

Implementing Standards-Based Mathematics Reform: LENSES ON LEARNING

WHEN A MATHEMATICS LESSON ALIGNS WITH STANDARDS, THE WAY IT'S DELIVERED CHANGES. FOR MANY ADMINISTRATORS, STANDARDS-BASED TEACHING DOESN'T LOOK LIKE WHAT THEY EXPECT WHEN VISITING A CLASSROOM. *Lenses on Learning* offers a unique opportunity for principals, superintendents, mathematics supervisors, and other administrators to better support teachers who are implementing standards-based reform in their classrooms.

Sponsored by NJ SSI, *Lenses on Learning* is part of a nationwide Education Development Center (EDC) project that builds on what administrators already know and allows them to dig deeply into ideas about learning, teaching, and subject matter knowledge that underlie

the current mathematics education reform movement. Run by Dr. Emily Dann, Associate Director for the Rutgers Regional Center of NJ SSI and Mr. Daniel Jazwinski, Consultant to NJ SSI,

Lenses on Learning offers a unique opportunity for principals, superintendents, mathematics supervisors, and other administrators to better support teachers who are implementing standards-based reform in their classrooms.

the program examines the principles of standards-based mathematics instruction at the K-8 level and the role teachers play in the classroom.

During the Lenses on Learning seminars, administrators take part in a number of activities aimed at exploring the implications of how standards based mathematics is taught. They view videotapes of different approaches to teaching in a classroom setting and are able to analyze the methods of teaching proposed by Lenses on Learning in relation to older, more formal techniques of teaching. They also

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PARTNER PROFILE



BOB WEBER ATTENDED A MEETING IN 1992 THAT TOOK HIS CAREER IN AN EXCITING, NEW DIRECTION. HE BECAME A

FOUNDING MEMBER OF NJ SSI. . Bob and a small group of education professionals formed a relationship that continues to be as collaborative and productive as it was a decade ago.

"I have been involved with NJ SSI since its inception and am still working with

and learning from my colleagues about how to make the program better. To me that's an achievement and one my biggest accomplishments," Bob said.

As a result of that meeting in 1992, Bob has achieved even more than he expected. As Director of the NJ SSI Regional Center at The College of New Jersey (TCNJ), Bob helps teachers, and administrators develop plans to improve mathematics science, and technology education. He often works with urban schools, where improving student achievement is a formidable challenge, which takes time, dedication and resources.

"In most cases urban schools have a number of more pressing problems to deal with, and I think that I, and NJ SSI, have to focus more on addressing these problems and figuring out how to implement solutions. Professional development for teachers, and involving parents in the schools are at least two ways to get started," says Bob.

The Family Tools and Technology (FTT) program is one of the core elements of the NJ SSI Regional Center at TCNJ. Designed to increase parental involvement in schools, FTT also encourages young girls to study design

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NJ SSI welcomes you to another issue of *NJ Solutions*. The school year is coming to a close, and summer is often a time for educators and administrators to take time to refresh and renew. We can reflect upon another school year gone by and prepare for next year. NJ SSI and our partners offer many exciting programs and professional development opportunities across the state. Please see our calendar for this summer's events.

Summer is also a great time to visit an NJ SSI Regional Center. The Regional Centers can help you choose standards based materials that improve and refine teaching and learning and develop a more interactive setting for students and teachers. Feel free to contact the Regional Center in your area.

Don't forget to visit the NJ SSI website, <http://njssi.rutgers.edu/>. We hope you enjoy this edition of *NJ Solutions* and have a great summer!

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The College of New Jersey
(Mercer, Burlington, Hunterdon, and Somerset)
(609) 771-3486/2776
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collaboratively explore samples of standards-based mathematics problems and discuss the implications of this type of instruction as opposed to a more traditional, individual type of learning.

Some administrators are inspired to return to their schools and assist teachers in implementing standards based lesson plans. Anna Memmelaar, of the Stillwater Township Schools, is one administrator who is involved in the program and has since incorporated these new teaching ideas into her curriculum.

