Looking for a new approach?

NJCTL launches new professional development courses in science and mathematics

To a certain extent, great teaching is a matter of trial and error. You try a new strategy, and if it flops, it's back to the drawing board. But when you find something that bolsters student achievement, you stick with what works.

The Progressive Science Initiative (PSI), and its sister program, the Progressive Mathematics Initiative (PMI), work. Now you have the opportunity to hear more about these innovative approaches.

PSI is based on Advanced Placement (AP) science curricula and was created by the N.J. Center for Teaching and Learning (NJCTL) in 2009. It incorporates the skills included in the AP curriculum since this curriculum has proven to increase student achievement. Based on the success of PSI, NJCTL launched the Progressive Mathematics Initiative (PMI) this year to promote higher levels of student achievement in algebra.

Now current physics and middle and high school math teachers can learn how to implement these principles in their classrooms, thanks to three new programs sponsored by NJCTL. The courses will be held on the Teterboro campus of the Bergen County Technical High School.

"Our professional development programs are a natural extension of our PSI science certification programs (see sidebar) launched last summer," explains Bob Goodman, director of the center. "We currently have 90 teachers completing PSI coursework to become certified to teach physics or chemistry. And more than 1,200 high school freshmen in Newark, Paterson, Jersey City, and Bergen County Technical schools are taking a rigorous physics course."

Each professional development program offers 45 professional development hours over a five-day period. The tuition is $330 for 15 hours of professional development, or $990 for each 45-hour course.

The following programs will begin this summer. Participants are invited to continue to meet two evenings a month throughout the school year to earn an additional 90 hours of PD credit. It is strongly recommended that teachers participate in all three experiences (summer, fall, and spring) in order to receive the maximum benefit from each program.

The PSI/PMI comprehensive approach

Teachers in each professional development experience will learn the PSI/PMI approaches towards curriculum, pedagogy, technology, and assessment strategies, as well as how these components are woven together to create a powerful course. All the units, and the elements that comprise them, will be downloaded and reviewed so that teachers feel comfortable with the overall structure of the course and the essential elements to implementing it, including:

- Working with SMART™ boards and responders
- Setting up and maintaining classes in SMART technology
- Using formative assessment as an integrated part of daily instruction
- Implementing PSI and PMI assessment strategies
- Setting up and using lab equipment (PSI)
- Downloading and using curriculum materials from the PSI or PMI website.

The three offerings are:

- **PSI Algebra-Based Physics:** This program is designed for currently certified physics teachers who are interested in learning how to implement the PSI approach to teaching algebra-based physics. The summer course, "Teaching Algebra-Based Physics," provides a foundation in PSI methods and materials. Participation in the summer and fall programs will focus on the creation of an interschool professional learning community of teachers who are all teaching PSI algebra-based physics. This course will meet for five days in July (July 6, 10 a.m.–4:30 p.m. and July 7–10, 8:30 a.m.–4:30 p.m.). The fall and spring PLC classes will meet on alternating Tuesdays.
- **PSI AP Physics B:** This program is designed for currently certified physics teachers who are interested

in learning how to implement the PSI approach to teaching AP Physics B. The summer course, "Teaching AP Physics B," provides a foundation in applying PSI methods and materials. Participation in the summer and fall programs will focus on the creation of an interschool professional learning community of teachers who are all teaching AP Physics B. This course will meet for five days in July (July 12, 10 a.m.–4:30 p.m. and July 13–16, 8:30 a.m.–4:30 p.m.). The fall and spring PLC classes will meet on alternating Tuesdays.

- **PMI Pre-Algebra and Algebra I:** This program is designed for current middle or high school mathematics teachers who are interested in learning how to implement the PMI approach to teaching pre-algebra and/or algebra I. The first course provides a foundation in PMI methods and materials while the fall and winter experiences involve participation in a full-year interschool professional learning community of teachers who are all teaching PMI Pre-Algebra and/or Algebra I. This course will meet for five days in July (July 6, 10 a.m.–4:30 p.m. and July 7–10, 8:30 a.m.–4:30 p.m.). The fall and spring PLC classes will meet on alternating Wednesdays.

For a complete description of the programs and registration information, go to *www.njctl.org*. The deadline to register for programs that begin this summer is May 31.

PSI progressive science initiative

PMI progressive math initiative

What is the PSI endorsement program? Why did NJCTL create it?

New Jersey's traditional "alternate route" program seeks to recruit science professionals to become teachers. This approach has many flaws, starting with the fact that there is already a shortage of science professionals. This is the core reason why we need to improve science education. Also, it's not clear that science professionals want to leave their jobs, or that they would be good teachers. Plus, the transition is based on the faulty assumption that "science is hard; teaching is easy."

The PSI approach to science education is different. PSI has demonstrated that all students can learn science. We extend that to a strong belief that all teachers can learn science. The PSI approach is to teach science to highly skilled teachers—adults who have a passion for teaching, a commitment to the profession, an interest in science, and the dedication to lead the profession. Our goal is to get the best teachers to become science teachers by taking PSI graduate-level coursework through a collaborative partnership with Kean University.

The Progressive Science Initiative allows experienced teachers to become newly certified to teach physics and/or chemistry. PSI endorsement programs are intensive in nature, requiring more than 300 classroom hours of instruction over the course of more than a year. The PSI science program also benefits teachers who are already certified in physics and chemistry, as well as teachers who are new to teaching physics and/or chemistry. They also represent the sole licensure alternative for current teachers who are seeking an endorsement to teach science. For more information about the PSI science certification program, go to *www.njpsi.org*.

What is PMI?

The Progressive Math Initiative (PMI) consists of courses designed by professional learning communities (PLCs) of math educators who believe that teacher collaboration can lead to higher levels of student achievement. Courses posted on *njpmi.org* are developed, reviewed, and refined by educators participating in PLCs within their schools, and a virtual PLC linking their schools via the website. NJCTL's first course—algebra—is being developed by middle school math educators participating in the NJCTL math grant project.