Nearly 50 teachers of algebra from K-12 schools across the state (including three from the Nebraska panhandle) convened on UNL campus for a workshop to share their experiences and celebrate the completion of 9 hours of graduate credit earned through the Nebraska Algebra program.

The workshop included a session led by Ira Papick, Nebraska Algebra P.I., during which teachers examined a lesson taken directly from a high school textbook, identifying its weaknesses, and making appropriate modifications to improve the lesson.

Continued on Page 2
On April 29 the National Research Council (NRC) released a report on teacher preparation, “Preparing Teachers: Building Evidence for Sound Policy.” The report concludes that there is not enough research to suggest that teachers who take alternative pathways into the classroom, such as Teach for America or the New York Teaching Fellows program, are any worse or any better than those who finish traditional college-based preparation programs, according to an article in Education Week.

The 24-member panel charged with conducting the study said the lack of solid evidence reflects the thin research base of how best to prepare the nation’s teachers. The panel recommends comparing particular aspects of the programs instead, such as the level of teachers’ content knowledge or program selectivity and how they affect K-12 students’ learning.

While these findings are not surprising, it is unfortunate that attributes of teacher preparatory programs which lead to strong teachers cannot be determined by existing research and still evade us.

To obtain the kind of data needed, the panel also suggested capitalizing on the longitudinal education data systems that states are now building with help from the federal government.

Ellen Lagemann, chairwoman of the NRC committee that produced the report, and committee members Suzanne Wilson, Andy Porter and Annemarie Palinscar presented a report on this study at the American Education Research Association’s annual meeting in Denver on Sunday, May 2. Nebraska MATH P.I. Jim Lewis was also a member of the committee that produced the “Preparing Teachers” report.

Nebraska MATH leaders believe that investing in professional development opportunities for mathematics teachers is important. At the same time, we want to contribute to the nation’s knowledge as to how best to educate and support outstanding teachers. This is why Nebraska MATH programs include a research component, and why it is so important that teachers in the program participate in this research. It is our hope that findings from the research conducted as part of the program will contribute to evidence-based practices in teacher training.

Read the full story at: http://www.edweek.org/ew/articles/2010/04/29/31teachered.h29.html
NCTM responds to Common Core

The National Council of Teachers of Mathematics (NCTM) has posted its comments on the Common Core State Standards for Mathematics for public viewing on its Web site. The Common Core Standards were released on March 10, with the public comment period ending on April 2. Overall, the NCTM supports the basic goals and aims of this draft of the initiative. As follows are excerpts from the report and letter sent by NCTM President Hank Kepner:

Explicit recommendations needed for mathematical practices and mathematical connections: “Without more focused attention on critical connections, ... the rich possibilities for mathematical connections in any taxonomy such as this one are likely to remain underdeveloped in assessments, instructional materials, and instruction.”

Little recognition given to technology: “Despite a reference to technology as a tool in the Standards for Mathematical Practice, the standards for K–6 make no mention of technology, and references to it in the standards for grades 7 and 8 are limited. Unless technology is woven throughout these standards, the credibility of any claim that they will better prepare students in the 21st century is diminished.”

Statistics and data analysis learning should begin earlier: “The developmental progression of learning about statistics should begin in grade 3 or 4—earlier than these standards suggest. Grade 6, where the standards place students’ first exposure to this topic, is too late, a view that is confirmed by a review of international curricula.”

Elementary mathematics learning progressions: “Several learning progressions are overambitious and push the bounds of what is known from research, and others are superficial or underdeveloped. See the report for examples.”

STEM standards focus too much on calculus: “The STEM standards that go beyond the core should be better balanced to include more advanced topics in discrete mathematics and statistics, as well as topics that lay the foundation for calculus.”

The full report can be found online at: http://www.nctm.org/about/content.aspx?id=25186

Comment on science standards

The revised Nebraska Science Standards are online, and the Nebraska Department of Education has invited the public to comment. The survey about the revised standards can be found online at: www.education.ne.gov/science/documents/StandardsSurveyHomepage.html. Comments may be entered through May 10.

