

# Wednesday, October 17, 2018

## 3:00-5:00pm Pre-Conference Sessions

### **Engaging Math Students with the “Escape Room” Challenge**

GMC will host our first Mathematics “Escape Room” styled sessions. The focus for these sessions will be to allow participants to **engage in problem solving**, to **enrich** knowledge, and to **elevate** understanding of how **productive struggle** promotes mathematical understanding and improves academic practice.

## Evening Session

7:15 PM

### **It Started at Hancock’s Place: An Unexpected Journey Toward Mathematics**

*Thomasenia Adams, University of Florida*

The presenter will share reflections from her life experiences of personal and academic struggles. The beginning does not foretell the ending (though not completely ended!), especially as it related to her relationships with mathematics. Expect to have your perceptions of students, their home life, their potential for learning mathematics, and the magnitude of your influence challenged.

# Thursday, October 18, 2018

8:00-9:15 AM

### **1 Welcome First-Time Participants to the Georgia Mathematics Conference**

Location: International Paper 2

*Bonnie Angel GCTM President & Denise Huddleston, President-Elect*

GCTM would like to welcome first time conference attendees with suggestions for how to get the most out of the conference, introduce you to GCTM, and answer questions. This is an optional session, geared for first-time attendees, new teachers and pre-service teachers.

### **2 Virtual Manipulatives (Grades K-5)**

*Linelle Brunson & LaToya Byrd, Rockdale County Public Schools*

This session is designed to explore the use of virtual manipulatives in the mathematics classroom. The CRA progression will be explored and discussed.

### **3 Conceptual Understanding with Algebra Tiles (Grades 6-12)**

*Chariese Crawford & Jacqueline Hennings, Rockdale County Public Schools*

Participants will learn how to use algebra tiles to develop conceptual understanding with integer operations, solving equations, factoring, and completing the square.

#### **4 Daily Math Fluency (Grades K-2)**

*Jane Hannon, ETA Hand2mind (Vendor)*

Come check out ETA hand2mind's new product Daily Math Fluency. Experience this ready-made solution that will enhance your current math curriculum. In 10 minutes a day, help students in grades K-2 develop efficiency, flexibility, and accuracy of basic math facts using number strings, math talks, and hands-on manipulatives.

#### **5 Bridging Problem Solving, Productive Struggle, and Discourse (Grades K-5)**

*Seyoung Holte, Northeast Georgia RESA*

In this session, we will discuss cognitive processes involved in problem solving such as using mathematical diagramming for understanding and communicating in the problem solving process. Ways to promote productive struggle and meaningful discourse will be discussed.

#### **6 YouTube and Flipgrid in the Classroom (Grades 3-12)**

*Michelle Ihrig, South Gwinnett High School*

Learn how technology can enhance your instruction in and out of the classroom. Learn how to create your own YouTube channel, link to other YouTubers and how to create playlists that relate to specific units. You will learn how to stream live tutorials. Come learn how to use Flipgrid as a way for learners to demonstrate critical thinking skills.

#### **7 Inspiring Students to Engage in Mathematical Discourse (Grades K-8)**

*Lloyd Jones, Curriculum Associates (Vendor) (Repeat Session on Friday)*

Join us for a discussion on how teachers and administrators can support the development of productive math discourse in the classroom through well-planned and well-sequenced discussions of student work.

Participants will experience:

- o Mathematical routines that engage students (calling attention to their reasoning and encouraging participation).
- o Questioning strategies to encourage and promote discourse among students and within the class.
- o Problem solving strategies that promote discourse and supports deeper learning for all students.

#### **8 Geometric Constructions (Grades 9-12)**

*Karen Kline, Cobb County Schools*

From ancient Greek times, straight-edge and compass constructions have led mathematicians to discover geometric concepts. Come see how to use geometric constructions to introduce GSE geometry content.

#### **9 Six Flags Roller Coasters and Algebra (Grades 9 -12)**

*Basil Lee, Langston Hughes High School*

How can we shift from performing sequences of mathematical procedures and memorizing facts and formulas to applying math concepts critically for the purpose of solving problems in the real world? We will create linear equations in two variables by investigating and solving a relevant real world problem involving Six Flags roller coasters.

#### **10 Clickers: The Swiss Army Tool for Assessment, Feedback, and Engagement (Grades 3-12, College)**

*Linus Lindroos, Savannah Arts Academy*

In this session, we will go over various strategies using a clicker system (CPS) in the classroom for formative assessment purposes and to increase student engagement. Also, research will be presented over the effectiveness of using self-guided TI-Nspire activities in the classroom.

### **11 Flying High with Engaging Math Tasks (Grades K-5)**

*Jenny Lockwood, Springdale Park Elementary & Debra Muse, Retired from Carrollton Middle School*

We will explore hands-on math activities that focus on critical thinking and problem solving while increasing understanding of mathematical concepts. In connection with tasks, we will share games, children's literature, and technology tools that will complement your lessons. You will walk away with resources to use in your classroom immediately.

### **12 Science and Math Overlap: How Can We Integrate by Exploring Their Similarities Through Labs? (Grades 6-8)**

*Lucy Long, Lauren Whittaker & Ashley LeBlanc, Georgia College and State University*

Our presentation aims to look at the similarities between science and math by using labs and interactive notebooks. We will use observations from our own classrooms, as well as research from other classrooms, to compare the two different learning environments. We will look at ways to explore these similarities in the classroom, and discuss popular learning theories, like integrated curriculum, and how we can utilize the theory in our own teaching.

