

Mathⁱⁿ the Middle



Institute Partnership

*Supplemental grant from NSF
establishes partnership with*

Omaha Public Schools



2010 graduating teachers visualize π on their final day of calculus





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Math in the Middle

32 Omaha Public Schools teachers earning master's degrees

The Math in the Middle Institute Partnership is made possible by a generous grant from the National Science Foundation. M², as it is known, is a partnership among UNL, Nebraska's ESUs and local school districts. The partnership's long-term goal is to improve student achievement in math in the middle grades (5-8) and to reduce the achievement gaps in the mathematical performance of diverse student populations in Nebraska. The approach is to invest in the education of outstanding middle-level mathematics teachers, thereby developing intellectual leaders who can offer challenging courses to their students and share what they have learned with their fellow teachers.

When it began in 2004, the grant emphasized supporting rural teachers and schools, but supplements received in 2008 and 2009 have made it possible to extend the partnership to include the Omaha Public Schools. The supplements came from what is known as the Noyce program at NSF. These funds target working with teachers in districts, like OPS, that serve a large number of low-income students.

The Math in the Middle Institute is a 12-course, 36-hour graduate program that leads to a master's degree from UNL's Department of Mathematics (MAT) or Department of Teaching, Learning and Teacher Education (MA). The curriculum comprises seven mathematics courses and one statistics course for middle-level mathematics teachers; three math education courses offered by faculty in Teaching, Learning and Teacher Education (TLTE); and a



OPS teacher Sarah Larson works on an assignment in MATH 806T in June 2010.

Curriculum for Middle-Level Teachers

- MATH 800T: Mathematics as a Second Language
- MATH 802T: Functions, Algebra & Geometry
- MATH 804T: Experimentation, Conjecture & Reasoning
- MATH 805T: Discrete Mathematics
- MATH 806T: Number Theory & Cryptology
- MATH 807T: Using Math to Understand Our World
- MATH 808T: Concepts of Calculus
- STAT 892: Statistics
- TEAC 800: Inquiry into Teaching & Learning
- TEAC 801: Curriculum Inquiry
- TEAC 888: Teacher as Scholarly Practitioner
- Capstone Course: Integrating the Teaching & Learning of Math

For further information and course descriptions, visit: <http://scimath.unl.edu/MIM/gradpgm.php>

capstone course taught jointly by faculty in education and in mathematics.

Thirty-two outstanding Omaha Public Schools teachers will earn their master's degrees through Math in the Middle, including 18 who graduated in August 2010 and 14 who will graduate in August 2011. They join 125 Nebraska teachers who have graduated from the program.

Omaha Public Schools

Making a commitment to high achievement for all students



“The Math in the Middle program and the partnership with the University of Nebraska-Lincoln have provided tremendous educational

opportunities for teachers who are committed to developing high achievement in mathematical skills for all students.”

Dr. John Mackiel, Superintendent of Omaha Public Schools



Math in the Middle August 2010 graduate and Omaha Public Schools teacher Connie Colton guides her eighth grade students at McMillan Magnet Center Middle School.

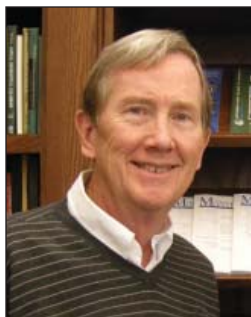


Math in the Middle August 2010 graduate and Omaha Public Schools teacher Patrick Derr teaches his sixth grade students at Springville Elementary.



Omaha Public Schools Supervisor of Mathematics James Harrington (right) visits with Keri Witherell (left) and Valerie Schovanec at Master’s Orals in July 2010.





A word from Jim Lewis

*Principal Investigator, Math in the Middle and NebraskaMATH
Director, Center for Science, Mathematics & Computer Education
Professor of Mathematics, University of Nebraska-Lincoln*

In Summer 2008, our program officer at the National Science Foundation (NSF) told us of a special opportunity to seek funds to work with teachers who teach in districts that serve a large number of students who live in poverty, like Omaha Public Schools. NSF had created their Math Science Partnership program to encourage innovative partnerships between the K-12 community and higher education with the goal of significantly improving math and science education in our K-12 schools and these new funds offered us a chance to work with Omaha Public Schools (OPS).

