Apply for a NebraskaMATH program!

Soon we will be accepting applications for a wide range of opportunities for math teachers of grades K-12. We even will be accepting applications from individuals who are not yet teachers, but wish to be. Information and applications will be available on the NebraskaMATH and CSMCE Web sites by Oct. 1. Watch future newsletters for more details.

Attend NATM Conference with help from Neb.MATH

A pre-conference reception is being organized for New Teacher Network and Nebraska Algebra teachers by NebraskaMATH instructors Jerel Welker, Linda Hayek and Sue Graupner. To encourage professional growth and collaboration and to help jump-start the mentoring and Nebraska Algebra programs that resume this fall, NebraskaMATH will provide financial support for its participants to attend the Nebraska Association of Teachers of Mathematics Fall Conference to be held Sept. 19-20 in Kearney at the Holiday Inn Convention Center.

The pre-conference reception will meet from 6-9 p.m. on Sunday, Sept. 19, at the Holiday Inn. The evening will include light snacks, an informal discussion and the opportunity to connect with other NebraskaMATH participants and mentors.

Depending on your level of participation in the conference activities, NebraskaMATH will provide support for mileage, lodging and/or registration. To review the details for qualifying for financial support, please e-mail us at nebraskamath@unl.edu, and we will send you the forms. Conference registration is still open, but there is $10 late fee.

Have you welcomed a child into your family this past year? Send us a photo for the December newsletter!
Spotlight on
Danielle Buhrman

Danielle is the Center’s winner of the honorary “busiest summer award” as we look back upon Summer 2010. Danielle took four graduate courses through NMSSI and was a Master Teacher for Nebraska Algebra Cohort 2 in Grand Island. Read more of her interview online.

Teaches: Pre-AP Calculus and Geometry
School and District: Grand Island Senior High, GIPS
Years Teaching: 3

Program: Nebraska Algebra Cohort 1 & New Teacher Network

How did you manage to juggle all of those courses and tasks this summer? “Organization. All of my notes have tabs on them so I can find information easily when I need it. My laptop and calendar are attached to me wherever I go.”

Why did you join NebraskaMATH and how has your experience been? “I joined NebraskaMATH because I wanted the opportunity to network with other secondary math teachers who have great ideas. I teach in a large school district but we don’t get a lot of professional development time to see what everyone else is doing in their own classrooms.”

Do you remember your favorite teacher? “My favorite teacher was, of course, my high school math teacher. She was the strictest teacher I had, and I had her for all four years of high school math. She knew me, she knew what I was good at and how I learned, and she rocked at explaining concepts to all levels of learners.”

What is your favorite thing about teaching? “Making relationships with students. Kids are so much fun to talk to. If you don’t enjoy working with kids you are in the wrong profession.”

What’s on your iPod? “Sad to say, I don’t own one.”

What’s your favorite TV show? “Probably shouldn’t fess up to this: True Blood on HBO. My husband and I are addicted.”

What is your favorite thing about Nebraska? “Nebraska football! My husband and I are UNL alums and bleed scarlet and cream. I love the people in Nebraska too. I think that’s part of the reason most of us love Nebraska football so much; it’s the fans that make it what it is.”

Know someone to Spotlight?
Our latest Web feature, the “Spotlight,” honors a Nebraska math or science teacher for their achievements. Honored in this month’s newsletter is Danielle Buhrman at Grand Island Senior High. If you or a teacher you know should be honored in our Spotlight, please contact Lindsay Augustyn at laugustyn2@unl.edu to nominate them. Watch scimath.unl.edu to read more Spotlights!

Computers don’t improve study habits, study says

Students shouldn’t rely on highlighting, rehearsal or outlining when studying with computers or with traditional texts, says a study by a UNL Educational Psychology professor. Ken Kiewra’s study, co-authored with a Penn State professor and former UNL graduate student, of undergraduates found that computers and new technology do not prevent students from using weak study habits.

While the study, published in The Journal of Educational Psychology, focuses on college-aged students, teachers can start now to encourage more powerful strategies. Kiewra recommends a method called SOAR: Selecting key lesson ideas, organizing information with comparative charts and illustrations, associating ideas to create meaningful connections, and regulating learning through practice tests.

Kiewra says we need to dispel studying myths such as highlighting, outlining and rehearsal, for example: over-copying long passages verbatim, taking incomplete or linear notes, building lengthy outlines that make it difficult to connect related information, and relying on memory drills like re-reading text or recopying notes.