### **13 Georgia Pre-Calculus Strand – Trigonometry (Grades 9-12)**

*Jeff McCammon, Luella High School, Suzette Hermann, Pickens County High School & Debbie Poss, Lassiter High School*

Do you want ideas of how to navigate the GSE for Pre-Calculus? If yes, join our session! We will focus on strategies to implement the trigonometric unit. We will overview tasks, provide hints, and networking opportunities.

### **14 Journey to Tourney (Grades 6-12)**

*Tamara McCann & Zacharel Veal, Carver Road Middle School*

Special educators understand that there is no “I” in team; except for the “I’s” found in high leverage Instructional practices and the I’s found in Innovative Inclusion strategies. These strategies are ways to ensure that your students are able to rigorously complete and compete on any task. This action packed, hands on journey will take special education educators through effective uses of formative assessments and how they will help teachers and students WIN. Teachers will be guided through hands on activities using researched based collaborative and inclusion practices that expand across the curriculum.

### **15 Productive Struggle with Algebra 1 (Grades 9-12)**

*Chris McCord & Jonathan Olivarez, Fayette County High School*

We will share what we did last school year in Algebra 1 to improve our Georgia Milestones scores and improve students desire to persevere. We helped our students develop a Growth Mindset. We will share strategies to help students engage in productive struggle.

### **16 Parent Engagement: Empowering Mathematics in the Community (Grades K-5)**

*Vinita Prasad & Ashley Powell, Cobb County Schools*

Are you in charge of your school's math night? If so, this session is for you! Using cards and dice, participants will play K-5 math games. You will walk away with everything you need for a successful math night.

### **17 Gradually Releasing Students into Math Fun! (Grades 3-8)**

*Eva Solomon, Gwinnett County Public Schools*

Gradual release should be the goal for all teachers. In this session, we will explore ways to incorporate this method while having fun. Attendees will receive resources they can incorporate in their class.

### **18 10 Days to Multiplication Mastery (Grades 3-5)**

*Rich Stuart, Learning Wrap-ups, Inc. (Vendor)*

Teach your students Multiplication Facts in 10 Days by emphasizing the power of Commutative Properties along with fun methods of practice.

**19 Formative Assessment Lessons with Desmos (Grades 6-12)**

*Srinivasan Thiyagarajan & Kathy Morgan, Richmond County School System*

Let us explore how Desmos helps us incorporate formative assessment lessons with technology to increase student engagement, effective intervention and deepen their conceptual understanding.

**20 Writing Addition and Subtraction Word Problems to Promote a Deeper Understanding (Grades K-2)**

*Kyla Thomas & Heidi Eisenreich, Georgia Southern University*

In this session, we will discuss how to identify and write the different problem types for addition and subtraction. We will use the 11 CGI problem types and write number sentences that match each scenario. Anticipation and appropriate correction of common student mistakes and points of confusion will also be addressed.

**21 Helping Students Develop Number Sense through Thinking in Collections (Grades K-5)**

*Sandra Trowell, Valdosta State University*

This session will focus upon mathematical tasks that promote and enhance number sense with an emphasis upon thinking in collections and building number as an abstract concept. Participants will have opportunities to experience, discuss, and reflect upon some of these tasks.

**22 Teaching Mathematics for Social Justice (Grades 6-12)**

*Cristina Tyriss, Russell Middle School*

This session will include several activities used in a mathematics classroom aimed at understanding societal issues through a mathematical lens. In each of these activities, students are encouraged to discuss how we can use mathematics to investigate controversial issues in our world and how mathematics can be used as a tool for advocacy.

**23 Piecing Together the Area Model Puzzle (Grades 3-12)**

*Miranda Westbrook & Ashley Clody, Cobb County Schools*

Do you wonder how your standards fit into the area model puzzle? In this session, participants will explore the vertical progression of area models in grades 3-9 using hands-on tools. Time will be allotted for individuals to collaborate and tinker with ideas to understand the piece your standards represent in the puzzle.

**24 Transforming Roots and Asymptotes (Grades 9-12)**

*Dennis Wilson, Landmark Christian School*

Explore the behavior of polynomial and rational functions with dynamic learning tasks that make use of technology. A deeper understanding of the graphs of both families of functions will be developed by activities designed to help students discover relationships between algebraic and graphical representations.

**9:30-10:45 AM****25 Problem Solving - No Problem! (Grades K-5)**

*Karen Anderson & Rhonda Carbart, Hightower Trail Elementary*

Have you ever wondered why students struggle with word problems in math? This session will demonstrate how integrating Close Reading Strategies into the math classroom can build student confidence about solving word problems. In this session, participants will actively engage in a process that students will use from reading the word problems to answer constructed response items.

**26 Strategies to Promote Discourse in Mathematics Classrooms (Grades 6-12)**

*Ashley Boyd, CPM Educational Program (Vendor)*

Participants will experience teaching strategies that particularly deal with discourse, work on math problems using these strategies, see how the Standards for Mathematical Practices will be tied into and highlighted by these strategies, and be actively engaged in using strategies they can take back and use in their classrooms.

**27 Middle Years Catch Up TGIF Math Games (Grades 3-8)**

*Carrie Brockway, Box Cars and One-Eyed Jacks (Vendor)*

This hands-on workshop will focus on games and strategies you can use to help your middle years students catch up on some of the concepts they should have already mastered. Concepts covered will include basic operational fluency, place value and fractions. Come prepared to play in this fast paced, highly engaging session that will make math fun for your students! Handouts and student samples will be shared.

