
ATOMIC CONFERENCE PROGRAM 2019

Time Slot A

10:00 – 11:00

A1 Statistics in Desmos	MIDDLE/HIGH SCHOOL	60 Minute Workshop
Nutmeg		
<p>Statistics is interwoven throughout the Common Core standards from elementary school through high school stats. The Desmos graphing calculator introduces exciting new features to support student learning and exploration. Come learn about best fit lines, histograms, distributions, and even random sampling. Whether you're a beginner or a pro, bring your device and learn something new!</p>		
Eli Luberoff, <i>Desmos</i>		
A2 Successfully Developing Fact Fluency	ELEMENTARY	60 Minute Workshop
<p>Having students develop fact fluency is critical, but how can we do this? Come explore ways to integrate number talks and number strings to develop this essential skill. See how manipulatives can be used to further the development.</p>		
Kevin Dykema, <i>Mattawan Consolidated Schools</i>		
A3 Creating a Math Rich Classroom Environment	ELEMENTARY	60 Minute Workshop
<p>Participants will explore the characteristics of an elementary classroom that promotes a community of mathematicians. This presentation focuses on helping teachers utilize classroom space, encourage math language and accountable talk, organize and use manipulatives and provide mathematical experiences from tasks, games, and technology.</p>		
Robyn Tedesco, <i>Stratford Public Schools</i> Judith Castaneda, <i>Stratford Public Schools</i>		

**A4 Linking Standards, Instruction,
and Assessment**

MIDDLE

60 Minute Workshop

Standards aligned curriculum requires shifts in instructional practices. Instruction must align to the aspect of rigor called for in the standards. This workshop will explore each component of rigor and connect it to relevant standards. These shifts in instructional practices that align to the content and practice standards then requires changes in assessment strategies. Participants will identify the rigor called for in particular standards, connect this rigor to related tasks and learn how assessment connects content and practice.

Jennifer Michalek, *Connecticut State Department of Education*

**A5 Introduction to Coding in the
Mathematics Classroom with TI-Innovator Rover**

MIDDLE/HIGH SCHOOL

60 Minute Workshop

Experience how math and science come alive with the TI-Innovator Rover. We will explore the basics of coding and learn how to drive a rover. You don't need any coding experience for this introductory session.

Edward DePeau, *Ellington Public Schools*

**A6 CBR: Using Motion Data to
Build Algebraic Concepts**

MIDDLE/HIGH SCHOOL

60 Minute Workshop

This workshop will focus on the use of the Calculator Based Ranger. The CBR collects distance, velocity and acceleration data. The CBR can be used to deepen the understanding of slope, slope formula, distance-time graphs, rates of change, linear and non-linear growth. This presentation will cover concepts from middle school all the way through Calculus. All participants will have the opportunity to use the technology and walk away with ideas on how they could utilize this technology in their classroom.

Darren Ranft, *Regional School District 6*

10:00 – 10:45

A7 How Does Your Kindergarten Grow? With Math Workshop! ELEMENTARY 45 Minute Presentation

Building a classroom culture for mathematics begins with establishing a math environment and understanding the math practices as habits of mathematicians. Our K math workshop model uses mini-lessons, independent time, small group time/conferring and share as four structures that not only supports differentiation but also enables teachers to engage every student at his or her level. Leave with ideas about how to develop independent kindergarten math learners!

Paige Boudreau, *Regional School District 17*
Heather Rigatti, *Regional School District 17*

A8 Using Strategic Reading Skills in the Mathematics Classroom ELEMENTARY 45 Minute Presentation

Good readers have a toolkit of discrete skills that assist with making meaning while reading. These skills - schema, vocabulary, inferring, questioning, determining importance, visualizing, synthesizing - are important ones for young mathematicians to have especially when solving word problems. We will examine how these skills can be applied to make meaning in the mathematics classroom, especially when working on problem-solving tasks, and share lesson ideas that can be adapted to various grade levels.

Jennifer Slifer, *West Hartford Public Schools*
Mary Lestini, *West Hartford Public Schools*

A9 How to Make Mathematics Education More Equitable ELEMENTARY 45 Minute Presentation

Based on the research of Dr. Jo Boaler, we will present equitable math strategies that all teachers in K-8 can use immediately in their classrooms. We will also share our experiences when using these strategies and discuss our results and reflections.

Richard Cordaway, *New Haven Public Schools*
Vincent Squeglia, *New Haven Public Schools*

**A10 Number Sense - Number Talks ELEMENTARY/MIDDLE 45 Minute Presentation
to the Next Levels**

Number Talks have changed the way math classes now run; however, there are other number sense routines that are just as powerful. Learn how to switch up your number sense routine and challenge your students thinking using research from Graham Fletcher, John SanGiovanni, Sherry Parrish, and Jennifer Lempp. Teachers will learn how the first ten minutes of math class can be a powerful experience for all students in regards to critical thinking and number sense.