We were delighted when OPS leaders like Superintendent John Mackiel, Assistant Superintendent Janelle Mullen and Supervisor of Mathematics James Harrington responded quickly and positively to our proposal of a partnership through the Math in the Middle institute. We invited them to join us in submitting a proposal funding OPS middle-level (5-8) mathematics teachers to pursue a master's degree. Indeed, the OPS administration has been very supportive of the M^2 program, and it is a pleasure to work with them. This opportunity also has led to other joint efforts such as the district's involvement in our NebraskaMATH partnership.

Institutes like Math in the Middle seek to create a generation of intellectual leaders with strengths in both the

discipline they teach and in teaching that discipline. In turn, outstanding teachers benefit not just the students they teach, but their entire school.

It is an understatement to say the OPS teachers who were selected for Math in the Middle are dedicated. The first cohort of Math in the Middle teachers met for their first class on Jan. 2, 2009. We introduced them to all-day classes, high expectations and lots of homework from the very first day. Over the past 20 months, they completed 12 challenging courses and graduated at the University of Nebraska-Lincoln's August 2010 Commencement. A second cohort of OPS teachers began classes in October 2009 and are on pace to graduate in August 2011.

It is noteworthy that all Math in the Middle classes for OPS teachers are held in Omaha. Because courses have high expectations and summer institute courses meet for eight hours per day, we also provide teachers with lots of support. More than 30 faculty, graduate students and master teachers have been part of at least one instructional team for a Math in the Middle course.

We are quite proud of the Omaha Public School mathematics teachers who are part of Math in the Middle. The district is fortunate to have such a dedicated and capable group of teachers. We are pleased to offer this booklet to celebrate their achievements.

Crystal Simpson

'I desire to be a positive role model for my students'

Crystal Simpson will begin her eighth year as an educator as the new assistant principal at Standing Bear Elementary in Omaha in fall 2010. She taught fifth grade for five years at Fontenelle Elementary as well as two years as the school's Instructional Facilitator.

"I made the transition to be an Instructional Facilitator upon request from my principal. She knew of my desire to be an educational leader and explained to me how this position would benefit me as an administrator," Simpson said.

The move and her participation in Math in the Middle have paid off.

Simpson received her master's degree in Mathematics (with a specialization in teaching middle-level mathematics and a minor in Teaching, Learning and Teacher Education) from the University of Nebraska-Lincoln in August 2010, along with 17 of her M² colleagues. Simpson also has a master's degree in Educational Administration and Supervision and a bachelor's degree in Elementary Education from the University of Nebraska at Omaha.

Simpson heard about M² in a district e-mail to middle school teachers and couldn't pass up the opportunity.

"I took on this challenge and applied for several reasons. First of all, I know about the achievement gap. When I see the statistics it hurts me to my heart. Like many of our students, I was a part of that achievement gap. Now I want to be a part of the solution in closing that gap. Secondly,



people learn differently, especially our students today. We cannot continue to teach them just one way. I wanted to be able to differentiate instruction appropriately and demonstrate to students multiple ways of solving mathematical equations or problems. Last but not least, I love and appreciate every opportunity I have to learn. I desire to be a positive role model for my students and my learning community in every way I can. I love sharing with my students the struggles I had to overcome as a child and why learning is so important to me and should be important to them," Simpson said.

The camaraderie of M² was a key to Simpson's success.

"If it wasn't for my peers, I wouldn't have made it. Working with my peers made math more enjoyable. It was tough at times, but everyone was working toward a common goal. It wasn't a competition; we wanted to accomplish the goal together."

Omaha Public Schools Graduate Class of 2010



TANYA ARCHIE

Benson High School,
Algebra 1-2 & AP Calculus
(formerly Norris Middle School)
Years Teaching: 14

“I will be teaching AP Calculus classes at Benson High School next year, and I am really excited about sharing what I have learned with the other teachers. My high school students can be exposed to most of this material.”

I have learned that the math that I grew comfortable with was a very very small part of the field. I revisited concepts that I had forgotten, learned about concepts that I had never been exposed to, and gained a great appreciation for my field. I loved the real-life applications and how almost everything that I observe from day to day has some sort of math application.”