**28 Using Concrete Manipulatives in the K-5 Classroom (Grades K-5)**

*LaToya Byrd & Linelle Brunson, Rockdale County Public Schools*

In this session participants will learn innovative strategies for effectively using concrete manipulatives in the K-5 classroom.

**29 Every Child Has Genius Level Potential – Are You Giving Them Time to Showcase It? (Grades K-5)**

*Kristopher Childs, Houghton Mifflin Harcourt (Featured Speaker)*

Participants will engage in the 6 Stages of Effective Mathematics Instruction. Participants will make sense of a lesson design process, develop an understanding of rich problem-solving task selection and implementation, and explore an effective instructional model. There will be a keen focus on the impact of productive struggle during the problem-solving process.

**30 Using Technology to Understand 3D Geometry (Grades 9-12)**

*Jill Cochran & Frankie Reda, Berry College*

Do you have a 3D printer at your school? Are wondering how to use it? Do you have access to computers and you want creative ways to explore geometry or calculus topics? We will share new research-based curriculum ideas, the research behind how students learn 3D geometry and ideas about how to get a 3D printer for your classroom.

**31 Hands-On Transformations (Grades 6-12)**

*Kelly Edenfield, University of Georgia*

Students need to experience geometric transformations with concrete, hands-on tools to develop a deep conceptual understanding of transformations. Come work with patty paper, miras, and compasses and discuss the value of these tools prior to work with transformations on the coordinate plane.

**32 Building Fraction Sense for All Through Arts-Infused Tiered Tasks (Grades 3-5)**

*Stacey Foster, Westchester Elementary School (Repeat Session on Friday)*

Infusing art, movement, and music into tiered fractions tasks provides ALL students with opportunities to develop fraction sense. In this session, participants will experience arts-infused fraction tasks and explore simple ways to incorporate choice to empower and stretch students far beyond where traditional fraction bars could ever take them.

**33 Daily Math Fluency (Grades 3-5)**

*Jane Hannon, ETA Hand2mind (Vendor)*

Come check out ETA hand2mind's new product Daily Math Fluency. Experience this ready-made solution that will enhance your current math curriculum. In 10 minutes a day, help students in grades 3-5 develop efficiency, flexibility, and accuracy of basic math facts using number strings, math talks, and hands-on manipulatives.

**34 Georgia Pre-Calculus Strand – Matrices (Grades 9-12)**

*Suzette Hermann, Pickens County High School, Jeff McCammon, Luella High School & Debbie Poss, Lassiter High School*

Do you want ideas of how to navigate the GSE for Pre-Calculus? If yes, join our session! We will focus on strategies to implement the matrices unit. We will overview tasks, provide hints, and networking opportunities.

**35 Meeting Environmental Challenges with Math (Grades 6-8)**

*Kenneth Jones, Columbus State University*

In this STEM-focused workshop, discover hands-on activities that use real-world data to create mathematical models as a way to understand trends in land use, population growth, climate change and more. Build students' environmental I.Q. while developing skills in measurement, data analysis, modeling and problem solving.

**36 Fascinating Numbers: Using Enjoyment to Strengthen Number Sense and Confidence (Grades 6-8)**

*William Lacefield, Mercer University & Tonya Clarke, Clayton County Public Schools*

Lessons that nurture enjoyment of mathematics serve to enhance number sense, perseverance, and confidence. This session will focus on work with a variety of interesting types of numbers, including abundant, deficient, perfect, semi-perfect, friendly, weird, happy, vampire, untouchable, lazy caterer, narcissistic, and McNugget numbers. Session participants will share ideas for incorporating number enjoyment into standards-based lessons.

**37 "Write On" for Math! (Grades K-5)**

*Casey McNeely & DeeDee Bennett, Bulloch County Schools (Repeat Session on Friday)*

Are you interested in learning how various writing genres can be incorporated into mathematics? Are you wondering how to ask good questions to elicit "outrageous" written responses from students and how to provide effective feedback that develops both the student's mathematical understanding and writing ability? Don't let it "wipe you out." Join us as we explore some "rad" ideas to "Write On" in math!

**38 Discrete vs. Continuous. Model vs. Function. What's the Difference? (Grades 6-12, College)**

*Kathleen Mittag, The University of Texas at San Antonio & Sharon Taylor, Georgia Southern University*

Using hands-on activities to model linear functions is quite common in many classrooms, but many texts and websites present situations that provide a linear model instead of a linear function. This session will examine activities and discuss the differences between linear relationships and functions as well as discuss discrete and continuous data.

**39 Explicit CRA with Fractions (Grades 3-5)**

*Joshua Nelson & Christina Pike, Cotton Indian Elementary School (Repeat Session on Friday)*

Students often struggle with making a strong connection between concrete models, accurate visual representations, and abstract strategies/algorithms. Certain manipulatives, used in a specific manner, facilitate these connections better than others. In our session, we will explore how to subtract and multiply fractions in such a way that students can easily bridge the gap between the concrete, representational and abstract.

**40 Helping Students Make Sense of Story Problems (Grades K-5)**

*Robyn Ovrick, University of Georgia – Griffin Campus*

Participants will discover ways to help elementary students make sense of story problems. Participants will also be introduced to a variety of story problem types. In addition they will learn about ways to differentiate while using story problems.

**41 Mathematically Speaking (Grades 3-5)**

Location: International Paper 2

*Ashley Powell & Vinita Prasad, Cobb County Schools*

As 21st century educators we want our students to construct viable arguments both orally and written to challenge their thinking, foster their ability to process new information and broaden their grasp of skills and concepts, but this is no ordinary task. Mathematics has a complex language with difficult vocabulary that tests even the most capable students. Join this session to gather activities designed to enhance your students' math vocabulary to help them speak more precisely about mathematics.

