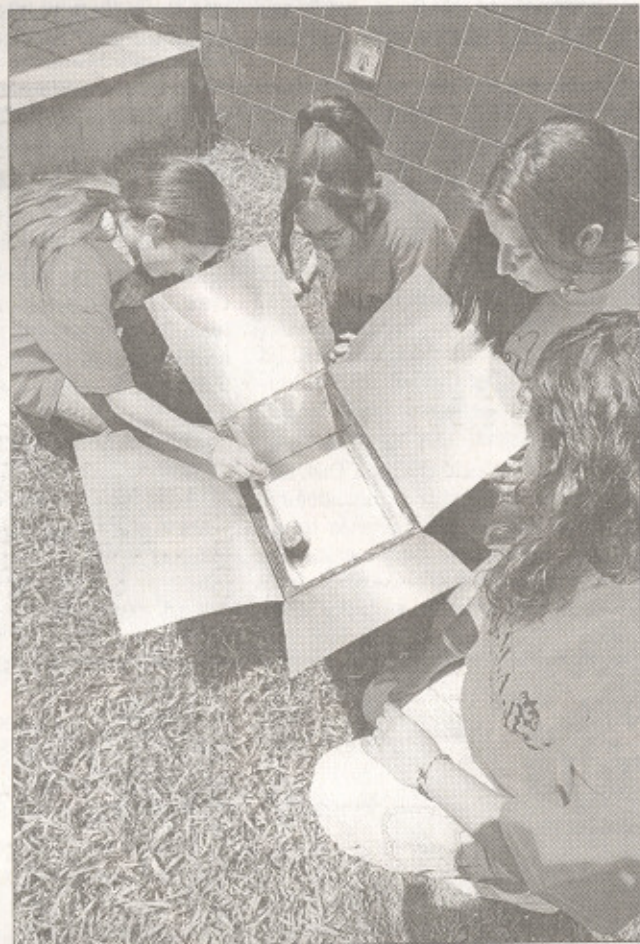
learning about material science from some of the world's foremost experts. A new program with a fresh group of students begins on Monday.

"From nine until three it is nothing but science," said Daniel Steinberg, who as the education outreach director for the Princeton Institute for Science and Technology of Materials, has coordinated PUMA since it began in 2002. "PUMA's goal is to excite them about science and engineering, and to let them prove to themselves that this is for them and they can do this and can make a difference."

Many of the students arrive at PUMA after signing up for and showing talent in Mercer County College's Upward Bound and Gear Up programs. Other students come to PUMA after going to Trenton's Applied Engineering and Science Academy.

This year's theme of designing and creating solar ovens corresponds with actual

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From left, Estefany Silveira, 15, Karisa Williams, 16, Deborah Ochoa, 16, and Mindy Romero, 16, all of Trenton, take the temperature of the water inside the solar oven they made at Princeton University recently.

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# SOLAR

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research being done at the university this summer.

"It's really a unique program," said Steinberg. "I don't know of any other like it. It's not canned at all. We really base it on the research and the courses done at Princeton."

Steinberg, who previously worked on the Hubble Space telescope as an operations astronomer, said that students worked in teams to design the ovens themselves. They were given a limited amount of time to design their ovens, and then went to Home Depot to pick out their supplies.

The ovens were all dramatically different in their designs. Some teams used black paint and cheap aluminum to attract heat, while others used newspapers and curved mirrors to trap the sun's energy.

Last week the teams of students tested their ovens in the heat to see how effectively they could boil water.

Many of the students at PUMA said they had learned a great deal from the program and it helped them look at science in a new way.

Princeton researchers hope one day to compile all they have learned about solar ovens and distribute a working design to Third World citizens — an ideal that rings true with Myra Bellamy, a rising sophomore at Trenton West High School.



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From left, Khadijah Brown, 15, Shanise Thomas, 15, Lakeisha Jacobs, 16, Latrel Jackson, 16, and Alyssa Stokes, 16, all of Trenton, show their solar oven at Princeton University.

"In our school we haven't done hands-on (labs) because we don't have the materials," she added.

"The teachers here have made it simpler and easier for us to understand," said Antoinette Ritchie, who is in her second year at PUMA and is a rising senior at Trenton Central High School. "They really show us how science affects us in our daily lives."

"We have had a lot of hands-on

experience and we really enjoy the program," said Estefany Silveira, 15, who wants to be a forensic scientist. "A lot of this is going to help me in my career."

Stephanie Perl, 19, an undergraduate from Princeton Junction, said she has found volunteering at PUMA a very positive experience.

"I've gotten a sense of the importance of reaching out," said Perl, who also answers questions

students have had about college. "It's about making kids understand that science can be for everybody and helping them nurture that science ambition."

Steinberg said that it cannot be understated how important it is to teach science and motivate students at a young age.

"If we don't inspire these kids and teach them properly, then college is too late," Steinberg said.