Erica Bushior, *Willington Public Schools*

A11 Making Mistakes Count ELEMENTARY/MIDDLE 45 Minute Workshop

Mistakes are opportunities to learn. This session will illustrate how teachers and students can look at mistakes and group them into one of 5 categories: conceptual, procedural, computational, graphic, and careless. Once both parties know where they are and where to go, it is time to determine how to get there. We will show how students can use their error analysis to create a plan of action and the different instructional techniques teachers can use to address each type of mistake at both the individual and group level.

Jennifer Trueman, *Coventry Public Schools*
Elizabeth Carroll, *Coventry Public Schools*
Heather Kennedy, *Coventry Public Schools*

**A12 Building Collaborative Problem MIDDLE/HIGH SCHOOL 45 Minute Workshop
Solvers:Tasks that Promote Individual and Collective Responsibility**

Planning, discussing, revising and collaborating! In this workshop, participants will learn about and simulate two different classroom activities that encourage both individual and collective responsibility as students solve problems within small groups. The design of these tasks allows students to think individually but then requires them to share their ideas with peers while holding both the individual and group of students accountable throughout the process. Specific examples from Algebra I through Pre-Calculus will be shared and time will be allotted for participants to discuss and brainstorm with colleagues. Participants will walk away with activities that can be adapted and implemented immediately to fit the needs of their students, in their specific courses, in their own schools!

Katie Laird, *Trumbull Public Schools*
Nicole Trommelen, *Trumbull Public Schools*

Time Slot B

11:15 – 12:15

**B13 Teach Every Student to
Think Like a Mathematician**

GENERAL

60 Minute Presentation

Teaching all students to think and reason is perhaps the greatest challenge we face as math educators. The eight standards for mathematical practices found in the Common Core Standards for Mathematics are our best articulation to date of what it means to think (and work!) like a mathematician. This session will offer a framework for making sense of the mathematical practices, images of what they look in action, and strategies for developing them in all students.

Grace Kelemanik, *Fostering Math Practices* and *Kelemanik Consulting*
Amy Lucenta, *Fostering Math Practices* and *Lucenta Consulting*

B14 Coding for Children: A First Step

ELEMENTARY

60 Minute Workshop

As the ability to program computers becomes increasingly important, it is our responsibility to introduce children to the skills of computational thinking and coding. In this workshop we will explore two block-code languages designed for specifically children, 'ScratchJr' and 'Scratch' from MIT, and a syntax language, 'Logo', from the Turtle Academy, and begin to code in these free and accessible-to-all programming languages. Participants should bring laptops with them to actively participate.

MW Penn, M.W. Penn, Ink

**B15 Empowered Numeracy:
Influencing and Inviting Comprehensive
Math Programs and Research-based
Practices for all Gifted Students**

ELEMENTARY

60 Minute Workshop

Participants will be provided with methodologies and pedagogical applications. We will first consider challenges faced by all math teachers in differentiating instruction for maximizing student interests with rigor and relevance. Next, incorporate teacher engagement by assisting math teachers in multifaceted purposeful design of developmentally appropriate student learning enrichments and extensions. Third, scaffold how to design mathematical programs for gifted students. Fourth, inform mathematical enrichments and extensions of the learning environment by considering student-generated data. Lastly, participants will involve connection activities by uniting STEAM with literacy concepts for the purpose of empowering teachers with equitable and responsive methods and strategies

Dr. Yvonne de St Croix, *New Milford Public Schools*

**B16 Eco-Math: Calculations for
People and the Planet**

ELEMENTARY

60 Minute Workshop

Engage in memorable, hands-on activities that integrate math with age-appropriate geography and ecology to learn more about our human footprint on the Earth and its resources. Build students' skills in working with fractions, ratios, large numbers, growth patterns, measurement, and graphing representing using real-world data.

Nelson Ngoh, *University of Bridgeport*

**B17 Summer Math Passport:
Redesign Your Summer Math and Let the Adventure Begin!**

ELEMENTARY/MIDDLE

60 Minute Presentation

Learn about the process from start to finish of how the Thomaston School district tripled our participation in summer math work, while at the same time involving families and the community in building positive attitudes towards mathematics! This exciting small-town model of community engagement and summer work in CCSS aligned mathematics allows for students and families to spend the summer applying and discussing mathematics on an adventure around town. In this presentation you will understand the challenges associated with traditional summer math work and consider how something like the Thomaston Summer Math Passport program might work in your school or district.