**42 Cybersecurity, Cryptography and Matrices (Grades 9-12, College)**

*Fabian A. Rankine, Dooly County High School (Repeat Session on Friday)*

Cybersecurity is one of the United States' national priorities with cyber-attacks coming from home and abroad, including a recent attack in Metro-Atlanta. Thus, to counter these attacks and stay ahead of the hackers, we need stronger and more secure ways to protect our data on the internet, and Cryptography is one way of doing this. We will explore the ways that we can encrypt our data using Matrices.

**43 Fair and Consistent Grading of Student Work (Grades 6-12)**

*Marshall Ransom, Georgia Southern University & Dennis Wilson, Landmark Christian School*

We focus on grading student work in a fair and consistent manner, rewarding correct mathematics. Example problems and student work will be discussed including percent, basic algebra and basic geometry. Teachers will be asked to work through the grading process and then to prepare a fair and consistent grading standard for a problem.

**44 Enhancing Math Instruction Through the Use of Graphing Calculators (Grades 6-12, College)**

*Lorenzo Robinson & Lawanda Knight, Renaissance Middle School (Repeat Session on Friday)*

Participants will explore several uses of the TI-84 graphing calculator. We will unlock some of the hidden gems of this technology and provide some key instructions and suggestions of how this new learning can benefit both teachers and students. We will also explore various menus, including the calculator's catalog to determine how to access different functions that the participants or their students may have difficulty locating.

**45 Desmos Classroom Activities (Grades 6-12)**

*Sarah Swain, Jeff Davis High School*

Desmos is a FREE online graphing calculator! Did you know that Desmos offers FREE classroom activities? This session will take you through what Desmos has to offer students and teachers through amazing, already created classroom activities.

**46 Promoting Discourse in the Co-Taught Classroom (Grades 6-8)**

*Andrea Walker & Jennifer Peek, Sumter County Intermediate School*

How do you have productive discourse in the co-taught setting? This can be a frustrating task for the teachers and students, especially in a co-taught setting. Students need to feel safe and valued for their opinions so misconceptions can be addressed and growth can be achieved. Join us for an exciting exponent activity that facilitates discourse throughout the lesson!

**47 Effective Questioning in 3 Act Tasks (Grades K-5)**

*Salena Weed, Whitfield County Schools*

3 Act Tasks do not always go as planned. In fact, some teachers shy away from 3 Act Tasks because of their unpredictability. This session will focus on effective questioning to facilitate a 3 Act Task to keep the focus on math and to emphasize the Standards for Mathematical Practice.

**48 Extending Curiosity Beyond Notice and Wonder (Grades 3-8)**

*Michael Wiernicki, Henry County Schools*

Fostering student curiosity and wonder leads to student engagement with math content. Extending this builds an appreciation for and a value of the subject. Participants will investigate math problems that foster curiosity and use question stems such as "What if..." to build student agency, extend curiosity, and foster creativity in math class.

## 11:00-12:00PM

### State Superintendent Forum

Join us to hear state superintendent candidates share their vision for education for Georgians. During the session, candidates will answer questions submitted by GCTM members.

## 1:45-3:00 PM

### 49 Using Culturally Responsive Literature to Engage ALL Students in Math (Grades 3-5)

Location: International Paper 2

*Rhonda Amerson, Samantha Miller, Scarlett Moore & Jordan Williams, Middle Georgia State University*

This interactive workshop will showcase how African American and Hispanic stories can be used to foster self-efficacy among children of color by affirming their culture and home life and to facilitate mathematical understanding for ALL students. Sample activities that draw from culturally responsive literature, both new and old, will be presented.

### 50 Math Rx for a Productive Struggle – “Do the Math” (Grades 6-12)

*Michelle Bateman, Dekalb County School District (Featured Speaker)*

Do you often hear students saying, “I don’t get this!” or “How do we do this?” Do you wonder about ways to help your students through the struggle they have in mathematics? Well, the best medication for the symptoms associated with **Productive Struggle** will be addressed in this engaging and hands-on math session. Through active participation, you will leave with a better understanding of how to develop lessons that support a **Productive Struggle** in a positive way using the “Do the Math” Protocol.

### 51 Using Data to Make Sense of Student Struggles (Grades K-12)

*Kristopher Childs, Houghton Mifflin Harcourt (Featured Speaker)*

Participants will learn how to develop an effective data informed environment that is student centered. Participants will explore effectively assessing student learning, providing meaningful feedback, and using data to inform instructional decisions. In real-time, participants will engage with an assessment system and develop a plan of action to implement the assessment system.

### 52 Filling the Box: The Progression of Solids (Grades K-12)

*Ashley Clody & Miranda Westbrook, Cobb County Schools*

Where do your standards stack in the box of solids? In this session, participants will investigate the vertical progression of three-dimensional figures in grades K-10 with a hands-on approach. Individuals will develop an understanding of how their standards build context across multiple grade levels.

### 53 Awesome Extensions and Add-Ons for Differentiation with Google Forms (Grades 6-12)

*Heather Crump, Hart County High School*

Do you struggle to find ways to differentiate that don't take up your entire planning period to implement? In this session, you will learn how to download and use a few Google extensions and add-ons to make differentiation easier and faster for you.

### 54 Putting Values in Their Place (Grades K-5)

*Kelly Edenfield, University of Georgia (Repeat Session on Friday)*

Students often struggle with number sense due to a lack of understanding of the importance of place value. Come experience activities that will help us think deeply about our own knowledge of place value and help us better approach this topic with students.

