Drunken worms were the talk of the school that day. It happened in Mr. Hornstein's science class. Mr. Zia- die's English class was there, too. The teachers brought in California blackworms, blood orange, inches-long wrigglers, and divided them into three batches. Down the worms went into water, diluted with three strengths of alcohol, and the students watched, transfixed, as the first group started shriveling, the second one bled, and the third, plastered and bursting, died.

"This happens to you, in varying degrees, whenever you drink," the teachers told the kids. The kids, high school students at Miami American High, loved the lesson. The teachers did, too. "Any time I can take my class and marry it to a student's everyday life, I grab the student's attention," says Michael Hornstein, who has taught at the school for 21 years.

There were similar lessons to come, thanks to a groundbreaking environmental ethics program for high school teachers that a group of South Florida ethicists, scientists and environmentalists created with

**Environmental ethics**

**Program helps teachers get students thinking about how and where they live**

**TEACHING SKILLS:** Lisa Pitman and Ken Goodman head the University of Miami's AMBIENT project at the university's Rosenstiel School of Marine and Atmospheric Sciences. "We're giving educators the tools to excite students," Goodman says.
Called AMBIENT — an acronym for Atmospheric & Marine-Based Interdisciplinary Environmental Health Training — the program teaches teachers how to get students thinking critically about their health and how and where they live.

AMBIENT’s program is divided into sections: air, foodborne illnesses, toxicology, ethics, soil and water contamination. The program is taught at the University of Miami’s Rosenstiel School of Marine and Atmospheric Sciences’ Virginia Key campus, and supplies teachers with binders full with lesson plans.

“We put imaginary scenarios in place that allow the kids, through role playing, to debate and try on political and other positions,” says Lori Fleming, an associate professor of medicine at the University of Miami and one of AMBIENT’s creators. “We can get to big issues fast, and in a personal way. And it’s a way to make it safe for them.”

In one lesson, students measure their lung capacity while learning that asthma rates are higher in minority neighborhoods. In another, they explore the ethics surrounding genetically modified food. In a third, they learn how to test lead levels in soil and are encouraged to ask why some neighborhoods are more poisoned than others.

“We have a grid of the county, showing individual zip codes and how many [lead poisoning] cases are in each,” says Lisa Pitman, AMBIENT’s project director. “When a kid looks at the map and says, ‘That’s my zip code,’ it really hits home.”

The project was funded by the National Institute of Health and is implemented by the National Institute of Environmental Health Sciences. Some 15 Miami-Dade academics shaped the program, among them Pitman, an educational specialist for the University of Miami; Fleming; and Ken Goodman, the co-director of the University of Miami’s ethics program.

“We’re giving educators the tools to excite students,” Goodman says. “People confuse ethics with advocacy and virtue all the time. There’s nothing ethically interesting about stealing money or pouring oil in the river or cheating on your taxes. It’s on cases where reasonable people disagree that ethicists really do the heavy lifting.”

The program’s progenitors hope AMBIENT will become a national model for environmental health. South Florida was an ideal launching pad, they say, because of its preponderance of environmental issues, from water contamination to conflicts between developers and conservationists.

The interdisciplinary program has drawn science, English, drama, social science and math teachers and instructors from Washington, Oregon, Texas and Puerto Rico. Teachers from 35 schools in Miami-Dade County have taken the program, along with instructors from 10 schools elsewhere.

After taking the course, one music teacher took an analysis of Beethoven’s hair to her class. As it turned out, the great composer’s tresses had inordinately high levels of lead, enough, the students surmised, to have contributed to his illnesses and his death.

“The main thing that I love about AMBIENT is that you can choose whatever suits your class and curriculum needs, and use it or modify it as you see fit in your class,” Tex Ziadia, an English teacher, wrote in an e-mail. Ziadia signed up for AMBIENT to get points toward his teaching certificate, but now uses the lessons regularly and teaches them to other teachers. “These [units on ethics] can be used by any teacher, as the issue applies to all aspects of our lives.”

After the funding ends four years from now, AMBIENT’s creators hope the school system will take over its expense. And demand for the program is rising. This summer, for the first time, a waiting list had to be drawn up.

“It’s a trickle-up effect, to make students more aware, and commit themselves to thinking about problems in a long-term way, 10, 20 years out,” says Robin Fiore, a professor at Florida Atlantic University and part of the South Florida Environmental Ethics Consortium founded by academics at seven schools. “It’s an enormous proposition, but that’s the goal of this education, so they have the kinds of courses that give them the tools to do that.”