



Students get to see the stars in a unique way

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Staff photo by Frank wojciechowski

Ansible Technologies Ltd. owner Aram Friedman has created the Micro Dome, a portable planetarium that reveals an image of the Earth from beyond the solar system's edge.

Former engineering director for the Hayden Planetarium invents a new method to display the heavens.

WEST WINDSOR — "We are going to leave the Earth now," Ansible Technologies Ltd. owner Aram Friedman announced. "Let's back up now 50 astronomical units to get a better view of the orbit."

The starry skies projected across his office onto a 4-foot vertical dome spun away to reveal an image of the Earth from beyond the edge of the solar system.

Engineering director for the new Hayden Planetarium at the American Museum of Natural History in New York from 1998 to 2001, Mr. Friedman has spent the last three years designing a portable, easily operated and inexpensive version of the planetarium to be used in classrooms.

He came up with the Micro Dome, a \$30,000 version of the \$6 million system used in the Hayden Planetarium. An hour before sunset Thursday, Community Middle School Science Olympiad team members Taylor Lee and Peter Maa intently watched the night sky inside the office, using laser pointers to identify the Big Dipper, Scorpius, Virgo and other constellations on the dome.

"Before this, we were just looking at constellations on paper," Taylor said. "It's really helpful. After you look at it from this viewpoint, you think about everything differently." The two students were studying for the National Science Olympiad, which will take place at the University of Illinois on Thursday. Their team of seventh-, eighth- and ninth-grade students won the state Olympiad on March 15 at Middlesex County College to qualify for the national event.

Looking for an expert tutor, Taylor and Peter contacted Mr. Friedman. Star-gazing was just a hobby for Mr. Friedman before he became involved in designing the Hayden Planetarium. "I had been just an amateur astronomer reading Sky and Telescope magazine my whole life," he said. "I never owned a telescope."

Now he is on a mission to change how astronomy is taught. "Traditional astronomy education has been limited to two-dimensional tools to discuss a 3-D universe," Mr. Friedman said. "Traditionally, we're all earth-bound and we see a flat sky. There's only a limited value to locating constellations if you don't go beyond that." His methods impressed Erin Harsell, a sixth-grade science teacher at Montgomery Middle School. Mr. Friedman brought the Micro Dome to the school for demonstrations in front of sixth-grade science classes.

"One of the best things about it is he's able to show the distances in a way I can't possibly show in the classroom," Ms. Harsell said. Her students made construction paper models of the solar system, showing size or distance, but the Micro Dome offers a more precise model of the universe.

Williams College in Massachusetts and Widener University in Philadelphia have purchased the first two systems to use teaching astronomy this coming semester. Mr. Friedman said that he eventually hopes to develop programs that will demonstrate principles of biology, chemistry and math on the Micro Dome.

