Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

ATOMIC CONFERENCE PROGRAM 2023

Time Slot A

10:00 – 10:45 Presentation

A1 **All Educators**

Leveraging Heterogeneous Grouping

Have you ever played trivia with a group, or been a part of a book club or sports team? The best groups are the ones with different perspectives that can help the group succeed. Traditionally, students are grouped in their math classes based on previous assessments, teachers' recommendations and overall grades. Within these homogeneous settings, there are still students with a variety of abilities and strengths. These abilities and strengths can be amplified using the strategy of heterogeneously grouping.

In this session, we will show how heterogeneous grouping allows for students to bring in their individual perspectives and connect with the content differently.

We will provide research materials, practical examples and show how a simple Think/Pair/Share can allow for willingness to collaborate, eliminate social barriers, increase knowledge mobility, increase enthusiasm for mathematics, and reduce social stress

Richard Cordaway, *Middletown Public Schools*
Yvonne Daniels, *Our Youth Can*

A2 **Grades 9-12**

Advanced Algebra with Financial Applications: An Algebra 2 Alternative for Struggling Students

Advanced Algebra with Financial Applications helps motivate students with the algebra they will need as adults. Banking, credit, employment, income taxes, auto insurance, mortgages, investing are covered using selected topics from algebra 2, precalculus, geometry, prob/stat and more. All topics are taught assuming an algebra 1 prerequisite only.

Robert Gerver, *North Shore Schools, retired*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

A3 **Grades 3-8**

Working Towards Getting All Students on Grade Level by Accelerating Learning

This session focuses on how to use formative assessment data and prerequisite standards to target instruction and accelerate learning. We will explore how to use math manipulatives along with pedagogical structures that can be used to support all students in becoming proficient at grade-level standards. Participants will leave with an understanding and framework for accelerating learning.

Christine King, *CKingEducation*

10:00 – 11:00 Workshops

A4 **All Educators**

Equity in Mathematics Education: A Position Statement for Connecticut

In this session, we engage participants in reflecting on their current math teaching, programming, and systems, to consider how those support or hinder the advancement of equity . We share an overview of Equity in Mathematics Education: A Position Statement for Connecticut – a document produced by Connecticut's professional organizations (AMTEC, ATOMIC and CCLM) in consultation with the state department – intended to guide action toward more equitable outcomes for all students. We share examples of successes from districts in relation to the three "pillars" in the position statement. We conclude with participants identifying short-term and long-term goals.

Megan Staples, *Association of Mathematics Teacher Educators in Connecticut (AMTEC)*
Jillian Cavanna, *Association of Mathematics Teacher Educators in Connecticut (AMTEC)*
John Keogh, *Connecticut Council of Leaders of Mathematics (CCLM)*
Robin Moore, *Associated Teachers of Mathematics in Connecticut (ATOMIC)*
Maria Mitchell, *AMTEC, CCLM, and ATOMIC*
Jenn Michalek, *Connecticut State Department of Education*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

A5 **Grades K-2**

The Science of Mathematics=The Math Practice Standards

The Science of Math is simple.....learn how to incorporate the math practice standards into your daily lessons. Make sure the practice standards are alive and well in your elementary mathematics classrooms! Learn how to ensure that you are incorporating the practice standards into every lesson and how to reach every student! You will leave this workshop with hands-on activities, lessons and ideas to use the very next day!

Danielle Legnard, *Bethel Public Schools*

A6 **Grades K-5**

Mastering Computational Fluency

A progression of computational fluency strategies as it relates to the Common Core Standards will be shared. Participants will have the opportunity to practice the strategies and look at student work samples to determine instructional needs and identify specific strategies to support student mastery of computational fluency standards.

Laura Main, *Booker T. Washington Academy*

A7 **Grades K-8**

Mathematical Modelling and Real-Life Situations: Mathematizing Student Thinking in Kindergarten - Grade 8

Cultural-relevancy in mathematics removes the barrier that exists between school and the lived experiences of students. Through highlighting real-life situations, students engage in making meaning and recognizing how mathematics can assist them in understanding and solving problems that they themselves will encounter. Mathematical modeling is the framework through which students can apply to solve everyday-life problems. In this session, I will engage participants in applying the mathematical modeling framework and how such a framework requires that mathematizing of thinking within an iterative process.

David Costello, *Costello Math*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

A8 **Grades 3-12**

Language in the Math Classroom: Utilizing Mathematical Language Routines

In a mathematics classroom, the use of language, whether it be reading, writing, speaking, listening, conversing, or representing, is evident. Mathematical Language Routines provide students access and support in order to write mathematical explanations, make conjectures and generalizations, and construct mathematical arguments. In this session, participants will engage in a Mathematical Language Routine and discuss how it supports students of all levels. Participants will have the opportunity to explore additional Mathematical Language Routines and consider how they might utilize these specific routines in upcoming lessons.

