



**Turning the Walls to Glass:
Sharing Best Classroom Practices**

Nebraska Association of Teachers of Mathematics
2016 Annual Conference

#natm2016

September 9 & 10
Holiday Inn Convention Center
Kearney, Nebraska

Nebraska Association of Teachers of Mathematics

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2016 NATM Fall Conference: TURNING THE WALLS TO GLASS – SHARING BEST CLASSROOM PRACTICES

7:30 am – 8:00 am	Registration							
8:00 am – 8:10 am	Welcome to the 2016 NATM Annual Fall Conference Shelby Aaberg, NATM President							
	Ballroom	Stateroom A	Stateroom B	Stateroom C	Stateroom D	Stateroom E	Stateroom F	Executive Room
8:15 am – 9:15 am Session 1	Keynote: Math Is Power Not Punishment Dan Meyer				Bridges to Mathematics (K-5) Julia Baucum	How Much Does It Hold? (6-12) Deb Romanek	Desmos Eli Luberoﬀ (K-12)	Empowering Secondary Teachers with NCTM’s Principles to Actions (Post-Secondary) Jami Stone
9:15 am – 9:30 am	BREAK - Visit the vendor tables and network with other mathematics educators							
9:30 am – 10: 30 am Session 2	Keynote: Math Is Power Not Punishment Dan Meyer				The Learning Carpet (K-5) Nora Robinson	Zero & One: So Simple, Yet So Profound! (6-12) Tom Price	Desmos Eli Luberoﬀ (K-12)	Nebraska Mathematical Processes (K-12) Kelly Georgius
10:30 am – 11:00 am	BREAK - Visit the vendor tables and network with other mathematics educators around our state							
11:00 am – 12:05 pm	LUNCH, AWARDS, AND VENDORS Message from NCTM President Matt Larson							
12:10 pm – 1:00 pm Session 3		Facilitating Mathematical Discourse Through Screencasting (K-5) Amanda Thomas	Apps and Tools for Math Instruction (6-12) Trevor Reeh	Roller Derby and Other Engaging Number Sense Activities for Primary Grades (K-5) Lenny VerMaas	Presidential Awards for Excellence in Math & Science Teaching (K-12) Deb Romanek	Planning Lessons for a 1:1 Classroom (6-12) Josh Males	Arduino, Edison, and My Vision for Starting a Robotics Course in Rural Nebraska (9-12) Daniel Schaben	Productive Mathematical Discussions (K-12) Kelly Georgius
1:10 pm – 2:00 pm Session 4		Math Vocabulary with Foldables and Video (K-12) Kim Soper	Making the Invisible... Visible! (K-5) Suzanne Pike and Jonelle Dickmeyer	Using Picture Books to Build Math Concepts (K-5) Lenny VerMaas	Effects of Acceleration on Student Understanding of Math Concepts (6-12) Melissa Fast	BreakoutEDU (K-12) Trevor Reeh	Math Club: Coaching a Competitive Bowl Team (6-12) Shelby Aaberg	Using Content Mapping to Provide Direction in Professional Development (K-16) Amy Nebesniak
2:10 pm – 3:00 pm Session 5		Using Pattern Blocks to Shape Fraction Knowledge (K-5) Amy Nebesniak	Effective Planning with a 5E Framework (K-5) Karla Bandemer	Using Questioning to Develop Student Understanding (K-12) Lenny VerMaas		The Parabolic Cooker: A STEM Activity (6-12) Tom Price	Using Authentic Tasks to Promote the Development of ‘Modeling Abilities’ (6-12) Danielle Buhrman	Improving Practice Through Informal Teacher Research (K-12) Wendy Smith
3:05 pm – 3:30 pm Closing Session	Closing Summary and Prize Raffle Elliott Ostler, NATM 1 st Vice President							

Keynote



Dan Meyer, Chief Academic Officer, Desmos



“Math is Power, Not Punishment”

We often offer students shortcuts, strategies, and skills before students understand their origin, their value, and the millions of hours of work they’ve saved mathematicians throughout history. We’ll look at techniques for putting students in a position to need these challenging skills so they feel like power, not punishment.

Dan’s TED Talk, *Math Class Needs a Makeover*, has over 2 million views on TED.com. Watch it [here](#).