Sue Dalka, *Thomaston Public Schools*
Eric Martin, *Thomaston Public Schools*

**B18 Can We Talk?
Improving Communication in the Math Classroom**

MIDDLE/HIGH SCHOOL

60 Minute Workshop

Communication is one of the most important skills we can teach our students. In a math class the opportunities to do this are limited. This workshop will provide participants with math-based activities which help students to improve their communication skills. Also included are activities to help bring out the creativity in students, a topic that is rarely addressed in the traditional math curriculum.

Nicholas Rinaldi, *Branford High School and University of New Haven (Retired)*

B19 Creating Geometry Assessments that Measure van Hiele Levels **MIDDLE/HIGH SCHOOL** **60 Minute Workshop**

The van Hiele levels of geometric understanding describe how students learn geometry. One goal of high school geometry is to get students to construct proofs, which is a higher-level of understanding on the van Hiele scale. Many students leave high school still functioning at a lower van Hiele level. Teachers can create assessments that accurately measure students' van Hiele levels in any concept which can be used in PLC's and SLO's. Feel free to bring in a current geometry assessment that you want to update to a van Hiele assessment.

George Mitesser, *Northwestern Regional High School*

B20 Using GeoGebra 3D App with Augmented Reality to Explore, Build, & Test Models & Create Mathematical Art **MIDDLE/HIGH SCHOOL** **60 Minute Workshop**

Here, we will explore GeoGebra's 3D app with Augmented Reality on our mobile phones & tablets to BUILD 3D models of every-day, real-world objects. We will also be able to VIRTUALLY PLACE these objects within our surroundings to test their accuracy. In doing so, we will see how classes of functions students study in 2D can easily be applied in 3D. We will also explore means through which students can create 3D mathematical art! Participants should bring their phones or tablets to actively participate.

Timothy Brzezinski, *Brzezinski Math and CCSU*

B21 Understanding the SAT Mathematical Content Domains **HIGH SCHOOL** **60 Minute Workshop**

This is the first step in unpacking the redesigned SAT. Participants will explore the 4 SAT Domains to determine their confidence level for student achievement. We will then start to identify ways to improve instruction using the Skills Insight for the SAT Suite. This will give teachers suggestions for improvement based on score ranges.

Erin Barlow, CES

11:15 – 12:00

B22 Discovery Based Activities to Engage Students in Exploring New Concepts ELEMENTARY 45 Minute Workshop

This workshop will focus on Common Core aligned, discovery based activities to engage students to take ownership over and deepen their understanding of new concepts. Participants will learn activities to help students generalize and justify their thinking, and walk away with tasks that can be implemented in their classrooms right away! Participants will also learn routines and instructional strategies to help students learn to ask genuine questions, critique, and debate their classmates' thinking.

Kristin Beaudet, *Berlin Public Schools*
Kara Watson, *Berlin Public Schools*

B23 Get up! Stand up! Stand up for your Number Talks ELEMENTARY 45 Minute Workshop

We've combined the power of number talks with power of standing. What? Learning while standing ... We describe and show the way number talks are used to engage students with visual and numeric math models. As students stand and talk, they are building their foundation in number, but also the foundation for effective written responses that defend their reasoning. Leave with ideas about how to incorporate standing number talks and written response into your day!

Christopher Snow, *Regional School District 17*
Heather Rigatti, *Regional School District 17*

B24 Old McDonald had a Farm - T - I - E - I - Rover MIDDLE/HIGH 45 Minute Workshop

Join this hands-on session to learn how to "drive" the TI Rover using either the TI-Nspire CX and/or TI-84 PLUS CE technology. Explore the math behind "Corralling the Sheep", "Don't Hit the Dog" and other new Rover activities. Ready-to-use handouts will be available. No coding experience necessary--come join the fun!

Ellen Browne, *Pomfret School*
James Wares, *Kingswood Regional High School*

**B25 You Have The Data,
So Now What?**

MIDDLE SCHOOL

45 Minute Workshop

We all know that small group instruction is what makes the real difference for students who are below grade level; so, how do you plan and implement affecting small group instruction in a regular math class? This session will focus on how to use data to plan small group instruction with a specific focus on STAR and MAP data.

Patricia Tracey, Danbury Public Schools

Hillary Singer, Wilton Public Schools

**B26 Teaching Definitions for
Reasoning and Sense Making**

MIDDLE/HIGH SCHOOL

45 Minute Presentation

Developing student-centered instructional strategies for teaching formal definitions in mathematics can be challenging. Many mathematics textbooks present formal definitions by simply stating the definition of a new concept and then asking students to apply it. This instructional method promotes a passive approach to learning definitions. It does not always lead to students actively engaging in personal reasoning and sense-making about mathematical concepts. It is important to consider approaches to teaching definitions that maintain the integrity and precision of the formal mathematics while also developing students' reasoning skills. This session will present strategies for teaching specific definitions in algebra, geometry, and precalculus. The goal of the session is for participants to learn several approaches to teaching definitions that they can apply to other concepts relevant to the courses they teach.

