NC-MSEN Spring 2007 e-Newsletter

Volume 1, Number 1

The North Carolina Mathematics and Science Education Network (NC-MSEN) mission is to: (1) strengthen the quality and increase the size of the mathematics and science education teaching base (Professional Development Centers) and (2) increase the pool of students who graduate from North Carolina's high schools prepared to pursue careers in mathematics and science (Pre-College Program) [NC General Assembly 1984 and 1986].

In This Issue

From the Executive Director
Dr. Verna L. Holoman

On behalf of the North Carolina Mathematics and Science Education Network (NC-MSEN), I welcome you as a reader of the NC-MSEN e-Newsletter. It is important to keep you informed about the people and activities that continue to renew and build the NC-MSEN. This Network consists of ten professional development centers, a mathematics and science education research center, and nine Pre-College Program sites, all of which are located on a UNC System campus. The linkages among NC-MSEN, UNC campuses, the UNC Center for School Leadership Development (our home), and the NC Department of Public Instruction (NCDPI) provide the avenue for leveraging resources to improve mathematics and science teaching and learning statewide.

An NC-MSEN 2006 rationalization process resulted in a more refined approach to the professional development of teachers of mathematics and science that integrates technology and literacy. The result is the Statewide Institute for Teaching Excellence (SITE); Teacher Recruitment and Career Enhancement (TRACE) courses and programs; customized professional development programs that meet urgent needs of local schools and school district partners; and professional development providers for NCQUEST and NCDPI-administered MSP initiatives through partnerships with local school districts and the host university's Colleges of Arts and Sciences and Education.

Student encouragement occurs through the Pre-College Program, which is continuing to expand its work to help address low numbers of students who are motivated and aware of the preparation that is needed to pursue careers in science, technology, engineering, mathematics, and teaching. The NC-MSEN research center continues to carry out an active research program that adds to the body of knowledge about pre-service and in-service mathematics and science education.

This first issue of the e-Newsletter will introduce to some and remind others of the programs and activities in which the North Carolina Mathematics and Science Education Network is involved.

Statewide Institute for Teaching Excellence (SITE)

SITE focuses on improving the content and pedagogical content knowledge of PK-12 teachers through standards- and research-based professional development opportunities, which are aligned with the *North Carolina Standard Course of Study* (NCSCOS). The SITE offerings for 2007 – 2008 are:

SITE: Biology for science teachers
SITE: Geometry for high school mathematics teachers
SITE: 3-5 Science for elementary teachers
SITE: 6-8 Science for middle grades science teachers
SITE: Advanced Functions and Modeling for high school mathematics teachers

Please visit **http://education.uncc.edu/cmste/SITE/** for dates and details.

NC-PIMS
Dr. Thomas B. Clark, Project Director

The North Carolina Partnership for Improving Mathematics and Science (NC-PIMS), a regional Mathematics and Science Partnership (MSP), is a joint effort among four partner UNC System institutions (ECU, FSU, UNCP, and UNCW), NCDPI, and NC-MSEN. From its inception, NC-PIMS has always been viewed as a research project. The initiative originated as an experiment of partnerships with school districts, universities and communities to support student learning through parental involvement, student encouragement, school-based leadership, and the professional development of teachers.

The reality is that this initiative appears to be headed toward very promising outcomes, and with that has emerged the question about the future implementation of the lessons learned from this experiment. The funding for this initiative runs out at the end of September 2007. Information has been, and will continue to be, collected on all aspects of the project. Preliminary results, along with a complete history of NC-PIMS, can be found at www.ncpims.org.

Featured Center Director
Dr. Karen R. Dawkins

Dr. Dawkins is the Director of the NC-MSEN Center for Science, Mathematics, and Technology Education at East Carolina University and the NC-PIMS Regional University Hub. She writes, "Working with teachers and other school leaders in the east and northeast is a real privilege. Despite limited resources, they compensate with enormous pride in their schools, dedication to their students, and innovation in meeting challenges. They are true partners in the work that we do -- providing ideas for projects that meet their needs and sharing in the responsibility for implementing those projects."

Her recent publications include:

Dickerson, D.L., Dawkins, K.R., & Annetta, L. (accepted). Scientific fieldwork: An opportunity for pedagogical-content knowledge development. *Journal of Geoscience Education*.

Dickerson, D.L., Penick, J.E., Dawkins, K.R., & Van Sickle, M. (January, 2007). Groundwater in science education. *Journal of Science Teacher Education*.

Dawkins, K.R. and Dickerson, D.L. (January, 2007). Building a community of teacher learners in an earth/environmental science professional development opportunity. *Journal of Geoscience Education*, pp. 67-71.

Dr. Dawkins received her Doctor of Education degree in 1996 from East Carolina University. Her specialization was Educational Leadership with an emphasis in Science Education.

Please visit the ECU Center's Web site for more information.
http://www.ecu.edu/cs-educ/csmte/Index.cfm

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2 New Pre-College Program Sites!

The NC-MSEN Pre-College Program is designed to broaden the pool of students who graduate from high school with sufficient preparation to pursue mathematics and science programs of study at the university level and to move into careers in mathematics, science, technology, engineering, and teaching.