PAMELA ARVIE

Prairie Wind Elementary,
Grade 5
Years Teaching: 15

“My goals in my classroom are to provide enriched learning opportunities in math for all students and to better meet their mathematical needs. Personally, I have gained the awesome privilege and opportunity to glean on the vast mathematical knowledge of some great mathematicians as well as fellow teachers. Professionally, I’ve gained the opportunity to broaden my mathematical horizons. This has afforded me the opportunity to experience and to understand mathematics deeper than I’ve ever understood it.”



AMY BYSTROM

Pawnee Elementary,
Grade 5
Years Teaching: 4

“After completing the Math in the Middle program, I plan to be a team leader in the area of mathematics for my grade level. I have also informed my principal that I would be more than willing to locate mathematical resources or provide guidance and support for any teacher in the building. As a classroom teacher, the knowledge I gained from the program and my research will allow me to plan more engaging and challenging math lessons for my students. Having this new confidence in mathematics will help me become a better math teacher, especially since we have the new state math test this year.”



CONNIE COLTON

McMillan Magnet Center
Middle School,
Grades 7-8
Years Teaching: 18

“The most notable aspect of the Math in the Middle program is the network of colleagues that has developed. Working through this program in a cohort has provided an opportunity to develop friendships and working relationships with some of the finest teachers in the Omaha Public Schools system. Before this program, I didn’t know many of the teachers I now consider true friends, but the significance goes beyond friendship. As colleagues, we will be able to exchange questions, ideas, lessons and concerns throughout the school year; we will act as resources and support for one another.”



PATRICK DERR

Springville Elementary,
Grade 6
Years Teaching: 10

“My primary goal is to put all the new ideas and strategies for math instruction into action in my classroom for the benefit of my students. The program has left me energized and motivated to do so. I have gained a great deal from the Math in the Middle program. I am more confident of my abilities in the areas of content knowledge and teaching methods. I am more appreciative of the values of perseverance and collaboration. I improved my presentation skills. To someone else considering a similar graduate program, I would suggest a careful and realistic evaluation of their situation. It takes a lot of time away from family, and it may require some compromises with the demands of your actual job. It was more difficult than I expected, but the support provided was excellent. The rewards were greater than expected.”



**JONELLE
DICKMEYER**

Pinewood Elementary,
Grades 5-6
Years Teaching: 11

“I hope to create more meaningful experiences for my students. I need to be better at promoting conceptual understanding. Eventually, I would like to become a math specialist, working with students and teachers. Personally, I have gained a much-needed perspective on how some students feel in math class. It has also given me a deeper understanding of many mathematical concepts and shown me how many ideas still need further development.”



JODIE EMERSON

Morton Magnet
Middle School, Grade 8
Years Teaching: 7

“My goal in my classroom is to apply the knowledge I learned in this program to help students make connections between algebra and geometry concepts. It is amazing how you find the time (for the course-work). I gave birth to twins in May and will still graduate on time in August.”



PATTY HASTINGS

Western Hills University
Partnership Magnet
Center, Grades 1-6
Years Teaching/
Facilitating: 27

“Personally, I have learned that I can accomplish great things when I apply myself and trust in others. The workload and content was very challenging. Yet, there was such a sense of accomplishment at the conclusion of each and every class. This program reminded me of what it is like to be a student again. I have a renewed love of learning. It is not good to be stagnant. A person must continuously strive to grow and improve. Professionally, I finally have a master’s degree! I have gained so much knowledge in so many areas of mathematics. I have planned and carried out action research. I have discussed professional articles with the very competent people in this cohort. I have so much respect for all of the people involved in this program. OPS has some fantastic teachers in its system. The great thing about this program is that you do not have to do it alone. The Math in the Middle instructors and coordinators make it possible for you to succeed and impossible to fail. The other cohort members were a constant support system.”



PAULA JAKOPOVIC

Teacher in Residence,
Northwestern University
(formerly Field Club Elementary)
Years Teaching: 7

“Personally, I have gained many new friends from working on such a close basis with the other OPS teachers in my cohort. Professionally, I think I have developed a deep understanding of the content that I want to be teaching my peers and students, and a much higher confidence level when it comes to both learning and teaching mathematics. For those who think there isn’t time, UNL has been amazing working with people’s diverse schedules. Their goal is for us to be successful.”

