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Today, a Grape Floats—Tomorrow, a Science Career

Loren Wells and Kiara Moore have grape expectations. The 11th graders from rural Mercer County, West Virginia, expect the plump green grape they just dropped into sugar water to float, because they have been testing varying concentrations of sugar until they found the one that stopped their grape from sinking. And when the fruit does float, the girls know why. The sugar increased the density of the water until it was greater than that of the grape, they explain.

Down the hall, Barbour County juniors Leanna Lantz and Kelly Runion are trying to build a "Mars Lander" that can make a soft enough landing to protect a melon dropped from five stories up. They'll pit their inventiveness and scientific know-how against other teams of their peers.

What do floating grapes and falling cantaloupes have to do with a college education and a career in the health sciences? In the Health Sciences and Technology Academy, an HHMI-supported program run by the Robert C. Byrd Health Sciences Center at West Virginia University, the former is making the latter possible for hundreds of minority and economically disadvantaged high school students throughout West Virginia.

From 9th grade through 12th grade, more than 500 teens in 22 counties participate in after-school science clubs where they do experiments, meet working scientists and health care providers and conduct community health research projects. Each spring—if they maintain a 3.0 grade point average and attend at least 70 percent of their club meetings—the youngsters get to travel to a statewide symposium to present the results of their research.

Then, in July, they hit the road again. Their destination is Morgantown, home of West Virginia University, where they get to live, learn and play for a week with others in their grade level from HSTA clubs all over West Virginia. Some come from communities so remote that they have never been more than 20 miles from home. Others come from coal mining country where the unemployment rate is double or triple the national average, from the depths of Appalachia, where three out of four counties have health manpower shortages. Most of their parents didn't finish high school, let alone attend college.

"For these parents, sending their children off to the big city of Morgantown for a week is scary, like sending a child off to Harvard," says Ann Chester, assistant vice president for social justice at WVU and director of the HHMI program there. But they let them go, because their own friends and neighbors run HSTA, by participating on local governing boards. Regional coordinators who live and work in the communities accompany the youngsters, as do local teachers.

Once the high school students have lived and worked on a university campus, their worldview is never quite the same. "It influenced my life inside and out," says Keith Donaldson, who graduated from high school—and HSTA—last June and enrolled at WVU, with his eye on medical school. "It has opened up doors for me that no other person in my family has ever had."

HSTA was born in 1994, offspring of a \$175,000 grant from HHMI's Precollege Science Education Program. It began with 44 students in two pilot counties. So successful was the fledgling program that it quickly attracted the interest and support of the Kellogg Foundation, the Coca-Cola Foundation and the National Institutes of Health. And when 36 of the original class graduated from high school and went on to college, the West Virginia Legislature unanimously passed a bill waiving tuition and fees at the state's colleges and universities for any student who successfully completes HSTA.

A second HHMI grant of \$300,000 last summer enabled the program to expand to two more of West Virginia's 55 counties. Soon 440 high school students will head for this year's summer institute on the WVU campus, where they will float grapes, drop melons, meet physicians and pharmacists, nurses and scientists with faces and histories just like them, and see their lives start to change forever.