Jessica White, ***Area Cooperative Educational Services***

A9 **Grades 6-8**

Increase Engagement and Conceptual Understanding with Polypad

The value of manipulatives in building conceptual understanding is well-known in the world of mathematics education. The National Council of Teachers of Mathematics (2014) states, "...tools and technology must be indispensable features of the classroom" (p.78). Manipulatives help students see mathematical relationships and they provide a visual for "the why" behind abstract representations that can be confusing for middle schoolers.

One positive outcome of the pandemic is increased access to technology for students. Rather than teachers using virtual manipulatives as a presentation tool in class, students with their own devices can now engage with these manipulatives. A new virtual manipulative site, Polypad, not only has a large selection of manipulatives, tools, and games but also allows teachers to create classes and share lessons. Students love using the tools and Polypad even integrates with Desmos!

In this presentation, participants will engage in a variety of activities that highlight some of the many features of Polypad. The presenters will demonstrate how activities are created in Polypad and also how they can be integrated in Desmos. Successes and challenges from the classroom will be shared.

Carla Bidwell, ***East Hartford Public Schools***
Kelly Handrahan, ***East Hartford Public Schools***

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

A10 **Grades 6-12**

Systems and Structures for a Thinking Classroom

How can we establish a classroom culture where all students are able to build their knowledge together by collaborating to think deeply about mathematics? In this session, participants will experience Peter Liljedahl's Thinking Classroom model, learn about the successes East Hartford High School has had with it, and troubleshoot common challenges.

The session will begin with an immersive experience where participants will complete a thinking task on vertical non-permanent surfaces (whiteboards) in visibly random groups. Next, the presenters will review the instructional moves that were embedded in the task and designed to promote engagement and reflection. These include the task design, grouping, physical space, and the way questions are answered. Finally, participants will learn about some of the systems East Hartford High School has put into place to support the thinking classroom model including whiteboard creation, task banks, co-teaching, rubrics, and student self-reflection.

We understand that Building Thinking Classrooms has become a popular text around the state and the country, and as a result, this workshop will include time for veteran practitioners to share their strategies. This workshop is led by three presenters with one, two, and eight years of experience with the Thinking Classroom model. Come and think with us!

Emily Reed, *East Hartford Public Schools*
Bob Janes, *East Hartford Public Schools*
Nicole Beauchamp, *East Hartford Public Schools*

A11 **Grades 6-12**

Using the 5E Model to Engage Students in Learning Mathematics

In this session we will talk about the 5E Model; engage, explore, explain, elaborate and evaluate. We will review strategies for each and include how to best leverage technology for each as well. The majority of the session will focus on the first e, engage, with activities, tools and ideas teachers can take back to their classroom to keep students engaged from the minute they walk into the classroom until they leave.

Amanda Peterson, *Danbury Public Schools*

A12 **Grades 6-Higher Ed.**

If You Got a Problem, Yo, I'll Solve It: Creating Questions and Tasks for Deeper Mathematical Thinking

We know we should make our students persevere through problem solving, but how do we know what meaningful problem solving looks like? What resources will drive our students to think more deeply? How do we create problems that lead students to productive struggle and the transfer of mathematical ideas? In this workshop a curriculum coordinator and math league problem writer will lead teachers to investigate challenging problems and helpful techniques for creating questions and tasks to facilitate meaningful mathematical rigor.

Andrew Hill, *Brookfield Public Schools*

A13 **Grades 9-12**

TI Technology ... Now what? How to get the most from your technology in the Math and Science classrooms

This workshop will explore labs that combine TI technology and homemade apparatuses in both the Math and Science classrooms. How can a drain pipe teach projectile motion AND velocity? Come see how a brick, string and a pipe can teach sinusoidal functions. Come prepared to share some ideas on how other labs can be created.

James Wares, *Dover High School, NH*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

Time Slot B or Lunch

11:15 – 12:00 Presentation

B14 **All Educators**

What Essential Actions can leaders take to become Culturally Relevant Mathematics Leaders?

In the original Framework for Leadership in Mathematics NCSM outlines the Essential Actions all BOLD mathematics leaders must take in order to ensure learning for each and every learner. In this book NCSM takes it one step further and we connect our framework to Culturally Relevant Practices that math leaders can embed at all levels of leadership from teachers to state leaders. In this session you will also learn the 12 Essential Actions BOLD leaders can take back into their schools and also learn how to adapt a task to make it more relevant for the students you serve. This will be an interactive session where we will present the framework, preview a taks and also share ideas. Any BOLD mathematics leader will not want to miss this session!