Read more about Paula on Page 11



**MARY BETH
KILNOSKI**

Marrs Magnet
Middle School, Grade 5
Years Teaching: 20

“I enjoy teaching math, but have very little background. Math in the Middle was a way for me to gain a deeper understanding of mathematics. I want to work on integrating what I have learned into the classroom, and continue to find ways to collaborate with the cohort. I want to find ways to use groups more effectively. Math in the Middle requires a great deal of time and commitment. The most important lesson I have learned is how much more we can accomplish when working with others than we can working alone.”



JESSICA KORTH

Bryan Middle School,
Grades 7-8, Years Teaching: 11

“My goals are to strengthen my mathematics teaching in the classroom. I have gained mathematical knowledge and pushed myself to think mathematically in a new way.”



PHILIP LAFLEUR

Monroe Middle School,
Grade 7, Years Teaching: 6

“My goal is to continue to push myself and my students toward higher achievement and understanding of mathematics. I have gained a deeper understanding of mathematics in areas that I previously had little knowledge. I would tell others that the program is extremely challenging, demanding and stressful. However, the positives outweigh the negatives. You go through those hardships for maybe two years, but you have the knowledge for your lifetime.”



JOCELYN MASASI

Marrs Magnet Middle
School, Grade 7
Years Teaching: 4

“My goal is to continue teaching middle school and strengthen my instruction using what I have learned and experienced myself while studying math. I hope to encourage more students to enjoy mathematics. The program has offered me mathematical knowledge which will allow me to better prepare my students for what they will learn in their future math classes.”



**LORETTA
OHNEMUS**

Burke High School,
Algebra I & Geometry
(formerly Bryan Middle School)
Years Teaching: 9

“I plan to implement the homework practice of writing during problem solving and change my classroom to a problem solving environment. Math in the Middle has helped me to look at mathematics differently. There is so much mathematics to learn. Even after completing the Math in the Middle program I still feel like I have just touched the surface of the field of mathematics.”



**VALERIE
SCHOVANEC**

Omaha Public Schools
District Office (TAC)
Years Teaching/
Lead Teacher: 15

“One of my goals is simply to broaden my understanding of mathematics so that I can better support teachers. When I work with teachers, my new knowledge influences nearly everything I do, from helping teachers to understand the importance of correct vocabulary to helping teachers see the need for it, and be able to teach at a conceptual level rather than a procedural level. My passion for mathematics and the teaching of mathematics is stronger than it has ever been. I have gained a tremendous amount of mathematical understanding and knowledge. Equally important are the skills I have developed to be a better consumer of research. This enables me to continue my own learning as well as lead others.”



CRYSTAL SIMPSON

Standing Bear Elementary,
Assistant Principal
(formerly Fontenelle Elementary,
Instructional Facilitator)
Years Teaching: 7

“I have just been appointed assistant principal; therefore, I will use my leadership capabilities to assist and encourage others to look deeper at math and the way we teach mathematics to our students. I will do my best to educate not only our students, but also my staff and community of what we face as a nation if we do not step up to the plate and face this challenge head on. Most importantly, I feel more competent and confident teaching mathematics, especially when I am teaching my co-workers and encouraging them to try different strategies. When we look at our children and their struggles with math or any subject, I feel as educators we must forge forward and do what it takes to close the gap.”

Read more about Crystal on Page 4



LISA VAVRA

Alice Buffett Magnet
Middle School,
Grade 7
Years Teaching: 20

“I have earned a master’s degree after 20 years of teaching! This is something that I honestly didn’t think would ever be possible. The mathematical knowledge that I learned from the courses in the program cannot even be described. I have been able to take something from each of the courses and apply it to my own teaching. The support from Jim Lewis has been absolutely phenomenal; he truly wants each person in the program to be successful. He shows a genuine love for mathematics and a passion for teaching and learning.”



KERI WITHERELL

Lewis and Clark
Middle School,
Grades 7-8
Years Teaching: 13

“I am anxious to apply the skills, knowledge and new insights into my seventh- and eighth-grade classrooms. I plan to continue teaching in the classroom and communicating with colleagues on best practices as well as sharing what I have learned in the Math in the Middle program. I also have an interest in curriculum and working with other teachers to generate activities for the classroom. The Math in the Middle program has been a wonderful experience personally and professionally. The amount of mathematics knowledge I have learned over a short period of time is amazing. I had many ‘a-ha’ moments throughout this fabulous journey. I learned a lot about myself as a learner and educator.”