Leah Frazee, Central Connecticut State University

Time Slot C or Lunch

2018-2019 ATOMIC Grant Recipients

Gallery Walk in Ballroom

12:30 – 1:30

C27 Connecting Representations: GENERAL 60 Minute Presentation
A routine for reasoning for ALL students

We'll address challenges & opportunities in the SMPs, and model a robust instructional routine, Connecting Representations, that fosters the math practices in all students. Participants will engage in this multi-modal routine that leverages visual representations accompanied by a heavy dose of mathematical discourse in order to develop structural thinking. Participants will name the supports and designs for engagement for English language learners and students with learning disabilities, and we will unpack them together. Participants will leave with concrete strategies to develop structural thinking in ALL students.

Amy Lucenta, *Fostering Math Practices* and *Lucenta Consulting*
Grace Kelemanik, *Fostering Math Practices* and *Kelemanik Consulting*

C28 Math Workshop: GENERAL 60 Minute Presentation
Keeping Your Eye on the Target

Educators have a limited amount of time each lesson to ensure that all students will meet set learning intentions. How does one ensure they have designed the most effective pathway for their students to be successful? In this interactive workshop, we'll examine designing effective math workshop lessons around one of the CCSS' key shifts, focus.

Robin Moore, *Regional School District 6*

C29 Making Mathematical Learning Visible: ELEMENTARY 60 Minute Workshop
How to Create a Classroom Culture that Supports Dialogue Not Monologue

Making Mathematical Learning Visible is about creating a culture that encourages students to talk about their own learning and create their own path for success. Visible Learners are able to use self regulation strategies, see errors as opportunities, know what to do when they don't know what to do, are resilient and aspire to challenge! Create a classroom culture that supports dialogue and not monologue and watch your students achievement soar!

Danielle Legnard, *Bethel Public Schools*
Susan Austin, *Groton Public Schools*

C30 Forget Key Words - ELEMENTARY 60 Minute Workshop
Guide Students to Problem Solving Success

Students develop the foundation for strong problem-solving skills during Kindergarten, first and second grade. During this session, teachers will dive into the different types of word problems that are taught K-2 and gain insight into why understanding the different types of problems is important to increase student understanding. Knowing the different problem types and how they progress in difficulty allows teachers to successfully support all students. Teachers will connect their learning with instructional practices 3 Reads Protocol, 5 Practices, and Numberless Word Problems.

Jessica Szafran, *Bolton Public Schools*

C31 No More Tricks! ELEMENTARY/MIDDLE 60 Minute Presentation

Discussion of instructional strategies for developing conceptual understanding of mathematical concepts in grades K-8 and how to implement them into your classroom. We will explore how common tricks undermine students' understanding of concepts and discover how to use math tools to help students make sense of concepts through the CRA (concrete, representational, abstract) progression.

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

C32 Implementing a Math Workshop Model in a 5-8 Math Classroom MIDDLE SCHOOL 60 Minute Workshop

Participants will learn how math centers/stations/rotations/workshops in the 5-8 math classroom can support the Connecticut Core content and process standards, while meeting the needs of all learners. We will address different structures, routines, and rituals used to initiate and sustain this type of differentiated instruction.

Lindsey Ramos, CREC

C33 One Technology for ALL of STEM MIDDLE/HIGH SCHOOL 60 Minute Presentation

Participants will learn how one technology - the Texas Instruments graphing calculator - is not just for math class. It is a solution for ALL of STEM. Science, Coding, Robotics, and Engineering activities will be demonstrated and free resources will be shared.

Robyn Poulsen, Texas Instruments

C34 Facilitating Classroom Discourse with Desmos MIDDLE/HIGH SCHOOL 60 Minute Workshop

Desmos Classroom Activities leverage technology to empower teachers and make student thinking visible. In this session, participants will start by learning how Smith and Stein's 5 practice framework has been applied to Desmos, the interactive online graphing calculator. Next, participants will take part in two Desmos Classroom Activities where the presenter uses the new Snapshot feature to select work samples, digitally sequence them, and develop connecting questions for discussion. Finally, participants will use the snapshot feature to lead a discussion about a Desmos activity at their table. This session is led by a Desmos fellow and is for any experience level. Participants are encouraged to bring laptops or tablets.