<p>Session 1 8:15 – 9:15</p>	
<p>Ballroom</p>	<p>Math Is Power, Not Punishment <i>Dan Meyer, Desmos Chief Academic Officer</i></p>
<p>Stateroom D</p>	<p>Bridges to Mathematics <i>Julia Baucum & Megan Burda, Scottsbluff Public Schools</i> Grades K-5</p> <p>“Math is greater than computation. Procedural fluency is essential but not sufficient for developing mathematical thinkers.” Come hear from Scottsbluff School District about their experience implementing the clearly articulated K-5 curriculum offering a unique blend of problem-solving and skill building.</p>
<p>Stateroom E</p>	<p>How much does it hold? <i>Deborah Romanek, Nebraska Department of Education</i> Grades 6-12</p> <p>What does a volume task look like which allows students to practice the mathematical processes in the revised math standards?</p>
<p>Stateroom F</p>	<p>Desmos <i>Eli Luberoff, Desmos CEO</i> All Levels</p> <p>Learn how using Desmos can help every student learn and love math.</p>
<p>Executive Room</p>	<p>Empowering Secondary Pre-Service Teachers with NCTM’s Principles to Actions <i>Jami Stone, Black Hills State University</i> Post-Secondary</p> <p><i>Principles to Actions: Ensuring Mathematical Success for All</i> clarifies the conditions, structures, and policies needed to promote conditions for all students to be successful in mathematics. Learn how this book can be used as a resource to foster secondary preservice math teachers’ competency in teaching, learning, and empowering their future students.</p>

Session 2 9:30 – 10:30	
Ballroom	Keynote – Math Is Power, Not Punishment <i>Dan Meyer, Desmos Chief Academic Officer</i>
Stateroom D	The Learning Carpet <i>Nora Robinson, Mary Lynch Elementary</i> <i>Grades K-5</i> The Learning Carpet provides a whole brain approach to learning math. It is an interactive math experience that moves to paper/pencil easily. The carpet can be used for all areas of mathematics.
Stateroom E	Zero and One – Simple yet Profound <i>Tom Price, Lincoln Christian High School</i> <i>Grades 6-12</i> You might think that zero and one are pretty basic, but their importance cannot be overstated! From base 10 to base 2, throw in some probability, maybe even a little trig, and you'll find much to talk about with these building blocks!
Stateroom F	Desmos <i>Eli Luberoff, Desmos CEO</i> <i>All Levels</i> Learn how using Desmos can help every student learn and love math.
Executive Room	Nebraska Mathematical Processes <i>Kelly Georgius, Educational Service Unit 2</i> <i>All Levels</i> The Nebraska Mathematical Processes describe the way in which students should learn math, reflecting the skills necessary for students to conceptually understand mathematics in the classroom and beyond.