**55 Using Google Forms to Assess and Differentiate (Grades 6-12)**

*Bernadette Fouch, Hart County High School*

Do you struggle to keep up with grading and to use the data to differentiate effectively in the classroom? You will learn how to use Google Forms to assess students easily. You will learn how to use the data automatically generated by Google Forms to find trends in understanding and help you differentiate more effectively.

**56 Writing in Math Class (Grades 9-12)**

*Vicki Gaither & Kris Norwood, Woodland High School & Linda Segars, Northwest Georgia RESA*

"I'm not an ELA teacher so why is it important to have students write in math class?" Do you have these type of thoughts about writing? If yes, join us! In this session, we will share what we learned about student thinking and understanding as we introduced writing into our math. It is easier than you think and worth the effort!

**57 State-Wide Mathematics Competitions: GCTM's Role in Math Tournaments (Grades 6-12)**

*Chuck Garner, Rockdale Magnet School for Science and Technology*

GCTM sponsors two state-wide math tournaments: a middle school math tournament open to any middle school in the state and the State Mathematics Tournament, an invitation-only event in which the State Math Champion is crowned. This session, presented by GCTM's Vice-President for Competitions, is designed to inform you about the events, and to give some pointers about attending, as well as tips to get your teams ready for them.

**58 Making the Shift to a Mathematical Growth Mindset (Grades K-12)**

*Tamoco Hill, Rutland High School (Repeat Session on Friday)*

As educators in the field of mathematics, we often hear the words "I can't do math" or "Math is not for me". The purpose of this session is to help fellow educators change how students think and feel about math. Different strategies will be presented and discussed on how to present math, structure math problems, guide students, and give feedback that keeps all students engaged in the learning process.

**59 Understanding Fraction Progression and Demystifying Fractional and Decimal Computation (Grades 3-5)**

*Seyoung Holte, Northeast Georgia RESA (Repeat Session on Friday)*

Fractions are not a foreign language, yet it is misunderstood by many. In this session, we will engage in tasks and games to promote fractional reasoning and computational fluency following the fraction progression. Throughout the session, we will look for and discuss opportunities where Standards for Mathematical Practices are promoted and Effective Mathematics Teaching Practices are applied.

**60 Work Smarter, Not Harder with Math Workshop (Grades 6-8)**

*Jennifer Jochen, Smith Curriculum and Consulting (Vendor)*

Love the idea of using Math Workshop in your math class but struggle with the organization, the planning, the management and implementation? During this session we will explore how to make your life easier by working smarter, and not harder so that your students can succeed with Math Workshop immediately!

**61 The Progression of Word Problems (Grades K-2)**

*Brian Lack, Forsyth County Schools*

Ask any Kindergarten, 1st, or 2nd grade teacher what students struggle with the most in math and chances are he/she will say "word problems". In this session, we will uncover the progression of word problems (using addition and subtraction) across grades K-2. Participants will leave with practical, ready-to-use instructional resources.

**62 Fantasy Football (Grades 6-12)**

*Rose Layton, Cross Creek High School (Repeat Session on Thursday)*

Football lovers rejoice! Come and see how fantasy football can be used in the classroom. Immerse your students in real-world mathematics while they enjoy learning algebraic concepts and thinking skills. They'll have so much fun, they'll forget they are learning.

### **63 Making Mathematics More Marketable (Grades K-12)**

*Keenan Lee & Roxann Crawford, Douglas County School System*

The study of mathematics is in major decline! According to the National Science Foundation (2010), between 1-3% of American students choose mathematics, statistics, or computer science as a major study in college. Research shows departmental leadership in high school mathematics is failing to inspire 21st century students to choose careers in the mathematical sciences. Making Mathematics More Marketable is an instructional framework predicated on unleashing direct and implicit promotional strategies to engaged students, and simultaneously create active collaboration amongst teachers.

### **64 Managing Math Centers in a Differentiated Classroom (Grades K-5)**

*Angie Meredith, ETA Hand2mind (Vendor)*

Differentiated Math Centers from ETA hand2mind provides the solution to managing centers in the classroom. Come see how easy it is to differentiate essential objectives through leveled content - below, on, above. These kits are available for grades 1-5 and are all-inclusive with leveled task cards as well as manipulatives.

### **65 Deepening Fraction Division Understanding (Grades 6-8)**

*Ha Nguyen & Heidi Eisenreich, Georgia Southern University*

Engage in experiences designed to develop a deeper understanding of fraction division. Examine the progression of fraction operations through the elementary and middle grades. Make sense of fraction division tasks through individual and group work, classroom video, and discussion. Explore tasks and ways to differentiate for use in your classroom.

### **66 Calculus Without Limits: Increasing Student Engagement in the Calculus Classroom (Grades 9-12)**

*Julie Pinto & Christina MacIntyre, Hillgrove High School*

When you search for calculus topics online, you often find traditional lecture videos. We should teach calculus in ways that engage students and create opportunities for mathematical discourse. Participants will experience and discuss some of our favorite calculus investigations and activities to use in their own classrooms to help build a more student-centered environment.

### **67 Georgia Pre-Calculus Strand – Vectors (Grades 9-12)**

*Debbie Poss, Lassiter High School, Suzette Hermann, Pickens County High School, & Jeff McCammon, Luella High School*

Do you want ideas of how to navigate the GSE for Pre-Calculus? If yes, join our session! We will focus on strategies to implement the vectors unit. We will overview tasks, provide hints, and networking opportunities.