Bob Janes, East Hartford Public Schools

C35 Classroom HS and MS Math Games MIDDLE/HIGH SCHOOL 60 Minute Workshop

Classroom math games are games of strategy to help build logic and number sense. These whole-class and team math games will help students see that math can be fun. They provide an entry level to all students and will engage the whole class.

Jennifer Fairbanks, Hopkinton Public Schools

**C36 Teaching Proportional Reasoning MIDDLE/HIGH SCHOOL 60 Minute Presentation
Without Proportions**

Traditionally, the ability of teachers to develop proportional reasoning in their students has been hindered by the procedural emphasis on writing a proportion and "cross-multiplying." In this session, we will examine the advantages of eliminating the use of proportions and discuss the learning progressions that lead to the ability to reason proportionally by using a variety of representations that facilitate student thinking.

John Keogh, CCLM

12:30 – 1:15

**C37 More than just Skittles: GENERAL 45 Minute Presentation
Pedagogical Purposes & Advantages of a Lesson Study**

Lesson Study is a classroom inquiry process commonly used in Japan where teachers, administration, or coaches collaborate to set a common mathematical goal, plan a lesson, observe the lesson, alter the lesson, and reteach. At the end of this process the team comes together again to finalize their conclusions on the effectiveness of the lesson. This presentation will provide an overview of the process, address pedagogical advantages, and explore implementation possibilities with attendees.

Adrienne Paul, Greenwich Country Day School

**C38 Using Shapes for Tiling (K and 1) ELEMENTARY 45 Minute Workshop
and Area Model of Fractions (Grade 3)**

The workshop will present lessons and materials which can be used in K and Grade 1. Students construct larger squares, rectangles, and triangles using smaller shapes of complementary sizes. These are open-ended activities which can be extended to tiling large surfaces and modeling fractions. The same materials will be used in the second half of the workshop intended for Grade 3 teachers. Using the same materials, we introduce an area model of fractions, and demonstrate equivalence and inequality of fractions, ordering fractions, and composition/decomposition of fractions. Sequences of activities for all levels are included.

Paul Murray, Maloney Interdistrict Magnet School

**C39 Getting to the Heart of the Problem: ELEMENTARY 45 Minute Workshop
Strategies for Problem Solving**

We will look at some high impact strategies and routines, such as numberless word problems. We will dig into how these strategies and routines can be established and applied to a variety of problems and the impact on student success. Time will be spent on emphasizing strategies to help students comprehend the context of the problems and helping students determine how reasonable their answer is based on the context of the story

Sheri Labowski, Berlin Schools

**C40 Computer Science MIDDLE/HIGH SCHOOL 45 Minute Workshop
Taking Over the World**

Interest in Computer Science and coding is taking over schools everywhere. I will show you some of the great activities I use in AP Computer Science Principles that you can use in your everyday classroom to promote math reasoning and problem solving skills. Students will want and demand more Computer Science in your school.

Christopher Affie, The Gilbert School

Time Slot D or Lunch

2018-2019 ATOMIC Grant Recipients Gallery Walk in Ballroom

1:45 – 2:45

D41 Personalized Professional Learning GENERAL 60 Minute Presentation
Through Feedback: From Coherence to Action

In this session, participants will learn how to establish a cycle of planning and performance improvement that transforms teacher and leadership practice, moving from compliance to coherence and from coherence to action. Educators will learn how one regional school district designed a clear understanding of the most critical student skills and attributes required for student success, outlined the performance expectations that need to be demonstrated by students and teachers, and provided ongoing supportive, yet critical feedback to school leaders and teachers on the practices that lead to quality implementation of personalized mathematics learning environments for all. In this interactive session, participants will be introduced to a coaching model designed to deliver educators a personalized professional development experience. The model focuses on teacher learning, risk taking, collaboration, and agency in order to increase student efficacy and achievement in the area of mathematics.

Kevin Mahoney, *Regional School District 14*
Thomas Nobili, *Regional School District 14*

D42 Structure + Determining ELEMENTARY 60 Minute Workshop
Reasonableness = Problem Solving Success

Problem solving is much more than just circling the numbers and underlining the questions. Participants will engage in the problem solving process which begins with finding the right problem that uses appropriate language and context. Next, they will explore an effective structure/routine that can be used to solve any problem, even number-less problems. Lastly, discussion will center on the use of reasonableness before, during, and after solving to self-monitor. By combining these three key components, students from all backgrounds and learning styles can meet success.