"Lenses on Learning seeks to create an open atmosphere for teaching through demonstrating different approaches to how we can better present mathematics," said Anna. "It encourages teachers to teach math with real meaning, to show students why math is important and to then step back and play more of a facilitator type of role in the classroom as opposed to having students memorize equations that they may soon forget."

Lenses on Learning stresses the idea that teachers need to give students freedom

in the classroom by acknowledging that every student learns mathematics at his or her own pace. It is through this type of teaching that students will learn to understand the lesson on their own terms.

Program Coordinator Daniel Jazwinski sees a promising future for *Lenses*

on *Learning* and its impact on the learning and teaching of mathematics. "We have shown administrators how we have reoriented the focus of teaching in order to attend to the central importance of mathematics. As a result, they can then show teachers and students how to learn together. Teachers can learn how students learn, and students can learn and more fully understand the curriculum taught. As a result, we expect this program to yield fantastic results."

Lenses on Learning is a unique professional development opportunity available for principals and other administrators with responsibilities for curriculum and instruction in mathematics at the elementary level (K-8). The initial meeting date for the 2003-04 sessions will be from 8:30 a.m. – 12:00 p.m. on **Thursday, August 21, 2003** at Rutgers University. At that meeting subsequent dates, times and locations will be selected. For more information contact NJ SSI at (732) 445-2241.

NJ SSI AND NJ MSP ARE OFFERING A SPECIAL PROFESSIONAL DEVELOPMENT OPPORTUNITY THIS SUMMER, ANALYZING INSTRUCTIONAL MATERIALS (AIM).

The seminar, for high school and middle school science teachers and administrators, will be run by facilitators from BSCS in Colorado, a national curriculum implementation center. AIM provides a process and tools to help science educators evaluate the quality of instructional materials, set up and run a pilot, and collect evidence of student understanding and teacher implementation.

The program has proven highly successful. One former participant says, "My past experiences have led me to believe that it's not just the evaluation tool, but the tool user that shapes choices. AIM is a great tool and it increases the likelihood that good choices will be made."

The AIM seminar will take place at the Rutgers University Student Center in New Brunswick, NJ on August 18-20, 2003. The registration deadline is June 15, 2003. For more registration and cost information, please visit the NJ SSI website at <http://njssi.rutgers.edu/>

TECHNOLOGY RESOURCES

HELPING TEACHERS LEAD 21ST CENTURY CLASSROOMS

IT IS NO SURPRISE THAT EDUCATIONAL TECHNOLOGY HAS A MAJOR IMPACT ON STUDENT LEARNING. FROM COMPUTER PROGRAMS TO GRAPHING CALCULATORS, TECHNOLOGY HELPS STUDENTS LEARN IN AN INTERACTIVE AND HANDS-ON SETTING. But according to the NJ Department of Education's 2001 New Jersey Public School Technology Survey, 26.1% of teachers consider themselves beginners, with only an introduction to computer operations; even fewer, 21.5%, have achieved curriculum integration. In order for students to take full advantage of technology as a learning resource, teachers must feel comfortable integrating it into their curricula.

Various sites offer training on incorporating technology into mathematics and science curricula. Specialty Sites include The Atlantic County ETTC at Richard Stockton College, Middlesex County College, and Stevens Institute of Technology Center for Improved Engineering and Science Education (CIESE). The Rutgers Center for Mathematics, Science and Computer Education (CMSCE) also offers innovative programs. One example is "Technology Integration in Math and Science Education" (TIMSE), run by CMSCE in conjunction with the Atlantic County ETTC and Middlesex County College. The program enables teachers and administrators to explore technology integration by familiarizing themselves with hardware, including microscopes, calculators, digital cameras, scanners, and with software by using web resources such as WebQuests, multimedia and animation sites.



"The results have been phenomenal," said Judy Bornstein of CMSCE. "The teachers we train become so excited and can't wait to return to their students with an entirely new method and rubric for teaching and assessment. The students also have unbelievable enthusiasm for learning in this non-traditional, interactive way."

The Specialty Sites offer collaborative programs for teachers and administrators to promote rigorous, standards-based curricula and offer professional development opportunities in technology for K-12 science and mathematics.