- From article by Steve Smith, University Communications
OPINION: Why common standards won’t work

Did the above headline catch your attention? The following article is a summary of a commentary which appeared in the Aug. 11, 2010, issue of Education Week. Since past newsletters have included several articles about the status of the Common Core State Standards (CCSS), the editors of the NebraskaMATH Newsletter thought it would be interesting to include the opinion of CCSS dissenters. There are, after all, two sides to every coin, and the educated reader ought to have some understanding of arguments both for and against the adoption of nationwide standards.

The article, “Why Common Standards Won’t Work” was written by P.L. Thomas, associate professor of education at Furman University, in Greenville, S.C., and a former high school English teacher. Thomas asserts that the cycle of establishing content, prescribing content, and measuring student acquisition of that content, is one that has been repeated nearly every decade for more than a century; and that it is a cycle that has repeatedly failed to improve education.

According to Thomas, the Common Core State Standards initiative is based on two flawed assumptions: 1) that educators in 2010 do not know what they should be teaching, and 2) that a common body of knowledge meets the needs of people living in a free society.

He believes that educators do know what content should be taught in the classrooms, but that standardizing knowledge actually lowers expectations and results in lifeless classrooms that are “devoid of the pleasure and personal value of learning,” a view which he describes as “counterproductive” in a free society.

Finally, Thomas refers to the move toward nationwide standards as a “tragic waste of time” as it draws our attention away from what Thomas asserts is our nation’s largest cause of low student achievement: childhood poverty.

A “Perfect Shuffle”? 
Featuring the work of Patty Hastings (Omaha, Nebraska)

People have long been suspicious of the card shuffling practices of the dealers at the blackjack tables in Vegas. Is there such a thing as a “perfect shuffle”? If so, does shuffling the cards “perfectly” really result in a random arrangement of the deck?

Patty Hastings, a 2010 Math in the Middle graduate, studied this problem in her expository paper entitled, “The Perfect Shuffle.” Hastings explains: “A perfect shuffle, also called a rifle shuffle or a Faro shuffle, divides a deck of \(2n\) cards exactly in half, and then interweaves the two halves in strict alternation. … There are two types of perfect shuffles, the in-shuffle and the out-shuffle. The in-shuffle starts with the top half of the deck in your left hand, and cards are then alternatively interleaved from the left and right hands. An out-shuffle starts with the bottom half of the deck in the right hand and cards are interleaved from the right and left hands.”

Thus an in-shuffle results in assigning the cards which originally were located on the top and bottom of the deck to a location that is now inside the deck. (Specifically, after a perfect in-shuffle, they are one position away from being the top and bottom card, respectively.) Similarly, an out-shuffle results in returning those cards which originated in the top and bottom positions (i.e. on the outsides of the deck) back to their positions as the top and bottom card.

Hastings studied the results of perfect in- and out-shuffles on decks consisting of four, six, eight and 10 cards. By making connections with concepts developed in Number Theory, she shows that after a certain number of perfect shuffles, the cards return to their original state!

So, card sharks, check out Hastings’ paper and hop on the next plane to Vegas...

http://scimath.unl.edu/MIM/mat.php

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Do you have a Polycom?

We have another line of communication open! The Center for Science, Mathematics & Computer Education uses a Polycom HDX 8000 video conferencing system in our conference room. If your school or district has a Polycom, Tandberg or LifeSize system, then these popular video conferencing systems will communicate with our Polycom.

Please send the name of the contact person at your school or district to Shannon Parry at nebraskamath@unl.edu.

To determine if your system can communicate with ours, try connecting to a test Polycom site (at 140.242.250.200, 140.242.250.203 or 140.242.250.204) or Shannon can set up a test with you.

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NYC’s small schools boosting achievement, graduation rates

MDRC education researchers have learned what many Nebraskans have suspected for a long time – small schools can help improve student achievement and graduation rates.

A series of articles recently released in the NSF’s Math and Science Partnerships (MSP) program newsletter, feature reports by the MDRC on the effect of New York City’s reform effort over the past decade. A key part of the reform is 123 new “small schools of choice” (SSCs) – small, academically nonselective, four-year public high schools (grades 9-12).

The NYC district uses a lottery-like process to randomly assign students to the SSC or to another school in the district. These lotteries provided the basis for a large study, supported by the Bill & Melinda Gates Foundation, entitled “Transforming the High School Experience: How New York City’s New Small Schools Are Boosting Student Achievement and Graduation Rates.” The report, among other things, found that by the end of their first year of high school, 58.5 percent of SSC enrollees are on track to graduate in four years compared with 48.5 percent of their non-SSC counterparts. These positive effects are sustained over the next two years. Read the full report at: http://www.gatesfoundation.org/united-states/pages/transforming-high-school-experience.aspx.

The three other MDRC reports and articles can be found at: http://www.mdrc.org/publications/560/overview.html.