Georgina Rivera, *West Hartford Public Schools*

B15 **All Educators**

Transformational Change through Embedded Coaching Cycles

Many instructional coaches work to support individual teachers by coaching them on a periodic basis. While this can be effective in some cases, it may not build the strong collaborative culture that we desire in our schools.

An embedded coaching cycle requires an entire PLC to come together with coaches and administrators to build their capacity together. During the cycle, the entire team makes a commitment to (1) focus on a specific shared goal, (2) plan a series of three to eight lessons together, (3) co-teach at least one lesson per day, and (4) observe and debrief these lessons with their peers. When done correctly, embedded coaching cycles can foster trust, understanding, and communal reflection between all members of the team. They allow teachers to be innovative and daring while still having the backing of other teachers and administrators. Most importantly, they can support lasting positive outcomes for students.

In this presentation, participants will learn about the structure of an embedded coaching cycle, along with ways it can be modified and customized to fit any school. The presenters will share planning and debrief protocols, tips for troubleshooting, and testimonials from teachers who have experienced an embedded coaching cycle.

Bob Janes, *East Hartford Public Schools*
Carla Bidwell, *East Hartford Public Schools*

B16 **Grade 9-12**

Math for the Trades

Having a hard time creating math electives? What about the students that might not go to college? This course is for them! Math for the Trades is a course I created for the seniors who were either lost, or know that college isn't for them. Math for the Trades is a hands-on, trade specific class that dives into concepts needed on the job! Along with the math concepts needed, I include quarterly projects that are designed to help students find a career path in a trade! Join me to see how this course could benefit YOUR students! I will share how I created this course, what is taught and how to implement it to fit YOUR students!

Chelsie Guerrera, *Watertown High School*

11:15 – 12:15 Workshop

B17 **Grades K-5**

A Coach's Experience Building a Thinking Classroom Lab in an Elementary School

Learn how a school committed to putting research into action to create a math lab focused on promoting thinking using the book, Building Thinking Classrooms in Mathematics. The work was anchored around the topics in the first four chapters. The experiences in the lab carried into choices teachers made in their classrooms to promote student thinking.

Robyn Tedesco, *Trumbull Public Schools*

B18 **Grades K-8**

Leave the Tricks Behind: Using Manipulatives and Models to Build Understanding

Are you looking for ways to help your students develop a strong conceptual understanding? See why manipulatives and models are powerful tools for both elementary and middle school students. Examine how the same manipulatives can be used for different concepts across the grade levels. Let’s look at how to help all students access the curriculum in a hands-on, fun way!

Kristi Pramuka, *Cornwall Consolidated School*
Danielle Krueger, *Cornwall Consolidated School*

B19 **Grades K-12**

Making Complex Mathematics Tasks Enabling

In this session participants will learn how to adapt a cognitively demanding mathematics task to make it culturally relevant and accessible to all students, without lowering the cognitive demand of the task. In order to engage students in rich academic conversation that does not funnel students to the answer, (maintain the cognitive demand of the task), participants will dig into specific instructional moves and tools that can help students make sense of a problem, and persevere through it as they develop their identity as mathematical thinkers and problem solvers.

This is an excellent opportunity for educators to re-envision mathematics teaching and learning to benefit all learners, especially students who have been historically minoritized and/or colorized.

Nonye Obiora, ***Boston Public Schools***
Armando Segura, ***Boston Public Schools***

B20 **Grades 3-12**

Breaking down the gatekeepers: Models and Visual Strategies for Integers, Fractions and Decimals

Students who struggle with fraction, decimal, and integer concepts may not have used concrete models and pictorial representations as part of their learning. Instruction without modeling tends to focus on the use of equations and algorithms to abstractly represent math concepts. This workshop introduces activators which put visual models at the forefront in helping teachers and students anchor these concepts concretely.

Speakers will teach a routine of building on student thinking through visual models. Models of how to record student thinking and provide clear instructional building blocks will be shared. Participants will experience hands-on and visual models to support their thinking around these often underdeveloped topics. Then they will practice recording student thinking that allows them to share students' ideas with the class to promote discussion.

Molly Vokey, ***Math 4 All***
Heidi Sabnani, ***Educational Consultant***

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

B21 **Grades 3-12**

Fostering Conceptual Understanding Across Grade Levels

In this workshop, participants will discover patterns and visual models that support the development of conceptual understanding and transfer of skills as they progress throughout the grade levels. Through their exploration, participants will recognize the impact of conceptual understanding on mathematics teaching and learning. We will investigate the power of conceptual understanding in its facilitation of fostering understanding over knowing.