Omaha Public Schools teachers - Graduate Class of 2010



Paula Jakopovic

'Math in the Middle renewed my interest and my passion for math'

Paula Jakopovic was the math specialist in her school when she taught sixth grade three years ago. Then, an opportunity to become the elementary school's technology teacher arose and Jakopovic said, as a result, she started falling away from math.

But, then she started receiving letters from Jim Lewis and Ruth Heaton, asking her to apply to Math in the Middle. She hesitated because she already had a master's degree.

"Jim called me and very strongly encouraged me to apply and assured me that this degree would not be duplicating courses I had already done and that I could go the math route this time," she said. "Math in the Middle renewed my interest and my passion for math."

In August 2010, Jakopovic added a master's degree in Mathematics (with a specialization in teaching middle-level mathematics) from the University of Nebraska-Lincoln to her resume, along with 17 of her M^2 colleagues. Jakopovic also has a master's degree in Elementary Education from the University of Nebraska at Omaha and a bachelor's degree in Elementary Education from UNL.

This fall, Jakopovic has been selected for a prestigious academic yearlong appointment as Teacher in Residence for Northwestern University's School of Education and Social Policy (SESP). Since 2007, the SESP has awarded a sabbatical for a math or science teacher to become part of the Northwestern's teaching and learning



community. Jakopovic was chosen because of her experience in teacher professional development.

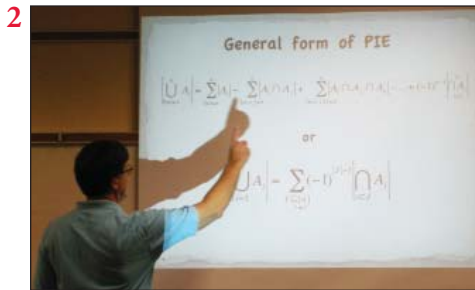
Jakopovic will commute to the UNL campus to work with Teaching, Learning and Teacher Education professor Heaton and SESP professor James Spillane, who is in Chicago, on their research project to examine teacher advice networks in Nebraska elementary school districts.

"I was really shocked when I found out. I had done the Math Matters program with Jim and Ruth as an undergrad, and they had had a classroom teacher working with them that was a graduate student. I thought that would be a really cool job to have, but I never thought in a million years it was a possibility for me. It was a big jump to leave school to do this, but how can you possibly turn it down?"

Jakopovic hopes to return to Omaha Public Schools in fall 2011, preferably as a building math coach.

Master's Orals

Snapshots from presentations in July 2010



1. Connie Colton
2. Patrick Derr
3. Patty Hastings
4. Pamela Arvie and Paula Jakovic

Action Research Papers & Math Expository Papers

Read these featured papers, and many others from this cohort and the past four cohorts, at <http://scimath.unl.edu/MIM/ar.php> and <http://scimath.unl.edu/MIM/mat.php>

ACTION RESEARCH ABSTRACTS:

Connections Made Through Higher Level Questioning, by Jodie Emerson



In this action research study of my teaching of eighth grade geometry, I investigated the impact of using higher level questions and activities on increasing

connections between geometry topics. I sought to find out what happens when I pose the day's objectives in terms of higher level questions and have students work in cooperative groups to answer the questions through hands on activities. I discovered that students need to be shown the proper way to write up their responses and explain their thinking. The students need to be encouraged and continually challenged to extend their thinking. I discovered that when these methods are in place students are able to make connections between mathematics concepts. Students also exhibited greater comprehension of the relationship between mathematical topics. As a result of this research, I plan to extend these teaching methods beyond the honors geometry class I worked with this year in order to try to show the staff at my school that it is possible for regular education students to master these critical thinking activities as well.