Two new Pre-College Program (PCP) sites, East Carolina University (ECU) and Western Carolina University (WCU), were established by the North Carolina General Assembly in 2006. There are now a total of nine sites, all of which are expected to serve approximately 3,000 students.

The new site Coordinators are Dr. Bernice V. Campbell at ECU and Ms. Erin McManus at WCU. The Network welcomes the new sites and their leadership. More details can be found at **http://www.unc.edu/depts/msen/index_PCPnews.htm**

Congratulations go to Mrs. Chastity Harper on being named the PCP Coordinator at UNC Charlotte. She is the former Assistant PCP Coordinator at UNC Chapel Hill.

The Regional **NC Junior Science and Humanities Symposium (NC JSHS)** was held at the UNC Center for School Leadership Development (CSLD) in Chapel Hill on March 11-12, 2007. NC-MSEN and UNC Charlotte take turns hosting this annual event. JSHS promotes original research and experimentation in the sciences, engineering, and mathematics at the high school level and publicly recognizes students for outstanding achievement.

The top five finalists received an all-expense paid trip to the National JSHS later this spring in Birmingham, Alabama. 3rd Place was awarded to Steve Ko from the NC School for Science and Mathematics, 2nd Place to Nicholas Tang from the NC School for Science and Mathematics, and 1st Place to Anna Parker from John T. Hoggard High School in Wilmington. The NC JSHS Teacher Award went to Mrs. Lawson Greenwood, also from John T. Hoggard High School.

The 2008 NC JSHS will be held at UNCC. A news release can be found on the NC-MSEN Web site at **www.unc.edu/depts/msen**; also visit the JSHS Web site **www.jshs.org** for more information.

MSEN Day 2007 was hosted by UNC Charlotte on April 21. Over 700 students, teachers, and mentors gathered for the statewide competition in mathematics, science, engineering, and technology. Pre-College Program sites take turns hosting this incredible annual event. Please visit the NC-MSEN Web site for results and pictures. **www.unc.edu/depts/msen**

Robotics: Opportunities for Building Outstanding Talent in the Sciences (R.O.B.O.T.S.)

Mrs. Rita L. Fuller, Co-Principal Investigator and Project Director

This year-round three-year initiative addresses the low percentage of underserved students who graduate from high school prepared to pursue majors and careers in astronomy, physics, and related disciplines. A model will be developed that: (1) demonstrates how astronomy, physics, and robotics can be used to enhance the education of 210 middle school students [30 from each of seven PCP sites], and (2) encourages / motivates them to pursue STEM (science, technology, engineering, mathematics) and STEM-related studies and careers. Emphasis is placed on research-based, out-of-school-time (OST) interventions and academic strategies that teachers can transfer to their in-school-time (IST) classrooms.

The program components include:

- spring and fall Saturday Academy Sessions
- three-week Summer Program
- STEM E-Mentors
- team challenges and robotics competitions
- field trips and college tours
- videoconferences and symposia
- parent involvement workshops and activities
- recognition programs.

The R.O.B.O.T.S. partnership includes Pisgah Astronomical Research Institute (PARI), NC Technology Association (NCTA) Education Foundation, Tyco Electronics, IBM Center for Advanced Studies (CAS), NC Grassroots Science Museums Collaborative, and school district partners of seven NC-MSEN PCP sites (Elizabeth City State University, Fayetteville State University, North Carolina A&T State University, North Carolina State University, UNC Chapel Hill, UNC Charlotte, and Winston-Salem State University).

This initiative is funded by the National Science Foundation with a gift from Tyco Electronics. Please bookmark www.robots.northcarolina.edu for more information. The site is still under construction.

Featured Pre-College Program Student

Ms. Jasmine Gregory

The Charlotte Observer, April 15, 2007 headline reads, "UNCC Program Helps Student Prepare for College, Make Friends" with the article describing the benefits Jasmine received from being a part of the NC-MSEN Pre-College Program. She is a Harding High School senior, enrolled in Harding's International Baccalaureate program, and plans to attend NC State University next year. Please visit **http://www.charlotteobserver.com/274/story/86126.html** to read more about Jasmine and her experiences.

A Little Background…

NC-MSEN is one of six programs in the UNC Center for School Leadership Development (UNC CSLD). The NC-MSEN Centers and PCP sites, located on UNC System campuses, have direct access to university faculty and resources, which permit richer teacher professional development and student enrichment opportunities.

This unique position means that NC-MSEN is the only statewide professional development provider that: (1) offers teachers graduate-credit content courses and workshops, modules, and other for continuing education units (CEUs); and (2) helps teachers improve their mathematics and science content and pedagogical content knowledge through advanced coursework. PCP students also are immersed in an enriched learning environment that provides them with genuine opportunities that are not necessarily part of their in-school experience.

Please visit www.unc.edu/depts/msen for more information.

CENTER for School Leadership DEVELOPMENT
THE UNIVERSITY OF NORTH CAROLINA

NC-MSEN is a program of the UNC Center for School Leadership Development