Participants will alternate between the role of student and teacher to experience conceptual thinking around important mathematical concepts and reflect on their current practices. Participants will walk away with turn-key strategies that promote deeper understanding and application for their current teaching responsibilities.

Lisa Seales, *Area Cooperative Educational Services (ACES)*
Jessica White, *Area Cooperative Educational Services (ACES)*

B22 **Grades 6-8**

Coding to Play Music

This is a STEAM "hands on" activity and participants will learn how, and be able to, write basic code to play music. Some examples will be presented and then the participants will have an opportunity to compose their own song.

Jean McKenny, *NEKLS*

B23 **Grades 6-12**

One Technology for ALL of STEAM!

Your calculator is not just for math class anymore! This hands-on session will show you how quick and easy it is to collect data in science class, analyze it in math class, code and engineer in any class, and experience the arts while you're at it! No coding experience necessary. Free activities and resources will be shared.

Robyn Poulsen, *Texas Instruments*

B24 **Grades 6-12**

Building Thinking Classrooms in Mathematics

This workshop will consist of three parts. During the first segment, participants will actively engage in a thin-sliced lesson inspired by Peter Liljedahl's book "Building Thinking Classrooms in Mathematics." The interactive lesson will illustrate how teachers can design tasks in which students collaboratively discover the learning without any prior direct instruction. While the model lesson is geared toward middle and high school teachers, the practices are relevant for any grade level.

During the second part, participants will debrief their experience of the modeled lesson. Participants will discuss various elements of the lesson that allowed them to learn without prior direct instruction. Specifically, we will focus on the use of visually random groupings, vertical non-permanent surfaces, answering questions, and the lesson consolidation process.

The third part will consist of a Q&A segment where teachers can ask clarifying questions about classroom implementation.

William McKinney, ***New Haven Public Schools (Engineering & Science University Magnet)***
Becks Olthoff, ***New Haven Public Schools (Engineering & Science University Magnet)***
Brandon Ahl, ***New Haven Public Schools (Engineering & Science University Magnet)***

Time Slot C or Lunch

12:30 – 1:15 Presentation

C25 **All Educators**

It's About Equity, Not Equality!

This session will provide alternative perspectives on common beliefs and practices of math teachers that are detrimental to the development of a positive math identity for racialized students. We will examine the concepts of equity, social justice, and antiracist teaching as it is situated in the mathematics classroom. Participants who attend this session will reflect on their own experiences and practices to move them towards becoming a socially just math educator. Participants will compile equitable teaching strategies that support all math learners.

Kenya Overton, *University of Connecticut*

C26 **Grades K-5**

Manipulatives, Real and Virtual:
Effectively Teaching the K-5 Standards

Are you looking for ways to help your students develop a strong conceptual understanding in math and to better engage them in their learning? Discover benefits of using virtual and traditional manipulatives in your class to help every student better understand math as well as some ways to use a variety of manipulatives.

Kevin Dykema, *President of the National Council of Teachers of Mathematics (NCTM)*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

12:30 – 1:30 Workshop

C27 **All Educators**

Accelerating Student Learning in Mathematics: No not the kind of acceleration synonymous with tracking

The reality that our math classes are filled with students who span the developmental continuum in terms of where they currently are in their mathematics journey compared to the standard knowledge of a given grade level is not a new phenomenon in education, however it is one that has been spotlighted in light of the disruption to schooling that has occurred as a result of the Covid-19 pandemic. The historical response to these perceived gaps in student learning would be to provide remedial support, however this strategy was one that was being questioned even before the onset of the pandemic (Collins, 2014). Another model to address potential unfinished student learning that has re-emerged as districts continue to reimagine schooling post-pandemic is to accelerate student learning by fast tracking their access to grade level content rather than delaying it (Lynch & Hill, 2020; TNTP, 2020). This support strategy has been shown to provide greater access and opportunity to all students in the school community and has produced positive results in improving student achievement, especially for students who have traditionally received remedial services (TNTP, 2018; 2020). This session will take an in depth look at acceleration by contrasting it to a remedial approach as well as offering concrete strategies and examples of what an accelerative support model looks like in the mathematics classroom. Additionally, it will propose what needs to be in place at the school and district level to ensure a systematic and coherent approach to teaching and learning.

Thomas Nobili, *Milford Public Schools*

C28 **Grades 3-12**

SEL: What's Math Got to Do With It?