Solving Problems Together, by Patrick Derr



This action research looked at the development of problem solving skills in a sixth grade classroom through the strategy of cooperative learning

groups. Students met in groups of four or five every other day to discuss, solve, and present math problems. Pre- and post-tests measured performance on a variety of questions, and documentation was analyzed. Journals were kept by the teacher and students, and some students were interviewed. The study examined what happens to student achievement and attitudes, problem representation, and teacher interventions in a cooperative learning environment. Achievement gains were noted for many students, and journals reflected generally positive attitudes. Documentation was challenging to measure, but I found that higher-ability students were more consistent in using effective scratch work. The study suggests that a higher level of teacher intervention, notably in helping behavior training and reinforcement, might improve group effectiveness.

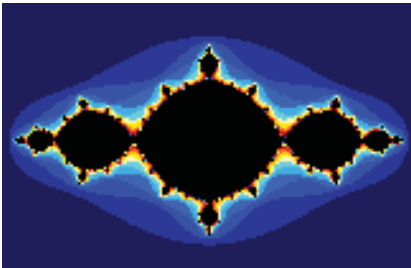
Math Expository Papers, Page 14

MATH EXPOSITORY PAPER SUMMARIES:

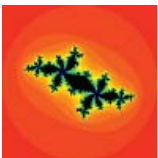
Complex Numbers and Imaginary Fractals: Julia Sets, by Valerie Schovanec

Incredibly complex fractals arise from very simple processes. One way fractals can be made is to take a starting shape, make one or more reduced copies of it, and add it or them to the original shape, thus obtaining a new shape. Then take a copy of this new shape, make the same number of reduced copies of it as before. Add the reduced copy or copies to this new shape, positioning them in exactly the same arrangement as before. Keep repeating this process. The image will have self-similarity, that is, when the image is examined each magnified part of the image resembles the whole.

Julia sets are named after their discoverer, Gaston Maurice Julia. He spent time examining what happened when an iterative, or repeating, process is applied to complex numbers, and published a paper about his discoveries in 1918. Julia noticed that every iteration of a complex number using his function results in a list of numbers that either does or does not head to infinity. If those complex numbers that produce a list of numbers that head toward infinity were marked with a colored dot, and those that did not were marked with a black dot, what appears is a remarkable image. The boundary between points with a list heading to infinity and points with a list that does not is the *Julia set* for the parameter. The geometry of complex numbers and a simple iterative process give rise to an infinite numbers of Julia sets, each offering its own unique visual. The Julia sets, and all fractals, continue to be studied by mathematicians today.



$(-1+0i)$ Julia Set



$(0.295+0.055i)$ Julia Set

The Perfect Shuffle, by Patty Hastings

Mathematics is the study of patterns. Mathematics is everywhere. What started out as playing with cards led to number theory. Number theory is used in cryptography, internet security, bar codes, and ISBN codes. It also has to do with shuffling cards. In this paper, I examine what happens when a deck of cards is shuffled in a particular way and how many times this needs to be repeated to return the deck to its original state.

Suppose you have a deck with an even number of cards, all distinct. A perfect shuffle, also called a rifle shuffle or a Faro shuffle, divides a deck of $2n$ cards exactly in half, and then interleaves the two halves in strict alternation. This is not random. 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.

After much experimentation with smaller decks ($n=4, 6, 8$), I discovered a perfect out-shuffle of an n -card deck is a perfect in-shuffle of the $n-2$ deck, since the top and bottom card do not change positions in an out-shuffle. I also discovered that tracking the position of a single card in an n -card deck involves doubling the position, mod $(n+1)$; a card in position k moves to position $2k \pmod{n+1}$ after an in-shuffle.

I had to use Fermat's Little Theorem and then the Euler-phi function to count how many in-shuffles will return an n -card deck to its original position: the number of in-shuffles needed to return all cards to their original position is the smallest factor of $n(x)$ such that $2^x \equiv 1 \pmod{m}$, where m is the number of positive integers less than n that are coprime to n . If I had a full deck of regular playing cards, fresh out of the carton and took out the jokers, I would be left with 52 cards. Performing in-shuffles, I would need to perform 52 perfect in-shuffles to return all the cards in the deck to their original positions. However, if I wanted to be quicker, I would perform out-shuffles, since it would be like performing in-shuffles with 50 cards. It turns out that it only takes 8 perfect out-shuffles to return all 52 cards back to their original positions. Now, if I could just figure out how to really shuffle all those cards perfectly!