### **68 Composing & Decomposing: Not Just for Our Youngest Students (Grades K-5)**

*Nancy Ricciardi, Retired from Kilpatrick Elementary (Repeat Session on Friday)*

K–1 students spend lots of time composing and decomposing numbers, but there's so much more to apply as students move through elementary school. Often as teachers we can't see the applications because we learned math so differently from students today. Come discover applications for fractions, time, measurement, and a variety of other areas.

### **69 How High Does It Grow...Or Does It? (Grades 6-12)**

*Timothy Scripko, CPM (Vendor)*

Participants will experience many problems and investigations around exponential explorations. The problems are interesting and lead to a better understanding exponential growth. We will look at the development of exponential understanding through connections to geometric sequences to multiple representations.

### **70 Breaking Out of the Norm (Grades 9-12)**

*Sarah Swain, Jeff Davis High School*

Ever heard of the Escape the Room craze?? Well, BreakoutEdu allows us to push kids with their critical thinking skills in the same way without locking them up in a classroom. Come join in on a fun session where we will learn about BreakoutEdu, how to make your own version for little to no money, and strategies on how to create your own game.

### **71 Math Clubs - Be Part of the Fun (Grades K-2)**

*Lori Triplett, Box Cars and One-Eyed Jacks (Vendor)*

Come and learn fun and exciting K - 5 math games that use cards, dice and dominoes. Activities and games work well with multiple ability levels in after school math clubs. I will share our students favorite games that reinforce and build fact fluency, number sense and place value. Learn easy ways to organize and implement practice before and after school.

### **72 Creating a Math Trail...ANYWHERE! (Grades 3-12)**

*Amanda Woods, Augusta University & Shelly Allen, Richmond County School System (Repeat Session on Thursday)*

MATHEMATICS IS EVERYWHERE! Join us in this session to explore strategies that support student engagement in your math classroom. In this session, you will experience a Math Trail and then begin development of one to share with your own students.

## **3:15-4:30 PM**

### **73 Creating a Math Trail...ANYWHERE! (Grades 3-12)**

*Shelly Allen, Richmond County School System & Amanda Woods, Augusta State University*

MATHEMATICS IS EVERYWHERE! Join us in this session to explore strategies that support student engagement in your math classroom. In this session, you will experience a Math Trail and then begin development of one to share with your own students.

### **74 Getting Started with Number Talks (Grades K-5)**

*Amelia Barnes, Richmond County School System*

Do you want to help your students develop numerical reasoning and computational fluency? Number Talks is the perfect place to start! A Number Talk is a short, ongoing daily routine that provides students with meaningful ongoing practice with computation. During a number talk, students are thinking, asking their peers questions and explaining their own thinking while the teacher records the thinking. This session is filled with demonstrations of Number Talks so teachers will be able to implement Number Talks upon returning to their classrooms.

### **75 Oh the Math that They'll Know - Primary Math Games (Grades K-2)**

*Carrie Brockway, Box Cars and One-Eyed Jacks (Vendor)*

Come prepared to play games that incorporate the use of cards, dice, math shakers and more that teach the following concepts: counting, comparing numbers, early operations, including count on, make ten, doubles, fact families and early place value. Participants will learn how to create easily differentiated math stations, see student journals/samples and how to use work for assessment. Come prepared to shake, rattle roll and dance through engaging math activities your students will love!

### **76 Drive the Path (Grades 6-12)**

*Dora Brown, Karen Kline & Ashley Clody, Cobb County Schools & Beth Smith, Texas Instruments*

Remember walking positive and negative slopes? Now let's drive the slope. This session will focus on using the Texas Instruments Rover learning to program and drive slopes and shapes. Similar triangles and Pythagorean Theorem will also be discussed. A high engagement activity no student can resist.

**77 Great Ex-Spec-Tations (Grades 9-12, College)**

*Angi Lively & Stan Perrine, Georgia Gwinnet College*

This session will be a brief introduction to the framework of Specifications Grading and how it was implemented into our college mathematics courses (applicable to high school courses). We discuss victories and challenges we have seen during the first year using the Specifications Grading framework. This work is based on the book by Dr. Linda Nilson entitled "Specifications Grading: Restoring Rigor, Motivating Students, and Saving Faculty Time".

**78 Multiplying Fractions Piece by Piece (Grades 3-5)**

*Heidi Eisenreich, Tracy Batchelor, & Delaysha Edwards, Georgia Southern*

During this session, presenters will demonstrate how to multiply fractions using fraction circles and fraction tiles. Fraction multiplication may seem daunting, but with the use of manipulatives, solving tasks become easier and hands-on. We will focus on explaining and justifying these strategies to promote discourse in the classroom.

**79 Report on Workshop for Math Team Sponsors (Grades 9-12)**

*Mo Hendon, University of Georgia, Chuck Garner, Rockdale Magnet & Chasen Smith, Georgia Southern*

This is a report on the 2018 workshop for math team sponsors, which was funded by a Special Projects Grant from the GCTM. We'll talk about the math that we worked on, and the ideas we shared about making math competitions into true mathematical learning experiences.

**80 Exchanging Middle & High School Math Ideas - EdCamp Style (Grades 6-12)**

*Margaret Hendricks, Hart County High School*

EdCamps are staff development opportunities that are completely participant driven. There is no agenda or speaker; you sit with your colleagues and talk, exchange ideas, ask questions and get advice. A great way to learn is to hear how others are actually doing things in their own classrooms. This class will be led in a true EdCamp style. We will talk about best practices in our classroom and exchange ideas for making our classrooms better.