Lunch & Awards 11:00 – 12:05 Ballroom	<i>Matt Larson, President, National Council of Teachers of Mathematics</i> Awards Ceremony NATM Rookie of the Year Award Don Miller Distinguished Service Award Milton Beckman Lifetime Achievement Award
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Session 3 12:10 – 1:00	
Stateroom A	<p>Facilitating Mathematical Discourse through Screencasting <i>Amanda Thomas, University of Nebraska–Lincoln</i> Grades K-5</p> <p>In this session, we will explore how screencasting can support elementary teachers in facilitating mathematical discourse. The session will include examples of screencasting in classrooms where technology access ranges from a single classroom tablet to 1-1 student iPads.</p>
Stateroom B	<p>Apps and Tools for Math Instruction <i>Trever Reeh, Schuyler Central High School</i> Grades 6-12</p> <p>Making sure all students know the day's information is important. We will cover apps and web 2.0 to help students learn using technology from the beginning of the class until late at night.</p>
Stateroom C	<p>Roller Derby, and Other Engaging Number Sense Activities for Primary Grades <i>Lenny VerMaas, Educational Service Unit 6</i> Grades K-5</p> <p>"Roller Derby" and "100 or Bust" are two of several games that will be experienced to help students enjoy learning math. These games help students build number sense, associate numbers with objects, number facts, game strategies, and estimation. Walk away with center or class activities.</p>
Stateroom D	<p>Presidential Awards Program for Excellence in Mathematics Teaching <i>Deborah Romanek, Nebraska Department of Education</i> All Levels</p> <p>This program provides an opportunity for you to reflect on your teaching of mathematics. We will share information about the program and helpful hints on completing the application. You deserve to be recognized for your professional dedication.</p>
Stateroom E	<p>Planning Lessons for a 1:1 Classroom <i>Joshua Males, Lincoln Public Schools</i> Grades 6-12</p> <p>All of your students have a device, now what? In this session participants will be engaged in a discussion on lesson planning for a 1:1 classroom. We will look at how to plan for integrating technology into your classroom in ways that will allow students to develop conceptual understanding. While this session will focus on integrating devices into classrooms, much of the discussion will be on the importance of planning and how to increase the level of discussion in your classroom.</p>
Stateroom F	<p>Arduino, Edison, and My Vision for Starting a Robotics Course in Rural Nebraska <i>Daniel Schaben, Arapahoe Public Schools</i> Grades 9-12</p> <p>This fall I will start a yearlong robotics course at Arapahoe. I will share my plan for that course and why I settled on Arduino as I take my first tentative steps into the Makerspace revolution that is sweeping the nation.</p>
Executive Room	<p>Productive Mathematical Discussions <i>Kelly Georgius, Educational Service Unit 2</i> Grades K-5</p> <p>This session will outline the 5 Practices for Orchestrating Productive Mathematical Discussions (Smith and Stein, 2011), a framework for math discussions rooted in student thinking. I will identify the instructional practices that will help teachers guide students in a meaningful mathematical discussion.</p>

Session 4 1:10 – 2:00	
Stateroom A	Math Vocabulary with Foldables & Video <i>Kim Soper, UNMC-SEPA</i> <i>All Levels</i> Math vocabulary can be so much more than just words on a wall. Come learn how to utilize Foldables and videos to make your math class more interactive and have more student ownership of material.
Stateroom B	Making the Invisible... Visible! <i>Suzanne Pike and Jonelle Dickmeyer, Omaha Public Schools</i> <i>Grades K-5</i> Changing teacher practice is challenging. This session investigates the work of elementary math coaches aiming to support K-5 teachers in growing mathematical capacity by use of a three part coaching cycle. We will share strategies that can help empower teachers to continue reflecting on and refining their practice.
Stateroom C	"Greedy Triangle", "Equalschmell", "Bean Thirteen", OH MY, Using Picture Books to Build Math Concept <i>Lenny VerMaas, Educational Service Unit 6</i> <i>Grades K-5</i> Marilyn Burns's "Greedy Triangle" leads to a peeking shapes activity as students explore characteristics of geometric shapes. Exploragons will be used to create additional geometric foundations. Two other picture books, "Equalschmell" and "Bean Thirteen" will be shared.
Stateroom D Note: This is a special session that starts in Session 4 and continues through the Session 5 time slot	Re-thinking Acceleration in Mathematics <i>Melissa Fast, Kansas State Department of Education</i> <i>Grades 6-12</i> Participants that attend this session will (1) weigh the costs/benefits of acceleration, (2) investigate college and career readiness pathways/pipeline for grades 6-12 mathematics and, (3) discuss the purpose for acceleration and how students are identified. Furthermore, Participants that attend this session will focus on how to best communicate to parents and community (1) the costs/benefits of acceleration, (2) college and career readiness pathways/pipeline for grades 6-12 mathematics and, (3) the purpose for acceleration and how students are identified. We will share two resources: White paper on acceleration and the research base, description of the pipeline for grade 6-12 mathematics. This session would be geared towards teachers, curriculum leaders, administrators, and coaches.
Stateroom E	BreakoutEDU <i>Trever Reeh, Schuyler Central High School</i> <i>All Levels</i> BreakoutEDU games teach critical thinking, teamwork, complex problem solving, and can be used in the math classroom to engage learners. In this session we will play a BreakoutEDU game and look at other tools BreakoutEDU offers to incorporate into your classroom.
Stateroom F	Math Club: Coaching a Competitive Bowl Team <i>Shelby Aaberg, Scottsbluff High School</i> <i>Grades 6-12</i> Learn about contest mathematics coaching strategies that have translated into success for the Scottsbluff High School Math Club. Resources for teachers of all experience levels will be provided.
Executive Room	Using Content Mapping to Provide Direction in Professional Development <i>Amy Nebesniak, University of Nebraska-Kearney</i> <i>Post-Secondary</i> Are you a coach, administrator or teacher educator looking for a way to begin or enhance professional development? Content mapping is a strategy that encourages teachers to create a physical map of a math concept. This strategy has been shown to foster math-focused conversations, deepen teachers' mathematical knowledge and improve instruction.