Omaha Public Schools Graduate Class of 2011



JAY BEYER

Wakonda Elementary,
Grade 4
Years Teaching: 10

“I was prompted to join because I want to become a better teacher. I want my students to have the best teacher they can possibly have, and having a deep and rich pedagogy in mathematics will enable myself to serve in a more efficient and intelligent manner in the classroom. This opportunity in Math in the Middle provided the time, support and the incredible opportunity to study and earn my master’s degree. This program means an awful lot to me. In my immediate family, I am a first-generation college graduate; and, this program now means I will also be a first-generation college student with an advanced degree.”



CINDY CARVER

Nathan Hale Magnet
Middle School,
Grades 7-8
Years Teaching: 7

“I don’t think I have the words to express all that I have gained from Math in the Middle. I feel that this experience has made me a better math teacher and to really look into how I teach. Math in the Middle has allowed me to work closely with other teachers that I may not have had the chance to collaborate with otherwise. Being involved in the program has given me a certain level of pride. I’m still in awe of the amount of knowledge I gain with every class I take.”



KATIE GLACEY

Sherman Elementary,
Grades 5-6
Years Teaching: 4

“My goal is to become a better teacher. I am definitely gaining a deeper understanding for mathematics. I want my enthusiasm and understanding to rub off on the kids in my classroom. I have taken things that I learned in Math in the Middle and applied it to the classroom already, and the kids seem to enjoy it. Personally, I have learned a lot about myself. I have become better at juggling everything at once. Those things include demands from work, school and home. I have also learned that I am more determined than I originally thought I was.”



AMY GORDON

Monroe Middle School,
Grade 8
Years Teaching: 15

“My goals in the classroom are to instill a solid sense of numbers to my students along with the building blocks for success in their math courses and life. I plan to continue teaching and sharing what I have gained with other math teachers. I feel that I have expanded my understanding of mathematical concepts, and I have also learned to better convey that understanding to my students. To others I would say that this program is the best professional development that I have ever participated in. That said, it is also the most demanding, but worth every minute invested.”



KESHA KING

Chandler View Elementary,
Grade 6
Years Teaching: 3

“My goal in the classroom after taking these classes is to strengthen my students’ confidence and abilities to understand and communicate their math knowledge. Both personally and professionally I have gained a sense of renewed admiration for math. I look forward to sparking and encouraging students to a great sense of achievement in math as well. You cannot walk away from a tremendous program like this one and fail to gain skills and insight that will enlighten you and aid you in developing true conceptual understanding of math for your students.”



BRIAN KOHLHAAS

Monroe Middle School,
Grade 7
Years Teaching: 6 1/2

“I want to be able to reach all of my students better in my math classes. I feel that the instruction I am receiving in this program is providing me with tools to be able to better explain all of the mathematics I teach. Also, I am wanting to be able to better show my students how the math they are learning connects to things that they will use in their daily lives. I have really learned the benefit of being able to collaborate with other teachers in this process to either help me when I struggle, help them when they are struggling, or just learn a different viewpoint. ... I have been involved in other things like a theatrical production, coaching, and preparing for my wedding all while taking these graduate courses. I think what is important to remember is that if you want something bad enough, you will find the time for it. I think this is just like anything else in life. If you want it bad enough, you will do what it takes to do that thing.”



KELLY LAFLEUR

Lewis and Clark
Middle School,
Grades 7-8
Years Teaching: 8

“I have already applied a few things I have learned into my classes so far. Hopefully when I am done with this program I can help mentor teachers more and become more involved with the math professional development that my school and the district are always in need of. For anyone considering graduate work they should know it is a big time commitment and you are going to have to learn how to balance work, school and home in order to get everything accomplished. In the end though, it is a great accomplishment and you will be so proud of yourself for completing it.”



SARAH LARSON

Alice Buffett Magnet
Middle School,
Grade 5
Years Teaching: 3

“This program has provided so much knowledge and insight that my goal would first off be to implement it into my classroom. Along the same lines I will also be educating others around me because there are a few things that are going to be new to everyone. This is an intense program that is made to challenge you. It does take a lot of time, but it is created in a way that you have a strong support system that wants to see you succeed. Above all, the classes have been beneficial to my direct and indirect teaching.”