**81 Math in a 360° Classroom (Grades 6-12)**

Location: International Paper 2

*Robbin Hill, Lovingood Middle School (Repeat Session on Friday)*

360° means more than just a circle in math. This classroom engages the students; holds them accountable, and leads to great conversations about the math. Parents, students, teachers, and administrators have seen the benefits of this classroom.

**82 Differentiation through Leveled Text Dependent Question Stems (Grades 3-12)**

*Tamoco Hill, Rutland High School (Repeat Session on Friday)*

Some students are able to quickly figure out a starting point to solving a problem while others need more time or scaffolding. The purpose of the session is to present various leveled stems to meet students where they are so that they can be successful at working independently on a problem through productive struggle without the aid of the teacher.

**83 Setting Up Math Workstations for Success (Grades 6-8)**

*Jennifer Jochen, Smith Curriculum and Consulting (Vendor)*

So are you ready to implement Math Workstations but are intimidated by what to include each week? Join me in this hands-on and engaging session where we will discover how to implement new concepts each week in Math Workshop to increase student engagement and decrease your stress!

**84 Guided Math (Grades K-5)**

*Tina Clark, Bryant Elementary School*

In this session, teachers will learn about Guided Math utilizing the workshop model. Teachers will explore and participate in a workshop model with differentiated assignments. Teachers will explore how to create differentiated assignments utilizing the workshop model based on math data.

**85 Putting the Pieces Together – Personalized Learning. (Grades 6-8)**

*Tom Kleinberg & Tammy Duncan, Jasper Middle School*

In the session, teachers will be introduced to the strategies needed to implement personalized learning. Teachers will be given the tools needed to have a successful classroom full of “organized chaos”. They will see that personalized learning gives the teacher time for remediation, enrichment, and differentiation.

**86 Real Life Applications in Precalculus (Grades 9-12)**

*Debbie Kohler, Kennesaw State University*

This session will delve into real life applications that are applicable to PreCalculus with an emphasis on the trigonometric concepts. Formative assessment will be discussed as well as sources to help you find real life applications. Included will be several tasks/projects that help students discover and/or apply the concepts in Precalculus. Bring your Ti-84 calculator with you.

**87 Fantasy Football (Grades 6-12)**

*Rose Layton, Cross Creek High School*

Football lovers rejoice! Come and see how fantasy football can be used in the classroom. Immerse your students in real-world mathematics while they enjoy learning algebraic concepts and thinking skills. They'll have so much fun, they'll forget they are learning.

**88 Introduction to Algebra Tiles (Grades 6-8)**

*Lolly Martin & Gail Frantz, Fayette County Schools*

Do you have Algebra Tiles lying around your school and don't know how to use them? These manipulatives engage students and help them develop conceptual understanding which promotes mastery. This session focuses primarily on zero pairs, positive and negative integers, integer operations, and simple linear equations.

**89 Georgia Pre-Calculus Strand – Probability (Grades 9-12)**

*Jeff McCammon, Luella High School, Suzette Hermann, Pickens County High School & Debbie Poss, Lassiter High School*

Do you want ideas of how to navigate the GSE for Pre-Calculus? If yes, join our session! We will focus on strategies to implement the probability unit. We will overview tasks, provide hints, and networking opportunities.

**90 Guided Math Made Easy! (Grades K-2)**

*Angie Meredith, ETA Hand2mind (Vendor)*

Come check out ETA hand2mind's ready-made solution to transition into a Guided Math classroom with confidence. Guided Math provides a structure for best practices: differentiation, formative assessment, hands-on learning, small group and whole group, and spiral review. Whether you are just learning about Guided Math or have been using it for years, this session is designed to make Guided Math work for you and your students.

**91 Using Microsoft Excel in the Mathematics Classroom (Grades K-12)**

*Adam Raymond, Rockdale Magnet School for Science and Technology (Repeat Session on Friday)*

Learn how to use Microsoft Excel in your classroom to create random problems for student practice, help with grading, and flexible data analysis. To get the most out of the session, bring a device with Microsoft Excel installed.

**92 Unpacking Geometry Problems from Boxes You Make (Grades 6-12)**

*Nicholas Restivo, Math Olympiads for Elementary and Middle Schools (MOEMS) (Vendor)*

Transform used greeting cards into boxes – useful for small-item storage – but more importantly, discover and refine geometry concepts and definitions, make conjectures, and answer probing questions about parallelograms, rectangles, squares, and quadrilaterals while participating in this highly interactive hands-on activity to bring back to your classroom. We will also discuss ratio, proportion, area, and volume.

**93 Supporting Struggling Readers in Math (Grades K-8)**

*Cydne Rolle, Fulton County Schools*

Participants will engage in dialogue and activities regarding struggling readers and their abilities to comprehend and solve mathematical tasks. Participants will also receive resources and learn from research based methodologies.

**94 Professional Learning Communities (PLCs) with Math Labs (Grades K-12)**

*Tynisha Robinson, Marietta City Schools & Julie Pinto, Hillgrove High School (Repeat Session on Friday)*

The goal of this session is to introduce PLCs to authentic opportunities for professional development by implementing Math Lab-sites. We will discuss "hands-on" mathematics learning by following principle with practice. We will show how we practice learned theory with students in classrooms. Learn how to lead PLCs through this work and watch videos of the implementation and next steps for genuine professional learning!

**95 My Favorite Algebra II Lab Activities (Grades 9-12)**

*Don Slater & Debbie Poss, Lassiter High School*

Whether they are called learning tasks, labs, or simply hands-on activities, students learn mathematics by doing mathematics. Come be a student and work through some of my favorite activities to explore a variety of standards in Algebra II, as we strive to provide meaning behind the mathematics.

