

Maryland Studies the Pros of Putting Physics First

by Alison Rooney

Diane Householder, Coordinator of Science for the Maryland State Department of Education, has just completed two successful years of her Physics First project and is looking to a third. This initiative, partially funded by RBS, brings together teachers, supervisors, scientists, and national experts to explore the advantages of changing the sequence of high school sciences so that physics is taught first. Proponents of putting physics first, followed by chemistry and then biology, assert that physics strengthens students' algebra skills, which they are developing in ninth grade, and creates a grounding in



Diane Householder (right) welcomes Nobel laureate Dr. Lederman and Rochell Slutskin, Coordinator of Science for Anne Arundel County Public Schools, to an October workshop held at the Arlington Echo Outdoor Education Site in Millersville, MD.



physics and chemistry that is necessary to better learn biology.

“When students take physics in ninth grade,” says Householder, “they gain a certain comfort level with the material—which is the science of life and things we do every day. Students become stronger in science in general, and have an easier time getting to the heart of other science subjects.” She adds that this experience also leads to some students taking physics again later in high school, such as in advanced placement courses.

To open the discussion of Physics First in Maryland, Householder started with workshops for 40 Maryland science teachers in June 2001. The workshops focused largely on instruction and included tried-and-true curricular material geared toward ninth graders such as *Conceptual Physics* by Paul Hewitt and *Active Physics* by Art Eisenkraft. The workshop leaders modeled teaching approaches while the teachers had the chance to act as students and do some of the activities.

The Maryland Science Supervisors Association brought out 80 people for two follow-up workshops in September and October of 2002. In the first of these, science teachers and supervisors shared their experiences from counties where teaching ninth-grade physics had been field tested.

The October workshop featured a number of expert scientists who focused on the philosophy behind putting physics first. Nobel prize-winner Dr. Leon Lederman, a scientist at Fermi Labs in Chicago and Director of American Renaissance in Science Education, talked about his work with teachers and students and his belief in the advantages of sequencing that puts physics first. Michael Neuschatz of the American Institute of Physics presented findings based on data he had collected at the national level about the impact of this early physics instruction. Eisenkraft, a past president of NSTA, spoke about his experience in teaching the subject in ninth grade.

Householder is now working on a proposal for a third phase of the Physics First program, which would include a panel discussion on the subject with leaders of the engineering and biotech industries in Maryland. For more details, contact Diane Householder at dhouseholder@msde.state.md.us. Additional articles and resources that support putting physics first are available online at <http://members.aol.com/physicsfirst/>.