Strengthen social emotional learning in your classroom by prioritizing the Social Emotional and Academic Development (SEAD) themes- Agency, Belonging, Discourse, and Identity. Participants will engage in a math task and then plan an upcoming lesson that will connect SEAD themes, the Standards for Mathematical Practice, and content to promote a safe, equitable, and empowered classroom culture.

Jocelyn Dunnack, *CPM Education*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

C29 **Grades K-5**

Manipulatives + Problem Solving = Conceptual Understanding (K-5)

In younger grades, students build a foundational understanding of mathematics! Join us as we explore a variety of lessons using manipulatives that promote conceptual understanding of key concepts!

Pam Caffery, *hand2mind*

C30 **Grades K-8**

Fostering Thinking and Belonging in Our Math Classrooms

Join us as we share how teachers in our district are using current research on equity and building thinking classrooms to recharge their passion for reaching all learners and reigniting a love of mathematics! You'll experience a thinking classroom through the lens of your students and will walk away with strategies you can use tomorrow to support a culture of access, equity, and joy in your math classroom!

Stacie Broden, *Regional School District 15*
Annie Smith, *Regional School District 15*
Jay Perez, *Regional School District 15*

C31 **Grades 3-8**

Engagement in Mathematics: One District's Journey using Building Thinking Classrooms

Participants will engage in strategies highlighted in the book Building Thinking Classrooms in Mathematics. The strategies we will focus on include using vertical surfaces, random groups, thin slicing, and mild/medium/spicy. You will brainstorm a plan to implement one of the strategies you saw today and discuss roadblocks as well as takeaways.

Jessica Maynard, *Regional School District 17*
Courtney Smalley, *Regional School District 17*
Heather Rigatti, *Regional School District 17*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

C32 **Grades 6-12**

What Do You Notice? Strategies for Inquiry with Technology

Noticing and wondering, which one doesn't belong, and action-consequence-reflection are among the inquiry strategies we will discuss to build understanding with graphing calculator and computer technology platforms. Increase student engagement and give access to ALL students by implementing sense-making discourse for in-person and online classes. Topics from all of HS math will be included from Algebra through Precalculus.

Karen Campe, *Consultant*

C33 **Grades 6-12**

Miss, I need help! آنسة ، أحتاج إلى المساعدة! ¡Missy, necesito ayuda! Mic, мені потрібна допомога!

Come learn how to better support your English Language Learners in your secondary math classes. In this session, we model what it is like to work in a language-supported math classroom. You will participate, as a student, in a simulated sheltered Spanish classroom to gain insight into how an EL learner can access content when working across languages, with a focus on student grouping. We debrief the experience by highlighting different strategies - based on research and my experiences at New Britain High School - to foster community development among cultures.

Ilisse Gomez, *Consolidated School District of New Britain*

C34 **Grades 9-12**

Cruising Through Precalculus: A Project Based Approach to Teaching Modeling and Vocabulary

Participate in a sample lesson in which students role play to create a model and pitch a cruise ship to investors. See an activity that engages students to improve mathematics communication skills, understand the need for rational functions, asymptotes, and other topics, and collaborate to develop multimedia presentations using math in a contextual application.

Thomas Leisten, *Glastonbury Public Schools*

C35 **Grade 6 - Higher Education**

Using Computation Layer to Enhance Your Desmos Digital Lessons

This session will walk teachers through some basic Computation Layer (CL) codes that will make desmos lessons more robust. We will work on how to program buttons for students with special needs (ELL, Special Ed, students who need a challenge) to click for support or hints during a lesson, ways to implement autocorrecting so students can get immediate feedback, and how to generate sentence stems for student responses. Teachers will actively participate in the creation of some desmos slides that they can copy and paste to future activities as well as access to some prebuilt templates that they can copy and paste with the coding generally complete. Bringing a device would be highly recommended for anyone planning to attend this session.

Rachel Saunders, *Danbury Public Schools*

Time Slot D or Lunch

1:45 – 2:30 Presentations

D36 **All Educators**

Developing Students' Positive Math Identities Through Global and Community Math Stories

In this session, participants will explore how to use Global Math Stories (GMS) as mirrors and windows into their students' lives. The GMS will engage students in math content while helping them to make connections to themselves, their communities and to cultures from around the world. Participants will consider Community Math Stories that can empower their students and help to develop their positive mathematics' identities.

Dr. Shelly Jones, *Central Connecticut State University*

D37 **Grades K-5**

Leveling Up: Moves to Power-Up Your Number Talk Game

Do you feel stuck in your number talk game? Students share their ideas, but then what? In this presentation, we share research to help you think about how to level-up your number talks by providing examples of ways to make number talks more ambitious and equitable. Specifically, we share examples of moving beyond "serial sharing" to instead build on strategies students share by: (1) using student errors as learning opportunities, (2) guiding students' thinking, and (3) engaging multiple students in the reasoning of a particular strategy.