Robyn Tedesco, *Stratford Public Schools*
Jessica Scandurra, *Stratford Public Schools*

D43 It's All about Relationships: ELEMENTARY 60 Minute Workshop
Engaging Activities to Help Students
Think Flexibly about Equations and
Solve 2- and 3-Digit Addition and
Subtraction Problems with Ease

Come explore a variety of hands-on activities and games that engage elementary students in deepening their understanding of equations and use relational thinking to flexibly solve multi-digit addition and subtraction computation problems with variables in a variety of locations. Discover how easy it is to get your students hooked on using the commutative and associative properties to compute more efficiently while developing greater number sense. Learn how these fun and creative activities can be readily implemented in your classroom.

Ann Marie Spinelli, CCSU

D44 Fractions: It's All About the Conceptual! ELEMENTARY 60 Minute Workshop

Student success with understanding and operating with fractions is dependent upon conceptual instruction. Participants will experience building conceptual understanding of fractions through: using manipulatives, number lines and engaging in instructional activities showing the connection between whole numbers and fractions. See these classroom tested ideas today – use them tomorrow!

Peggy Neal, Math Consultant

D45 Growth Mindset and Productive Struggle in Elementary Math Classrooms ELEMENTARY 60 Minute Workshop

This workshop will provide opportunities to enhance awareness of growth mindset and productive struggle in elementary mathematics classrooms. Background, resources, and classroom examples will be shared. Also, participants will engage in activities and discussion on how to develop growth mindset and productive struggle in mathematics and how these can enrich mathematics teaching and learning.

Mary Truxaw, University of Connecticut

D46 Re-Teaching for Equity: MIDDLE SCHOOL 60 Minute Workshop
Instructional Design to Strategically
Re-Visit Student Misconceptions

Hartford Public Schools is engaging in a district wide teaching and learning cycle in K-12 Mathematics instruction, in order to provide every one of our beautiful and capable students access to Tier 1 grade level mathematics. District Mathematics Coaches are striving to champion the work of student data analysis and strategic re-teaching of grade level mathematics. By examining data and identifying what students do know, we pinpoint the origin of re-teaching on the Coherence map and utilize district designed resources to narrow in on instructional strategies such as number sense routines, and guided math to provide our students with the learning experiences they need to master grade level content. Participants will utilize district tools to work through a model data set to identify re-teaching opportunities, and prioritize equity in instructional experiences.

Angela Boratko, Hartford Public Schools

D47 Desmos: Unlock the Power MIDDLE/HIGH SCHOOL 60 Minute Workshop

In this workshop, we will be looking at how to unlock the power of Desmos as a visualization and investigation tool. From inquiry-based learning to interactive classroom activities, Desmos can provide multiple platforms for enriching mathematics education. This workshop will have exercises and examples for everyone, from those completely new to the interface to those interested in advanced techniques, covering content from middle school to post-secondary topics. Exercises will include beginning tasks such as entering functions and using dynamic variables to using more advanced functions such lists, parametric functions, inverse functions, and partial derivatives. All users will get tips on how to optimize a Desmos graph for user-friendliness. We will also cover how to make customized Desmos teacher activities. Participants are encouraged to bring laptops or tablets.

Andrew Hill, Brookfield Public Schools
Ryan Fitzsimmons, New Milford High School

D48 What Do You Notice? MIDDLE/HIGH SCHOOL 60 Minute Workshop
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. Topics from all of high school math will be utilized including slope, quadratic functions, area formulas, triangle angle relationships, circle theorems, polynomial end behavior, function transformations, rational functions, exponents, logs, and complex numbers.

Karen Campe, *Teachers Teaching with Technology (T3)*

D49 Lights...Music...Action: MIDDLE/HIGH SCHOOL 60 Minute Workshop
Beginning Coding with the TI Innovator

Join this hands-on session to learn how physical computing can enhance your mathematics classrooms as well as provide connections to the "A" in STEAM. Engage your students with the TI-Innovator Hub along with TI-Nspire CX and/or TI-84 PLUS CE technology by blinking lights and playing music. Ready-to-use handouts will be available. No coding experience necessary--come join the fun!

Ellen Browne, *Pomfret School*
Samantha Slotnick, *Pomfret School*

D50 Frieze Patterns and Wallpaper HIGH SCHOOL 60 Minute Workshop

Using geometric transformations to analyze figures with translational symmetry provides an interesting connection between mathematics, art, and an appreciation for different cultures. We'll learn to classify the 7 types of frieze (strip) patterns and the 17 types of wallpaper patterns, by identifying lines of symmetry, glide reflections and centers of rotation.

Tim Craine, *Central Connecticut State University (Retired)*

**D51 Catalyzing Change in
High School Mathematics**

HIGH SCHOOL

60 Minute Presentation

Mathematics education at the high school level is part of a complex system of policies, traditions, and societal expectations. This workshop will engage all individuals with a stake in high school mathematics in the critical conversations that must take place to bring about and give support to necessary changes in high school mathematics.

