



Awards and Recognition

- ✦ The White House and the United States Department of Commerce Secretary presented the 2001 **Ron Brown Award for Corporate Leadership** to Merck for its long-term commitment to science education through the Merck Institute for Science Education.
- ✦ In 2001, Merck received the annual **John J. Heldrich Award for Workplace Excellence** from Rutgers in the category of Strengthening Connections between School and the Workplace. This award was granted for the creation of MISE and for its many accomplishments.
- ✦ In 2001, Linden Public Schools and MISE received the **“Exemplary Partnership Award”** from the New Jersey Association of Partners in Education.
- ✦ MISE received the 2003 **Friends of Education Award** from the New Jersey Association for Supervision and Curriculum Development in recognition of its high-quality professional development programs and its strong leadership with regard to state and national science education policy.
- ✦ The 2003 **Distinguished Service to Science Education Award** of the National Science Teachers Association was awarded to Dr. Parravano for extraordinary contributions to the advancement of science education and science teaching.
- ✦ In 2003, MISE and a regional partnership of schools and education organizations received a \$7.1 million award from the **National Science Foundation** to strengthen science and mathematics education.
- ✦ In 2007, The Keystone Center, a non-profit organization founded to help facilitate cross-sector dialogues on pressing public issues, honored MISE Executive Director Carlo Parravano with its prestigious **Leadership in Education Award**.
- ✦ MISE was recently featured as **“best practice”** in:
 - “Rising Above the Gathering Storm,” 2006, National Research Council
 - “Innovation America - Building a Science, Technology, Engineering and Math Agenda,” 2007, National Governors Association
 - “A Compendium of Best Practices in K-12 STEM Education Programs,” 2007, Bayer Corporation
 - “New Jersey’s Public Schools - A Biennial Report for the People of New Jersey,” 2006, Public Education Institute, Rutgers University

To learn more about MISE, visit our website: www.mise.org



Merck Institute for Science Education

- ✦ The mission of the Merck Institute for Science Education (MISE) is to improve student performance and increase participation in science for students in grades K-12.
- ✦ MISE is a model for how corporations can make a lasting difference in education reform by committing to long-term partnerships focused on specific goals.
- ✦ Founded in 1993 by Merck & Co., Inc., MISE is a non-profit organization dedicated to improving science education and influencing education policy.



The MISE Approach

Every child is capable of learning science...regardless of past experience, existing knowledge, or cultural and linguistic differences. The Merck Institute for Science Education is built on this philosophy.

The MISE vision becomes reality through science classrooms in which inquiry is an integral and regular part of the learning experience of all students. Inquiry-centered teaching and learning imitates the thinking and methods of scientists to help students explore and understand the natural world. MISE’s approach to instructional reform rests on the premise that when students are engaged in scientific investigations, they develop a greater interest in, and deeper understanding of, science than is possible through more conventional instructional approaches.

MISE takes a long-term, systemic approach to science education reform, which focuses primarily on professional development to enhance the knowledge and skills of educators. This approach helps to build a supportive environment by encouraging teachers, principals, and school superintendents to embrace a common vision of how science should be taught.

At the core of the MISE programs is the Partnership for Systemic Change, a collaboration among MISE and six school districts near Merck facilities: Elizabeth, Hillside, Linden, Rahway and Readington Township (NJ); and North Penn (PA).

Through this Partnership, MISE provides educators with resources, including:

- Professional development opportunities
- Access to curriculum materials
- Assessments consistent with the goals of inquiry-centered science programs
- Merck employee volunteers

“The results are much more profound than test data alone suggest. Through this partnership, we are changing the way science and math are taught and learned at every grade level. MISE has become an anchor in our instructional planning and delivery systems. The MISE partnership truly has made a difference in the lives of our children.”

Dr. Raymond Bandlow, Superintendent, Hillside (NJ) Public Schools



MISE Programs

MISE strives to achieve its goals through a variety of programs and activities, including:

- **The Academy for Leadership in Science Instruction**, a professional development program for teachers, principals, and district administrators enabling them to work as school- and district-based teams, and deepening their understanding of the fundamentals of leadership and strong classroom science instruction. One hundred twenty-five educators will participate in the initial year of the Academy.
- **Peer Teacher Workshops**, a week-long professional development program focused on building teachers' capacity to engage in inquiry-based science instruction. These workshops focus on deepening content knowledge in fundamental concepts in a particular area of science. Over the past 12 years, MISE has offered approximately 350 workshops attended by over 5,000 educators.
- **Consortium for Achievement in Mathematics and Science (CAMS)**, a National Science Foundation-funded partnership among MISE, four New Jersey school districts, Kean University and the Educational Testing Service focused on improving science and mathematics teaching and learning among middle school students.
- **The Administrators' Institute**, an annual retreat that aims to provide knowledge and tools for principals to assist them in the work of supporting high quality science instruction. Over the past eight years, approximately 500 principals, superintendents, and supervisors have attended the Institute.
- **Inquiry-Based Science and Technology Education Program (IN-STEP)**, a program launched in Phangnga, Thailand, in March 2007, as an outgrowth of Merck's support to the tsunami-affected area. The program seeks to improve student performance through inquiry-based learning, and to develop a proven model for the Ministry of Education to replicate nationwide. By the end of year two, approximately 125 Thai educators will have participated in this program.
- **Merck Employee Volunteers**, a program through which volunteers support teachers in the classroom, and students through electronic mentoring, offering a view of the real-world applications of science and mathematics. Over the past 10 years, approximately 7,000 Merck employees have shared their time with students and teachers in their communities.
- **Higher Education Programs**, which work to strengthen participation in the biomedical sciences through partnerships with educational institutions and scientific organizations. This portfolio includes the United Negro College Fund (UNCF)/Merck Science Initiative, the Merck/American Association for the Advancement of Science (AAAS) Undergraduate Science Research Program, as well as academic fellowship and research programs.



Measuring Success

From its inception, MISE has relied on external evaluators to help guide its continuous improvement. One key finding of these evaluations is that students receiving science instruction from teachers who participated in several years of MISE professional development activities outperform students whose teachers have only one year or less of MISE training.

These analyses also show MISE is helping to:

- Elevate science as a priority in the Partnership schools and districts
- Support rigorous, inquiry-based teaching in Partnership classrooms
- Support research-based adoption of instructional materials
- Improve hiring and recruitment practices that put more emphasis on teachers' knowledge about content and instructional strategies
- Inform administrators about what to look for in a high-performing classroom
- Develop new district-wide science assessments

"MISE has shown that systemic improvement in science education from long-term, committed partnerships and sustained professional development works. We see a remarkable transformation in science teaching and student learning in our partnership districts."

Dr. Carlo Parravano, Executive Director, MISE



Sharing Lessons Learned

MISE shares its experience and expertise with school districts throughout the country, as well as with state and national policymakers in its effort to impact change in science education policy. MISE has provided leadership to the development of New Jersey's standards in:

- Core Curriculum Content Standards in Science
- Professional Standards for Educators and School Leaders
- Standards for Required Professional Development of Teachers

MISE has also shared lessons learned with state education policymakers nationwide and has responded to congressional requests for testimony.

MISE houses Resource Centers in Rahway, NJ and West Point, PA that contain a vast collection of the best-in-kind instructional materials in science education.

The newly published book **Ready, Set, SCIENCE!** is yet another example of MISE's commitment to supporting excellence in science education. Published by the National Academies Press, and developed and published with support from MISE, the book helps K-8 educators understand the implications of critical new research on teaching and learning science. It also puts this research into the context of the classroom, with practical examples and case studies.