Jillian Cavanna, *University of Hartford*

D38 **Grades 6-12**

Algebraic word problems: Equality of Thought

In this session, you will learn ways to help students work through word problems in textbooks. We will specifically conduct an in-depth analysis of the standard "solve word problems" procedures presented in math textbooks. These procedures do not provide guidance on the most difficult part of solving word problems, namely writing the equation. In this session, you will learn a method, "equality of thought", which students can use to write their equations. This method helps reinforce the notion that the equal sign is a relational (not operational) symbol. Activities using "equality of thought" will be shared which support collaborative work and discourse among students.

Geillan Aly, *Compassionate Math*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

1:45 – 2:45 Workshops

D39 **All Educators**

Using free virtual manipulatives at Polypad to engage in math exploration and discovery

Manipulatives can transform how students make meaning of important ideas by making abstract relationships visible, by teaching creativity and problem-solving, and by allowing students to explore and discover. Learn how virtual manipulatives can mirror these effects and support more complex interactions that are not possible in the physical world. Participants will learn about many different types of virtual manipulatives: from number bars, algebra tiles, and polygons; to prime factor circles, custom probability tools, and an interactive balance scale. Participants will be engaging with and participating in the lesson ideas as they are being shared. The session will use the free virtual manipulatives and tools available on Polypad from Mathigon.

David Poras, *Mathigon Studio at Amplify*

D40 **Grades 3-12**

Using Data and a Flipped Classroom Approach to Personalize Learning

Let's face it, after the pandemic we are trying to find the best ways to make up for interrupted times. During this workshop, you will experience what it is like to engage in a personalized learning environment that uses a flipped classroom approach. Data will be gathered and used to group participants in order to provide the best personalized learning experience. Not only will participants get to feel what it is like to learn in this environment, but they will also walk away with knowledge on best practices to use in a personalized learning environment.

Stephanie Quarato, *Regional School District 13*

D41 **Grades K-8**

All Access Path to Meaningful Math

Let's investigate open tasks that invite all students into the math. 5 Practices for Orchestrating Productive Mathematics Discussions by Smith and Stein 2nd Edition encourages all students to work at levels that are appropriately challenging for them, within the content in their grade. Discover how to make this happen with ease in your classroom and have some fun while we are at it.

Michael Sherrod, *Savvas Learning Company*

D42 **Grades 3-8**

"Building Thinking Classrooms" in Practice

Teachers from two K-6 Hamden Public schools (along with their coaches)have read Peter Liljedahl's book, "Building Thinking Classrooms" and have integrated many of his protocols and strategies into their classroom. Coming out of the Covid years, teachers noticed student engagement was a struggle and mathematical discourse was dependent upon one or two students willing to share. They are experiencing exciting results.

Doreen Stohler, *Hamden Public Schools*
Sharon Weingart, *Hamden Public Schools*
Mary Dunn, *Hamden Public Schools*
Tiffany Cofrin, *Hamden Public Schools*
Ashley Beal, *Hamden Public Schools*

D43 **Grades 6-12**

Ready-to-Use Task Designs for Promoting Discourse

We will explore ways to help your students to see relationships between mathematics concepts while promoting discussion and deeper thinking during classroom lessons. The workshop will introduce ready-to-use strategies for task design (including contrasting cases, interrelating representations, and evaluating mathematical statements) with templates that can be adapted to your content. The tasks can be used to build formative assessment into your daily lessons allowing a more engaging and equitable experience for your students as you deepen their understanding of concepts and build their capacity to think mathematically. Specific examples from middle grades, algebra, geometry, and precalculus will be presented along with the resources to select or design your own tasks. Appropriate for grades 7-12.

Leah Frazee, *Central Connecticut State University*

D44 **Grades 6-12**

Teaching with Heart: Classroom Routines that Promote Equity and Show You Care

Learn to leverage classroom routines and find value in the seemingly ordinary! Educators will exchange ideas surrounding structures that elicit student thinking, demonstrate that all student voices are valued, and create a classroom climate where all students can succeed.

Donna Busa, *EdAdvance*

D45 **Grades 6-12**

Reflecting on the Process: Helping ELs Write about Math

Oftentimes, English Learners have grasped the math, but have trouble explaining their reasoning. Join us to explore options for equipping students with specific language and strategies so that they are able to write their reasoning in a clear, complete and competent way. During this workshop, participants will develop a rubric and corresponding routine for student self-reflection when writing their mathematical reasoning.