CALENDAR

NebraskaMATH Summer 2010
Math in the Middle OPS
May 26-28 Capstone (Cohort 1)
June 7-11 STAT 892 (Cohorts 1 & 2)
June 14-18 MATH 806T (Cohorts 1 & 2)
July 12-16 MATH 808T (Cohort 1)
MATH 804T/TEAC 801 (Cohort 2)
July 19-23 MATH 804T/TEAC 801 (Cohort 2)
July 26-27 Master’s Orals (Cohort 1)
Primarily Math
June 7-11 MATH 800P (Cohort 2 - Omaha)
MATH 802P & TEAC 907 (Cohort 1 - Lincoln)
June 14-18 MATH 801P (Cohort 2 - Omaha)
MATH 802P & TEAC 907 (Cohort 1 - Lincoln)
Nebraska Algebra
June 21-25, June 28-July 2 MATH 810T & EDPS 991 (Cohort 2 - Grand Island)
New Teacher Network
June 7-11, June 14-18 MATH 896 & TEAC 892 (Lincoln)
Resources

What Works Clearinghouse

The U.S. Department of Education’s What Works Clearinghouse (WWC) produces user-friendly practice guides that provide practical recommendations for educators to help them attend to the everyday challenges they face in their classrooms and schools. Practice guides are developed by a panel of nationally recognized experts and typically consist of five to 10 actionable recommendations, strategies for overcoming potential roadblocks to these recommendations, and the amount of evidence contained in the research that supports each recommendation.

To date, the WWC has produced 12 practice guides on various educational topics with titles such as:

- Using Student Achievement Data to Support Instructional Decision Making;
- Reducing Behavior Problems in the Elementary School Classroom;
- Organizing Instruction and Study to Improve Student Learning; and
- Encouraging Girls in Math and Science.

In 2009, the WWC released two practice guides relating to intervention programs designed to assist struggling students: one for students in primary grades, the other for students in elementary through middle school grades. The practice guide for elementary through middle level students entitled, “Assisting Students Struggling with Mathematics: Response to Intervention (RtI) for Elementary and Middle Schools,” identifies a checklist of eight pragmatic recommendations. Examples include:

- “Recommendation 2. Instructional materials for students receiving interventions should focus in-
- tensely on in-depth treatment of whole numbers in kindergarten through grade 5 and on rational numbers in grades 4 through 8. These materials should be selected by committee.”
- “Recommendation 6. Interventions at all grade levels should devote about 10 minutes in each session to building fluent retrieval of basic arithmetic facts.”

These practice guides and many others can be downloaded free of charge at http://ies.ed.gov.

Edwards honored with LAEYC award

Dr. Carolyn Edwards, professor in the departments of Psychology and Child, Youth and Family Studies at UNL, was presented with the Sally Wysong Award for Lifetime Achievement in Early Childhood Education by the Lincoln Association for the Education of Young Children. Her award was presented on April 10 at the Lincoln Children’s Museum as part of the celebration of the Week of the Young Child.

Edwards has been involved with several grant funded projects. Currently she is a P.I. for the NebraskaMATH grant with particular interest in Primarily Math (http://scimath.unl.edu/primarilymath/), a program through which K-3 teachers can earn certification as a K-3 mathematics specialist. Edwards has been instrumental in helping the program keep its focus on educating young children and on recognizing the mathematical understanding that children bring to the classroom.

Edwards’ research on child care, parental expectations and children’s social relationships in nations such as Italy, Kenya, Norway, China and South Korea has contributed to her recognition as an expert in the field.

The Sally Wysong award is named after a former Lincoln School Board member who operated an early childhood education center in northeast Lincoln for 31 years and passed away in 2000.
The colored “strings” you see represent air flow around the soccer ball, with the dark blue streams behind the ball signifying a low-pressure wake. Computational fluid dynamics and wind tunnel experiments have shown that there is a transition point between smooth and turbulent flow at around 30 mph, which can dramatically change the path of a kick approaching the net as its speed decreases through the transition point. Players taking free-kicks need not be mathematicians to score, but knowing the results obtained from mathematical facts can help players devise better strategies.

The behavior of a ball depends on its surface design as well as on how it’s kicked. Topology, algebra, and geometry are all important to determine suitable shapes, and modeling helps determine desirable ones. The researchers studying soccer ball trajectories incorporate into their mathematical models not only the pattern of a new ball, but also details right down to the seams. Recently there was a radical change from the long-used pentagon-hexagon pattern to the adidas ‘Teemgeist™’. Yet the overall framework for the design process remains the same: to approximate a sphere, within less than two percent, using two-dimensional panels.


Daniel Bernoulli (BurrNOOllee) was a Swiss mathematician who did pioneering work in fluid flow.