

Science Students Gain Authentic Research Experience

By SUSAN CONER

Newtown High School students from the Applied Science Research Program under the direction of teacher Frank LaBanca held the 1st Annual Science Symposium on March 1 in the school's lecture hall.

As part of the requirements outlined in the independent research program, students were responsible for selecting an experimental research topic and carrying out experiments. Students worked under the direction of a teacher/mentor and most also received guidance from field mentors through contacts established with local universities and the work industry.

The Applied Science Research Program is an independent research program that provides students with the opportunity to explore areas in science in which they have an interest. Projects are designed to take place over the course of the academic year and although the students presented research about their scientific findings, they will continue researching and perfecting their findings throughout the remainder of the year.

Students often spend time outside of the assigned class period to conduct experiments in the field. All of the students are required to present their results at a local, regional, state, or national symposium or fair.

Mr. LaBanca introduced the students presenting at the symposium and talked briefly about the program.

"This program allows students to pursue a topic of interest, in an authentic, real science experience. It provides a chance to explore real problems that we don't know the answers to," Mr. LaBanca said.

Twenty-two students presented their experiments at the symposium. Oral presentations were conducted in concentration sessions in the lecture hall and surrounding classrooms. The students explained and provided data from their experiments with the help of PowerPoint presentations. Those attending the symposium were invited to move about from room to room and listen to a variety of



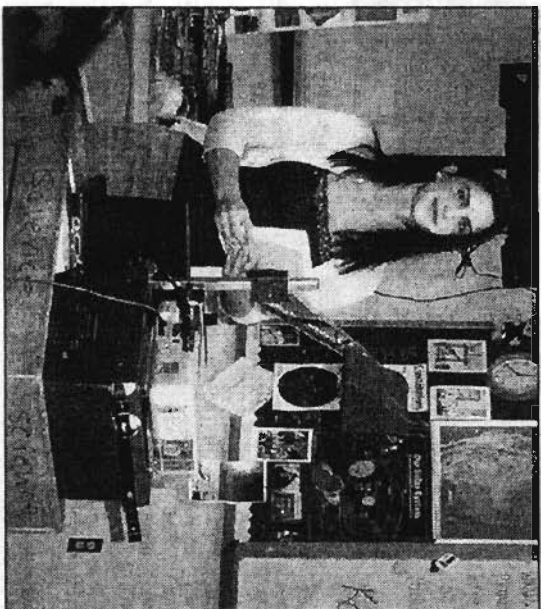
Gabrielle Nastri displays the wind wave tank she built to use in conducting experiments to test the effects of water temperature on wind speed and storm surge formation.

research projects. After each student presented they answered questions posed by those attending the program.

Research ranged from the study of equine populations and the West Nile Virus, to the study of sleep phases, robotics, as well as the oil contamination of Deep Brook. A wide variety of research topics were selected by the students.

Laura Konkos, a junior participating in the course, researched the effects of oil spills on a Class 1 trout stream's ecosystem. Laura commented about the course, saying, "I love being able to work independently and hands-on and apply what I've already learned in high school to an area of interest to me. I get the opportunity to see people who get a better understanding of what they do and if I would like to pursue a similar field later in my studies.

"We get to pick our own proj-



Science student Laura Konkos pauses for just a moment before answering a question about her research project on the Deep Brook oil spills.

Professor James Boyle to learn more about the formations of a hurricane. She built a wind wave tank using materials such as a large, plastic garbage can, fan paddles, and an electric drill that was used to create the power to move the fan blades to simulate wind speed and storm surge formation.

At the close of her presentation she thanked her father for assisting her in building the wind wave tank.

"My dad insisted on adding a surge protector so I wouldn't get hurt mixing electricity and water in the experiment," she added.

Samantha Wong, a junior, chose to research whether genetically modified products can be detected in supermarket soy-based foods. Samantha joined the applied science research class to further her skills with DNA, which she first began when working at a biotech company in Hong Kong this past summer.

Drew Taylor, a junior, conducted research comparing sites in the Long Island Sound using *fundulus heteroclitus*, commonly known as small minnows. Drew stated during his presentation that the minnows are exceptional indicators of the environment, being numerous

enough in population to allow for collecting some for testing, and also high enough on the food chain to bio-accumulate both nutrition and toxins.

Drew tested the minnows on both the liver condition as well as their overall physical weight, reflecting the quality of the living environment.

Drew took the applied science research class to further his interests in ecology and the Long Island Sound.

Mr. LaBanca stated that this is the first year for the Applied Science Research course, however some students worked with him informally and in the senior project program for the past two years. Previously Mr. LaBanca ran a similar program in Stamford for five years.

"The symposium gave my students the opportunity to share their work with the community. Since they are conducting authentic research, I couldn't imagine a better setting than to present their real results. This is an excellent opportunity for students to present before they go to the state and regional fairs and symposiums over the next few months," Mr. LaBanca said.

Recently Mr. LaBanca received an award for excellence in educational blogging.

The Education Blog Awards are designed to honor the widespread emergence of blogs in the educational field and provide recognition of exceptional work of individual bloggers. Mr. LaBanca received an award for the best classroom instruction blog for students for his Applied Science Research course.

Through the blog, Mr. LaBanca asks students in his class to respond to thought-provoking, open-ended conceptual questions. He offers assignments and insights online to which students are invited and often required to respond. This offers students a venue that helps to improve their writing skills and shows them that science does not happen in a vacuum, but in the real, outside world.

Education

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