Rachel Wojciechowski, *Danbury Public Schools*
Chris Hartnett, *Danbury Public Schools*

D46 **Grades 9-12**

Using Algebra Tiles from Multiplying Polynomials to Factoring and Completing the Square

In this session, teachers will have a chance to explore algebra tiles and learn how to use them to complete algebraic multiplication, factoring, and completing the square exercises. Participants will practice a series of problems they can use with students to build their conceptual understanding of these topics. A series of problems from student lessons are included in the handout, beginning with diamond problems.

Mark Jones, *CPM Education*

Time Slot E

3:00 – 3:45 Presentations

E47 **All Educators**

How I Implemented a Building Thinking Classroom and How You Can Too

Peter Liljedahl's book Building Thinking Classrooms is a revolutionary approach to inspiring students to be active learners in a math classroom. After reading the book, I spent last year trying methods to implement its structure in my classroom. I failed forward and revised to a point where students embrace the collaborative nature and plead for "Thin slicing." Allow me to do for you what so many educators have done for me. I worked out a way to implement Liljedahl's methods so you don't have to!

Merryl Polak, *Ridgefield Public Schools*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

E48 **Grades K-2**

Ready, Set, Count: Counting Collections in Action

Counting Collections allow students to engage in the K-2 counting standards in a purposeful way. If you are new to counting collections, the presenters will provide information about getting started, building collections, using appropriate tools, recording collections, and working in partnerships. Teachers who are already using collections will learn ways to use counting assessments to differentiate the collections, tools, and recording sheets to provide meaningful practice for all students. Videos of first grade students in action will leave participants excited to try collections in their own classrooms!

Kimberly Cody, *Stratford Public Schools*
Jessica Scandurra, *Stratford Public Schools*

E49 **Grades 3-5**

Utilizing Subitizing: It's NOT Just for our Youngest Students!

Subitizing can strengthen conceptual understanding and build procedural fluency for many other concepts such as multiplication, fractions, and decimals. We will explore how instructional routines can utilize the skill of subitizing to make sense of a variety of concepts that are introduced throughout Grades 3-5. Participants will be able to go back to their classrooms/schools and engage their students in these math reasoning routines that provide entry points for all students.

Robin Moore, *EdAdvance*

E50 **Grades 6-8**

Improving Your IM Experience in Grades 6-8

Are you working in a district that is implementing IM in the middle school and looking for suggestions to improve the IM experience for your students? The presenter, an ATOMIC and CCLM award winner who has been a proponent of the IM instructional materials from Day 1, will be offering concrete suggestions for and answering questions about teaching IM in each of grades 6-8 based on his experience working in several CT school districts.

John Keogh, *Connecticut Council of Leaders of Mathematics (CCLM)*

E51 **Grades 9-12**

What Could Data Science Mean for Math Education?

Data Science is the next ed-reform buzzword, with dizzying amounts of funding, commitments, and political momentum behind it. As with Computer Science before it, many of the people driving the bandwagon are aiming it straight at math education. In some cases, they're even proposing that entire math classes be dropped to make room for Data Science! But what IS Data Science, and does it make sense to trade away math content just to squeeze it into schools? Recent efforts across the country have set Math and Data Science up to be "frenemies" -- sharing common ground, but competing for room in the schedule and credits in the graduation requirement.

One of the biggest problems with Data Science is the lack of a clear definition. It certainly *can* be a math class, but often it winds up being a class in a particular programming language, or a disconnected survey of various tools. How do we, as math educators, discriminate between what belongs in a math class and what is better served somewhere else?

I'll start this talk with a working definition of K-12 Data Science, followed by a dissection of tools, curriculum and pedagogy with a focus on mathematics. I'll take aim at the false framing of Math and Data Science as natural competitors, and discuss how Data Science - if we do it right - can be the concrete application that we've always wanted for some of the most esoteric concepts in middle and high school mathematics.

Emmanuel Schanzer, *Bootstrap*

E52 **Grade 6 - Higher Education**

Eliciting Learner Knowledge (ELK)

Argumentation is an important process in the mathematics classroom. The Eliciting Learner Knowledge (ELK) protocol is an excellent way to promote argumentation skills- both for students and teachers. This presentation will introduce ELK and model possible interactions. It will be useful for both teachers of math educations and secondary teachers.

