Celebrating Twenty Years of Excellence in STEM Education with CeMaST

On May 3rd, the Center for Mathematics, Science, and Technology celebrated 20 years since its founding in 1991. CeMaST is a leader at Illinois State University in major curriculum and professional development projects funded by state and national agencies. Current and former CeMaST personnel joined friends at the Bone Student Center to celebrate with refreshments, hors d’oeuvres, cake, and a presentation by Dr. John Dossey on Education Standards and the Common Core: More Assessment or Improved Instruction?

In addition to Dr. Dossey’s presentation, highlights of the event included a presentation to Dr. Robert L. Fisher, former Director of CeMaST and Assistant Director of Urban STEM-Ed, who is retiring after 50 years in education, and a presentation by Dr. Hunter on the many accomplishments of CeMaST. Other former Directors, Associate Directors, and staff in attendance included Dr. Chris Merrill, Dr. Cindy Langrall, Dr. Franzie Loepp, Ms. Kathy Hatch, Dr. Charles Morris, and Dr. Karen Lind. They we joined by department heads, deans, and faculty from across campus to celebrate this important work.

CeMaST Annual Update

CeMaST leads collaborative Illinois state and national STEM research and outreach on behalf of the University. Our significant efforts in the Urban STEM Education Initiative, Public Outreach, K-12 Engineering Education, and Research all helped to raise the profile of and impact that CeMaST has on campus and across the United States.

On Campus

CeMaST awarded $7,000 in Professional Innovation Grants and continued the following activities: ISU Open House, STEM department faculty meeting visits, and brown bag lunches with STEM-Ed faculty, and World Wide Day of Play. We provided cost sharing on several grant requests and the CTLT Teaching and Learning Symposium.

State-Wide

CeMaST participated in several conferences. CeMaST’s participation as evaluators on projects have now gained regional and some national recognition, as we have been asked to consult and evaluate proposed projects in Texas, Indiana, and Washington, DC.

Nationally

CeMaST administrators, faculty, and staff attended several

Upcoming Events:

- **November 6** – STEM-Ed Speaker Series: Teacher Performance Assessment, Ms. Elisa Palmer
- **December 4** – STEM-Ed Speaker Series: ISU GIS Resources, Dr. John Kostelnick

More information can be found at our website: CeMaST.IllinoisState.edu
national meetings, and interacted with national leaders in the K-12 Engineering Education movement. CeMaST provides personnel support for the *Journal for Research in Mathematics Education* and the *Journal of Technology Education* with administration and editing via our technical editor, Amanda Fain.

**CeMaST Outreach**

**American Solar Challenge Pit Stop**

On July 18-19th, CeMaST organized pit-stop events and accommodations as the American Solar Challenge returned to Illinois State University. Teams from across the nation, including Illinois State University's own Team Mercury, competed in the race, with an overnight stage stop in Normal.

**Family Science Day**

Along with the Children's Discovery Museum and the Challenger Learning Center, CeMaST hosted the second annual Family Science Day on Sunday, April 22nd. The event attracted over 1,200 attendees and more than 80 exhibits, including NASA speaker Jim Simek, the St. Louis Science Center, and a transportation showcase of everything from classic cars to electric and solar vehicles.

**Integrated Mathematics, Science, and Technology**

Last year, IMaST was adopted by Washington Academy in Belvidere, Illinois. Drs. Hunter and Christensen took IMaST to Washington, DC for the National Academy of Engineering (NAE) meeting of the Committee on Integrated STEM Education. CeMaST has partnered with TPS Publishing in the United Kingdom and AlphaGraphics in Texas to promote IMaST in the UK. As part of this partnership, CeMaST has written 18 new integrated STEM textbooks for Grades K-8. Currently these books are up for adoption by Florida, Louisiana, and California. In July, the State of Georgia adopted the series and it may now be considered for use by all schools in Georgia.

**Illinois Summer Research Academy**

The 2012 Illinois Summer Research Academy was held June 25-29th on campus. High school freshmen, sophomores, and juniors spent a week with ISU professors and other high school students from across Illinois working on various hands-on research projects.

**NSTA Press Publications**

Darci J. Harland, Assistant Director of Research at CeMaST, published the *STEM Student Research Handbook*, a comprehensive resource for STEM teachers and students that outlines the various stages of large-scale research project. Sara McCubbins, Project and Office Manager at CeMaST, and Angie Codron, chemistry teacher at NCWHS, recently published *Forensics in Chemistry: The Case of Kirsten K.*, which is a year-long forensics based chemistry curriculum where students collect data and evidence and assemble it to solve the case by the end of the year.