"In 30 hours of professional development, teachers become quite proficient," said Anu Vedantham of the Specialty Site at Richard Stockton College and one of the founders of TIMSE. "At the end of the session they create a web site with a lesson, and some of them are unbelievable. In the end, the teachers learn a variety of skills to take back to the classroom." For more information on technology-based professional development, please visit the NJ SSI web site at <http://njssi.rutgers.edu/>

For more information on these events and others please visit the News & Events section on the NJ SSI web site at <http://njssi.rutgers.edu/>

JUNE

- 6/12 **Early Childhood Mathematics Institute**
Rutgers University,
New Brunswick Campus
- 6/23 – **Introductory and Advanced Family
Tools and Technology Workshop**
The College of New Jersey
- 6/24 – **Seashore Ornithology**
New Jersey Marine Sciences
Consortium

JULY

- 7/7 – **Young Scholars Program
in Discrete Mathematics**
Rutgers University, Busch Campus
- 7/7 – **Marine Science Education
in the K-12 Classroom**
New Jersey Marine Sciences
Consortium
(Tuesday and Thursday Evenings)
- 7/14 – **Summer Institute, K-8th Grade Math
and Science Teachers**
Montclair State University
- 7/21 – **JASON Project Training**
Montclair State University
- 7/29 – **GEPA Science**
7/30
Rowan University

AUGUST

- 8/4 – **Institute for Experienced Mathematics
Teachers Everyday Mathematics
for Improving Elementary School
Mathematics**
Rutgers University, Busch Campus
- 8/4 – **Technology Week Institute**
8/8
Rowan University
- 8/11 – **Institute for New Teachers of
Mathematics or Science**
8/15
Rutgers University, Busch Campus
- 8/11 – **Connected Mathematics Workshop
Investigations Workshop for
Transforming Elementary Mathematics**
8/15
Rutgers University, Busch Campus
- 8/18 – **Interactive Mathematics Program (IMP)
Stand – Alone Units**
8/22
Rutgers University, Busch Campus
- 8/18 – **Technology Integration in Math and
Science Education (TIMSE)**
8/22
Middlesex Community College
- 8/19 **Advanced Family Tools and
Technology Workshop**
The College of New Jersey

PARTNER PROFILE

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and engineering and to explore non-traditional careers associated with these fields. Bob sees great potential for these programs at TCNJ and for NJ SSI, but they won't be without their challenges.

Currently, Bob is working with NJ SSI partners to improve the 12-day professional development Partnership Program. "Members of our Partnership Program need to reflect on how well the program is working and give some thought to making changes regarding what can be refined, added or eliminated. But the growth of the program is phenomenal and its goals and plans are unique in creation and implementation," says Bob. "It is the premiere program for helping schools focus on specific problems and developing solutions. I think it will continue to be here for a long time."

Bob also looks forward to working with the newest members of his TCNJ team, Wendy Paulsen, Program Manager and Rita Patel Eng, Assistant Project Director.

NEWS FROM THE DOE

ON MONDAY, MAY 5, 2003

GOVERNOR JAMES E.

MCGREEVEY SIGNED INTO

LAW A REQUIREMENT THAT

TECHNOLOGY EDUCATION MUST

BE INCLUDED IN NEW JERSEY'S

CORE CURRICULUM CONTENT

STANDARDS ALONG WITH

THOSE IN SEVEN OTHER

CONTENT AREAS INCLUDING

MATHEMATICS AND SCIENCE.

THE STATE BOARD OF

EDUCATION MUST ADOPT A

TECHNOLOGY EDUCATION

STANDARD WITHIN THE YEAR.

Proponents of the legislation believe technology education focused on problem solving, design and engineering is necessary for every student. Providing students with the kind of analytical and technological skills needed for the workforce will be a crucial component of economic development in the 21st century.

NJ SSI is a strong supporter of standards-based mathematics, science and technology education and offers a variety of programs and professional development opportunities for teachers in those areas.

For additional information about the New Jersey Core Curriculum Content Standards for Technological Literacy visit the New Jersey Department of Education website at <http://www.state.nj.us/njded/news/0402cccs.htm>



**New Jersey Statewide
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