Lindsey Ramos, CREC

1:45 – 2:30

**D52 Using Digital Technology to
Transform Mathematics Learning**

GENERAL

45 Minute Workshop

This hands on workshop and will provide technology tools for the 3- 12 classroom. Topics to include Connecting to the Common Core Standards of Mathematical Practice using technology tools, Ed Tech/Apps Tools/ LMS options, Social Media, Twitter and Blogs, Netiquette

Maria Mitchell, Central Connecticut State University

**D53 Math Tasks and Manipulatives:
A Winning Combination**

ELEMENTARY/MIDDLE

45 Minute Workshop

Rich mathematical tasks that engage students in solving and discussing are a vital part of a mathematics classroom. Manipulatives can be utilized as a tool to help students with such tasks by providing entry points for each and every student. Come explore some rich tasks utilizing a variety of manipulatives.

Kevin Dykema, Mattawan Consolidated Schools

**D54 A Mathematical Bridge from
Elementary to Algebra**

ELEMENTARY/MIDDLE

45 Minute Workshop

Is there really a connection between what students learn in elementary math to middle school mathematics? Yes! Many of the strategies we are teaching elementary students can be used in middle school, even in high school. Try these different strategies out and see how important they are in the progression of mathematics. Participants will see connections with the area model, partial products, the number line and number bonds from primary grades up to Algebra 1!

Michelle Pollack, *Pine Bush Central School District*

Time Slot E

3:00 – 4:00

**E55 Let Them Think:
Teacher Moves that Promote
Productive Struggle**

ELEMENTARY

60 Minute Workshop

How often have you thought, "I want my students engaged in productive struggle, but how do I do that effectively?" Come explore through activities and collaborative conversations about the big ideas of productive struggle based on NCTM's Taking Action: Implementing Effective Mathematics Teaching Practices. From choosing the right task to effective instructional strategies and intentional teacher actions, there will be opportunities to grapple with best practices to promote effective productive struggle. We will explore how to keep students engaged in the work, even when they reach an impasse. Participants will leave with a toolkit of alternative approaches and a plan for taking action to support productive struggle in their own professional settings.

Courtney Warner, *West Hartford Public Schools*
Carole Dibble, *West Hartford Public Schools*

**E56 Padawan, Jedi and Yoda
Written Responses in Math**

ELEMENTARY

60 Minute Presentation

Math practice 3 states students must be able to construct viable arguments and support their reasoning. Our team has taken a strategy from writer's workshop and applied it to written responses in math. Using the characteristics of a Padawan, Jedi and Yoda from Star Wars, we look at the different qualities in student written responses in math in order to strive for the ultimate Yoda response. Our students learn how to explain their ideas about math concepts using models, numbers and equations as well as descriptions in words. Come learn how we build micro progressions and criteria for success with our students around math written responses. You will view responses at various grade levels while learning how we have built the development of writing about math into our curriculum across a school year.

Stacey Daly, *Madison Public Schools*
Michelle Rindfleisch, *Madison Public Schools*
Jennifer Pflomm, *Madison Public Schools*

E57 To Be Announced...

**E58 From Ones to Tens and In Between:
A Counting Progression**

ELEMENTARY

60 Minute Workshop

Counting has many levels that begin as early as a child can talk, to all levels of elementary school. During this workshop, participants will learn new counting activities and will be given time to explore counting strategies using manipulatives and models such as the 120 chart and an open number line.

Judith Castaneda, *Stratford Public Schools*

E59 Social Justice Mathematics: ELEMENTARY/MIDDLE 60 Minute Workshop
The Power of Solving Meaningful Issues Through a Mathematical Lens

During this workshop, participants will have the opportunity to view grade 5 students in action as they use mathematics to explore solving a social justice issue that is meaningful to them in their lives. After watching students engage in meaningful discussion and/or participate in writing their mathematical thoughts, groups of workshop participants will create their own social justice issue scenarios that they would like to solve using mathematics. Groups or individuals will also be given a chance to start creating their own lessons to implement in the classroom or community. Lastly, the audience will be able to ask the presenter questions that will give them a better understanding of Social Justice Mathematics and the impact it has on students, especially students of color.

Michelle McKnight, Manchester Public Schools

E60 Using Appropriate Tools Strategically: MIDDLE SCHOOL 60 Minute Workshop
Algebra Tiles are Not Just for Factoring

Learn how to use algebra tiles to make algebra into a concrete visual experience for your students. Participants will be actively engaged in using algebra tiles to show area and perimeter, combining like terms, evaluating expressions, writing equations, distributive property, and solving equations. While using the tiles, teachers will learn how to help students transition from the concrete (manipulative) to the abstract (paper and pencil).