**Robert Noyce Teacher Scholarship Program**

Each year, CeMaST hosts the Robert Noyce Scholarship Awards Banquet. The *Robert Noyce Teacher Scholarship Program* at Illinois State University, funded by the NSF, provides scholarships and mentoring to Mathematics and Science students who will graduate and become teachers in the Chicago Public Schools (CPS). The Noyce Scholarship was awarded to 16 students this year.
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Ways to Get Involved

| Volunteer your time by participating in one of the following programs or events: |
| Be a mentor for the Louis Stokes Alliance for Minority Participation (LS-AMP) |
| ★ Mentor students in the High School Research Symposium or Summer Research Academy |
| ★ Get involved with the MIST student organization |
| ★ Volunteer to help out at CeMaST events |
| ★ The LS-AMP program is in need of faculty mentor for students in the STEM disciplines |
| (cdplatt@ilstu.edu or 8-3714) |
| Visit the website to learn more about the program |
| http://ucollege.illinoisstate.edu/lsamp/ |
| Contact Us: CeMaST@IllinoisState.edu |

Illinois Geographic Alliance Partners with CeMaST

Funded through the National Geographic Society Education Foundation, the Illinois Geographic Alliance (IGA) was founded in 1987 with the purpose of promoting and improving geographic literacy in schools. The IGA offers professional development for preservice and inservice teachers, develops curriculum materials based on National Geography Standards, and promotes overall awareness of the importance of geography through various outreach programs and events.

Illinois State University Interim Associate Vice President for Graduate Studies and Research and Geographer Dr. Darrell Kruger serves as the IGA Coordinator. The IGA Teacher Education Steering Committee, which is comprised of nearly two dozen representatives from K-16 education and the private sector, provides valuable guidance and support for the IGA. IGA membership, which is free, is open to anyone with interests in geography education in Illinois.

In the past year, IGA has undertaken a major strategic planning exercise. As a result, geographic information systems (GIS) and related geospatial technologies (e.g., global positioning systems [GPS] and remote sensing) were identified as one of the main emphases for IGA in moving forward. GIS is a computer-based tool which allows one to understand phenomena and solve problems through the use of interactive maps. GIS and related geospatial technologies can actively engage students in STEM education while incorporating critical thinking and spatial thinking. Geographically referenced STEM data from a wide variety of areas, including everything from climate science to wildlife biology to civil engineering, can be captured, displayed, analyzed, queried, interpreted, and managed in a GIS.

The IGA began exploring a partnership with CeMaST in 2011. Since January 2012, CeMaST Assistant Director for Outreach and Department of Geography-Geology Instructional Assistant Professor Amy Bloom has worked on strategic planning and implementation, program development, educator resources, and outreach programs and events for IGA. CeMaST Research Associate Kate Edler has provided website and other technical support for the IGA. In addition, IGA, CeMaST, and Illinois State University’s Institute for Geospatial Analysis & Mapping (GEOMAP) are collaborating on the development of an interactive digital atlas of Illinois for K-16 students, with accompanying lessons, professional development programs, and support.

For more information, please visit

http://iga.illinoisstate.edu/
Uptown Block Party, a Worldwide Day of Play Event

As part of the annual Worldwide Day of Play celebration, CeMaST will host an interactive STEM booth for families attending the Uptown Block Party on E. Beaufort Street in Normal on September 29th. The Uptown Block Party is one of several Worldwide Day of Play events scheduled in the Bloomington-Normal area that day.

Several Illinois State University Robert Noyce Teacher Scholarship Program recipients, as well as additional students from CeMaST Assistant Director for Outreach Dr. Amy Bloom’s GEO 100 (Earth Systems Science) class, and CeMaST Research Associate Dr. Brad Christensen’s C&I 212 (Issues in Secondary Education) class have volunteered to staff the CeMaST booth this year. Activities at the booth will include interacting with and feeding live eastern lubber grasshoppers (Romalea microptera), the largest grasshopper in America. These docile, flightless, slow moving grasshoppers are part of the Bugs for Kids Program (cemast.illinoisstate.edu/public/bugs_for_kids/), a partnership between CeMaST and recently retired Professor of Biological Sciences Dr. Douglas Whitman. Additional activities include racing wooden cars of various sizes and shapes down a ramp as well as designing and testing mini “roller coasters” made from foam tubing.

For a complete list of events, please visit www.childrensdiscoverymuseum.net/WWDOP.asp