Session 5 2:10 – 3:00	
Stateroom A	<p>Using Pattern Blocks to Shape Fraction Knowledge <i>Amy Nebesniak, University of Nebraska-Kearney</i> Grades K-5</p> <p>Learn how to use Pattern Blocks to help students develop conceptual understanding of equivalent fractions, comparing fractions, and operations with fractions. We will explore how to use these hands-on (or virtual) manipulatives and pictures to explain those elusive "fraction rules." This session is sure to have you rethinking fractions.</p>
Stateroom B	<p>Effective Planning with a 5E Framework <i>Karla Bandemer, Lincoln Public Schools</i> <i>Becky Evans, Everett Elementary School, Lincoln Public Schools</i> Grades K-5</p> <p>This session will dig into effectively planning lessons within the 5E framework. What steps could teachers take in order to best meet the needs of their students? Topics will include planning with your students in mind, facilitating meaningful discourse, providing opportunities for productive struggle, and addressing each of the 5Es.</p>
Stateroom C	<p>Using Questioning to Develop Student Understanding <i>Lenny VerMaas, Educational Service Unit 6</i> All Levels</p> <p>Who is doing the talking in your classroom? Teachers ask a lot of questions. Do your questions encourage student thinking and deepen understanding? We will look at several strategies to make your questioning more effective in the math classroom.</p>
Stateroom D	<p>Re-thinking Acceleration in Mathematics <i>Melissa Fast, Kansas State Department of Education</i> Grades 6-12</p> <p>This is a special session that starts in Session 4.</p>
Stateroom E	<p>The Parabolic Cooker – a STEM Activity <i>Tom Price, Lincoln Christian High School</i> Grades 9-12</p> <p>Looking for a hands-on STEM activity for your Algebra 2 class? The "parabolic cooker" might be just the activity for you! Come hear about a 4th quarter, culminating project.</p>
Stateroom F	<p>Using Authentic Tasks to Promote the Development of 'Modeling Abilities' <i>Danielle Buhrman, Grand Island Senior High School</i> Grades 6-12</p> <p>Traditional textbooks claim to promote 'modeling' by giving prompts like "Model population growth with an exponential function given the initial population and rate of growth.' Yet, these tasks do little to develop what the presenter calls 'modeling abilities' in the way Common Core intends. In this session, learn about one teacher's journey to design and implement authentic tasks in her classroom and begin thinking about where in your curriculum 'authentic modeling' may fit in.</p>
Executive Room	<p>Improving Practice Through Informal Teacher Research <i>Wendy Smith, University of Nebraska-Lincoln</i> All Levels</p> <p>In this session, I will talk to teachers of all levels about how to systematically work on improving their teaching practices. I will talk about Plan-Do-Study-Act cycles of improvement that allow teachers to identify, select and implement a targeted change, and then determine if that change "worked," allowing the teacher to then determine his or her next steps. The majority of the session will be time for teachers to discuss areas of potential improvement, and to start making plans. Participants will be encouraged to form a "networked improvement community" to provide support as they collectively seek to improve their teaching practices and learn from each other.</p>

3:05 – 3:30 Ballroom	Elliott Ostler, First Vice President Closing Summary and Prize Raffle
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Nebraska Association of Teachers of Mathematics #mathedcamp

Organic, participant-driven professional development

About the EdCamp Format <https://youtu.be/gr7teMAk-hA>

Breakfast will be provided

Location

Saturday, September 10

8:00 – 11:00 am

Holiday Inn Convention Center

Kearney, Nebraska

Cost

Pre-service Teachers FREE

NATM Members \$5.00

Non-Members \$10.00

Sign-Up

www.natmathematics.org

Questions

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