Adam Goldberg, *Southern Connecticut State University*

Quick Links: Time Slot A Time Slot B Time Slot C Time Slot D Time Slot E

3:00 – 4:00 Workshops

E53 **Grades 3-12**

Workshop your Wonder

How do you inspire students to speak the language of Mathematics? First, let's define what is meant by that. Mathematics is a language to express and understand the world around us, both qualitative and quantitative. Thanks to those who champion instructional routines like Notice & Wonder, we have made much progress getting students to think and speak mathematically. But how do we capitalize on the wonder? As classroom teachers, we often affirm student wonderings, and then put them on the side so we can focus on the mathematics of our lesson plan. But where do we create space to dig into the wonderings of our students? If we want to cultivate that mode, we need to sustain and encourage the wonder, give it space and opportunity to thrive. Let's work together to uncover strategies and tools that honor a continuum of mathematical wonderings that you can implement in your classroom.

Stephen Garschina-Bobrow, *Boston Public Schools*

E54 **Grades K-5**

Orchestrating Productive Discussions in the Math Classroom using SFUSD Strategies

STOP! COLLABORATE AND LISTEN! Watch ALL of your students become problem solvers and critical thinkers. In South Windsor, we strive to create an equitable math classroom which incorporates rich math discussion between students to learn and experiment with math. During this workshop we will focus on Math Norms, tools, and strategies to orchestrate group discussions to foster a strong math identity among students. We will be providing rich mathematical tasks for teachers to explore with the lens of using deep mathematical discussion to solve. Additionally you will learn to Orchestrate Productive Mathematical Discussions by selecting, sequencing and connecting strategies to help all students advance the learning.

Nancy Bassilakis, *South Windsor Public Schools*
Michelle McKnight, *South Windsor Public Schools*
Julie Ratajczak, *South Windsor Public Schools*
Deb Alter, *South Windsor Public Schools*

E55 **Grades K-5**

Problem Solving Strategies That Make Sense

Participants will learn about specific strategies elementary students can utilize to solve multi-step word problems, understand the process of visualization and annotation in solving multi-step word problems, and be able to use their new learning with their students immediately. Problem solving, more than ever, is challenging for students and educators alike! Students need motivation and their love of learning needs to be reignited! The Standards for Mathematical Practices state that "Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution." This is the goal, but how do we achieve success with our students? We will focus on The Standards for Mathematical Practices to create a balanced combination of procedure and understanding, with a focus on the procedure. These 5 strategies are easy to implement, based on effective and proven teaching methods, and can be used with any content standard being taught. Using annotation and visualization, we will begin the process of solving multi-step problems by looking for entry points. We will be sharing a "window pane" activity that promotes mathematical dialogue, using discussion stems, about mathematical reasoning/practices and using content specific vocabulary. Additionally, listening to students discuss math, educators will be able to gain insight into misconceptions and learn more information about students. This activity allows students to compare thinking with a variety of possible answers. We will explore the benefits of using "numberless" problems to help students feel more confident in their skills and their understanding of problem solving. Participants will be actively involved and leave with digital resources.

Jennifer Jendzejec, *Coventry Public Schools, RI*
Lisa DelBove, *Coventry Public Schools, RI*

E56 **Grades 6-12**

Geometric Discoveries with Dot Paper

This session will lead the participants through dot paper activities to guide discovery and help ensure that students in grades 6-8 understand geometric quantities of length and area. Area activities are designed to help students build on their prior knowledge of areas of squares and rectangles and explore areas of related triangles, parallelograms and trapezoids. The perimeter activities will help students discover methods to determine the length of diagonal segments, leading to a geometric understanding of irrational numbers.

Sara Dalton, *Ridgefield Public Schools*
MaryAnn Goldstein, *Ridgefield Public Schools*

E57 **Grades 6-12**

Using Graspable Math to Support Algebra Fluency and Make Conceptual Connections

Graspable Math serves as a powerful interface to help students conceptually develop procedural fluency with algebra. Its fluid and playful algebra notation helps students simplify expressions, solve equations, and more. We will learn how to create engaging Graspable Math activities where teachers can formatively assess all students' work in real time!

Timothy Brzezinski, *New Haven Public Schools*

E58 **Grade 9 - Higher Education**

Using Universal Design for Learning to Create Inclusive Secondary Mathematics Classrooms

The Universal Design for Learning (UDL) guidelines provides a holistic approach that integrates research and best practices into a network of considerations for meeting the needs of diverse learners. This presentation will make connections between secondary mathematics teaching and the UDL guidelines by connecting to practical, research-based strategies that illustrate how UDL can be seamlessly integrated into any mathematics classroom. Research-based teaching strategies and practices specific to the mathematics classroom are mapped onto the UDL guidelines. Participants will discuss their experience with using UDL strategies and consider new approaches for integrating additional strategies.

Jennifer Phaiah, *Sacred Heart University*
Lindsay Keazer, *Sacred Heart University*