SUSAN LEAVITT

Skinner Magnet Center,
Grades 2-6
Years Teaching: 9

“My No. 1 goal is to apply what I have learned in the Math in the Middle classes to improve my teaching and consequently the students’ learning. Since I now teach in an inner city school, I want to help make the opportunities possible for my students that the study of mathematics can bring. In essence, I want to help my students see a hope for their future. I also want my students to be challenged and yet come to enjoy math and see it as a natural part of daily life. I also hope, in working and challenging young girls, I will be able to encourage more women into math and technology-related fields of study.”



DIANNE LEE

Sherman Elementary,
Grade 1
Years Teaching/
Facilitating: 14

“I hope to find effective ways to engage all learners in mathematical thinking. It is well worth the time to invest in growing as an educator. I have seen the benefits of the personal reflection put into practice. My students are smarter because I am growing as a learner.”



JOSEPH NUSS

Bancroft Elementary,
Grade 6
Years Teaching: 14

“My goals are to improve teaching in the classroom, to become a lead teacher in my school and eventually the district and to improve math education in my school and the district. I have become more aware of what I need to do to improve math instruction in the classroom. I have a deeper understanding of the role that research plays in developing math instructional best practices.

I have had the opportunity to meet a new group of very talented educators. The sacrifice in time over the short term is well worth the eventual rewards, both personally and professionally, over the long term.”



JENNIE PREMER

McMillan Magnet Center
Middle School,
Grade 8
Years Teaching: 5

“I hope to give students more in-depth knowledge of content learned in the curriculum and hope to show them how interesting math is. The courses are very intense and take a lot of time, but it is the most rewarding set of courses you can do for yourself and your students.”



MATTHEW TIMM

Belvedere Elementary,
Grade 2
Years Teaching: 7

“In the short term, I want to be able to encourage students to develop a curiosity and sense of wonder about mathematics. I would like students to walk away from my classroom eager to deal with challenging situations and to communicate solutions. Beyond my classroom, I would like to see children in lower grades develop this curiosity and continue to extend it throughout school. I am not so sure that every graduate program is worthwhile, but this one definitely is. I have gained far more from this program than from any other academic professional development I have been a part of. In addition, I would recommend Math as a Second Language to any teacher who has not taken the course.”



LYNN WEST

Marrs Magnet Middle
School, Grades 7-8
Years Teaching: 14

“Math in the Middle has taught me the incontestable value of working with colleagues who share the same goal as well as giving me the ability to think more deeply about the concepts I teach every day. This program has challenged me to stretch my limits and reach beyond my ability to discover my possibilities. I want to share what I’ve learned through my Math in the Middle experience with my students as well as with the teachers I support. I want to be able to encourage students to enjoy learning mathematics by developing a sound understanding of foundational math concepts.”

Omaha Public Schools teachers - Graduate Class of 2011



Not pictured: Cindy Carver

Marlene Grayer



Grayer (center) served as a Master Teacher for a course for Primarily Math (pictured) as well for Math in the Middle.

Marlene Grayer began Math in the Middle in cohort four as a sixth grade teacher for Lincoln Public Schools at Park Middle School. After teaching all subjects and gaining deep content knowledge from Math in the Middle, Grayer realized her passion and strength laid in mathematics. Grayer joined Omaha Public Schools in the fall of 2009 as an eighth grade mathematics teacher at Alice Buffett Magnet Middle School. Grayer is currently seeking her certification in secondary mathematics education. Her goal is to build a community of problem solvers one student at a time. She also hopes that, by her example, fellow mathematics educators will be encouraged to challenge their students to develop the “habits of mind” characteristics of a skilled problem solver.

Babies!

Five teachers welcome children to their families during our demanding program



Teegan Archie,
daughter of Tanya
Archie



Abigail Arvie, daughter
of Pamela Arvie



Michael Dickmeyer, son
of Jonelle Dickmeyer



Evelyn and
Isaac
Emerson,
twin
daughter and
son of Jodie
Emerson



Sadie Larson, daughter of
Sarah Larson

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Tom McGowan, Professor and Chair, UNL Department of Teaching, Learning & Teacher Education

Barb Jacobson, Director of Curriculum, Lincoln Public Schools

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Andy Frederick, Technology support

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Brenda West, Accountant

Math in the Middle

Omaha Public Schools



Not pictured: Cindy Carver

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