Mark Jones, Mansfield Public Schools

E61 Making Mathematical Language MIDDLE/HIGH SCHOOL 60 Minute Workshop
Routines Routine in Your Classroom

We will dive into the Mathematical Language Routines developed out of Stanford and designed to help support English Language Learners in the classroom. Explore examples from the 6-8 Illustrative Mathematics curriculum and examine ways to implement them regardless of what grade level or curriculum you use. These routines help promote discourse, engagement, and a deeper understanding of mathematics for all learners.

Rachel Saunders, Danbury Public Schools

E62 Using Team Roles to MIDDLE/HIGH SCHOOL 60 Minute Workshop
Create Independent Learners

Empowering learners requires students to believe in their ability to tackle problems. Team Roles are an effective way to give students responsibility for participation and facilitate collaboration. Together, students achieve more. This workshop will share ways to implement and support team roles, as well as tasks designed to support collaborative problem solving.

Jocelyn Dunnack, *CPM Education*

E63 Coherence for Credit: MIDDLE/HIGH SCHOOL 60 Minute Presentation
Mathematics to Increase Student Enrollment
in Credit Bearing College Course

Hartford Public Schools is developing a Mathematics for Citizenship course for our high school students. The intention of this course is to provide opportunities and choice for our students as they pursue their academic and civil futures. This presentation is an in-depth look at our district's partnership with the Central Connecticut State University to design a course that will provide students with the conceptual understanding of key mathematics that act as a gateway to credit bearing college courses. Includes instructional design, curriculum development, and progress monitoring.

Angela Boratko, *Hartford Public Schools*

3:00 – 3:45

E64 Empowering students with ASSISTments in your classroom **GENERAL** **45 Minute Presentation**

Knowledge is power and one of the best ways to empower students is to give them the information they need during their independent practice. Students need to know what they know and don't know, but too often independent practice is done by students without them understanding whether they are getting the problems right or wrong. But what if students could get help and hints as they worked through independent practice problems? And what if they knew immediately upon entering their answer whether it was correct or not? With that knowledge, we empower the student! Come and find out how ASSISTments, a free, online tool developed at Worcester Polytechnic Institute (WPI) can empower the students in your math class. Participants will get to see what kind of feedback students can get in ASSISTments and how they can create additional feedback for students.

Cindy Starks, ASSISTments (WPI)

E65 Using Exploding Dots to Ensure Conceptual Understanding **ELEMENTARY** **45 Minute Presentation**

Exploding Dots is an activity that came out of the Global Math Project. It is a fascinating way to introduce base 10, as well as, other bases such as Base 2 and Base 3. Participants will see how to use this site to get students to "see" addition. Exploding dots, along with base-10 blocks will ensure conceptual understanding.

Adam Goldberg, Southern Connecticut State University

E66 See it to Believe It! **ELEMENTARY** **45 Minute Presentation**

Come and learn about numerous free apps and teacher tools that encourage your students to make mathematical meaning through models. These interactive apps provide powerful ways for teachers to integrate critical visual models and technology into their instruction. We will share ways we use the free apps from The Math Learning Center including Number Frames, Fractions, Number Rack, Partial Products Finder, Geoboard and more. All apps are free at the apple app and chrome stores and can also be used in a web-enabled format. Free teacher tools from Dreambox Learning that promote the use of visual models and number sense will also be shared.

Heidi Hayes, Clinton Public Schools
Katherine Madura, Clinton Public Schools
Karen Pasiuk, Lyme-Old Lyme Schools

E67 Figures and Scales: MIDDLE/HIGH SCHOOL 45 Minute Workshop
The Symbiotic Relationship of Middle Grades
Math and Project Lead the Way

Project Lead the Way is a program that uses math and science to solve real-world challenges and problems. This applied, project-based way of teaching and learning allows students to understand and appreciate the relevancy of their work to the world around them. Participants in this presentation will consider green architecture components, design and modeling elements, and automation and robotics in relation to middle grades math curriculum and instructional applications.

Pierre de St. Croix, *New Milford Public Schools*

E68 Effective Examples to Introduce HIGH SCHOOL 45 Minute Presentation
Advanced Concepts in Mathematics

In this presentation, participants will engage in discussion of how to make more advanced topics accessible to all students by demonstrating similarity and making connections in mathematical structures to much more basic ideas. Examples include: connecting 2 digit multiplication to Multiplying Binomials, estimating irregular areas to Integrals, and division to Degrees of Freedom.

Raymond Robillard, *Regional School District 14*