**96 Moving Towards Understanding with TI-Rover (Grades 9-12)**

*Dennis Wilson, Landmark Christian School*

Student understanding of mathematics is more authentic when it is presented with multiple representations. Participants will examine mathematical ideas of the traditional numerical, algebraic, and graphical models in the context of the real world. Using the TI-Innovator and TI- Rover, numerical input will be transformed into real world output that students can experience. Output from the Innovator and Rover will help students make sense of algebraic and geometric problems as they persevere in solving them.

**4:45 PM****PE at the GMC**

Now you have exercised your brain all day, come exercise your body too! Lots of exercise, fun, and games including a Fun Run/Walk, Math Moves, and 3-on-3 Basketball.

## Evening Session

7:15 PM

### Advocating for High Quality Math Programs: Effectively Responding to Our Critics

*Matt Lawson, President of National Council of Teachers of Mathematics*

The speaker will outline how the history of mathematics education informs effective practice today and offer strategies to more effectively communicate with parents and/or critics of mathematics educations.

Immediately following the keynote address will be the **GCTM Awards Ceremony**. It will conclude with door prizes.

Following the ceremony, you are invited to the EMC Senior Pavilion for refreshments, music, and dancing!

DRAFT

# Friday, October 19, 2018

8:00-9:30 AM

## 97 Proofs Don't Have to Be Boring: A Hands On Approach to Engage Students (Grades 9-12)

*Lauren Broski & Michelle Purmort, Spalding High School*

Are your students struggling with proofs? Break the cycle with engaging, hands-on proof manipulatives. Introduce your proofs with proof blocks as a way to organize thoughts. Strategies will be introduced to have students work collaboratively in proof sorts differentiated by level, and use the computer to interactively build proofs.

## 98 Using the MPACs and Technology to Improve Understanding in AP Calculus (Grades 9-12)

*Vicki Carter, West Florence High School (GA<sup>2</sup>MPT Session)*

We will look at the role of technology as a tool to deepen the understanding of calculus and what the MPACs tell us about the role of technology in the classroom. We will discuss several recent calculator-active FRQs and the impact of the MPACs and the use of technology on these questions. We will also discuss how technology could be used to increase understanding of the topics in some questions that are not calculator active.

## 99 Incorporate Teaching for Social Justice (Grades K-12, College)

*Basil Conway, Columbus State University & Brian Lawler, Kennesaw State University*

Have you felt discouraged about what students are actually walking away from your classroom with? This session will provide opportunities for participants to learn more about what teaching for social justice in the classroom is, how to do it, and how to use it to empower students. Time will be allocated to providing general suggestions, facilitating an open discussion around the topic, and suggesting resources that are available to assist teachers.

## 100 Using Concrete Representations to Model Decimal Addition and Subtraction Problems (Grades 3-5)

*Austin Davis & Heidi Eisenreich, Georgia Southern University*

We will first introduce decimals using base ten blocks and identify student misconceptions. Then we will use base ten blocks to model addition and subtraction among decimals and move to pictorial and abstract strategies. After explaining techniques, we will discuss the benefits of each techniques.

## 101 Putting Values in Their Place (Grades K-5)

*Kelly Edenfield, University of Georgia*

Students often struggle with number sense due to a lack of understanding of the importance of place value. Come experience activities that will help us think deeply about our own knowledge of place value and help us better approach this topic with students.

## 102 History, Interesting Data Sets, and Other Topics that We Think You Should Cover in Your Statistics Classroom (Grades 9-12)

*Billy Esra, Bishop Hall Charter School & Ross Brooks, Tallahassee Community College (GA<sup>2</sup>MPT Session)*

The AP Statistics curriculum and AP Statistics exam guide what teachers cover as part of their courses with the ultimate goal of student success on that AP exam. While the curriculum, rightly, should be a focus of instruction, this presentation will provide supplemental resources that can be implemented in established AP Statistics curricula in order to promote cross-curricular studies, allow for innovative exploration of current topics, and provide a gateway to deeper statistics concepts. We will discuss some of the historical anecdotes and stories in the history of statistics, interesting real world data sets, and some extra topics (not in the curriculum) that should be included to better prepare your students for statistical reasoning after high school.

**103 Mastering the Standard (Grades 6-12)**

*Padgett Gilbert, Cartersville City Schools*

Come learn how mastering the standards can look in the secondary classroom. Students can demonstrate knowledge on pre- and post- tests along with retakes for each standard. Students will learn to take ownership in their learning, study what is necessary, and successfully master the standards for the content. Teachers will know exactly where each student is on mastering each standard before state testing and will be able to make changes as testing gets closer.

**104 Embracing Productive Struggle with Math Tasks (Grades K-8)**

*Jane Hannon, ETA Hand2mind (Vendor)*

Tap into student thinking and encourage productive struggle with Math Tasks from ETA hand2mind! Math Tasks is a series of books organized by grade bands (K-2, 3-5, 6-8) and centered on common manipulatives. These tasks promote multiple solutions, encourage collaboration, and develop deep understanding. Come experience some of the grade level tasks!

**105 Math in a 360° Classroom (Grades 6-12)**

Location: International Paper 2

*Robbin Hill, Lovinggood Middle School*

360° means more than just a circle in math. This classroom engages the students; holds them accountable, and leads to great conversations about the math. Parents, students, teachers, and administrators have seen the benefits of this classroom.

**106 Understanding Fraction Progression and Demystifying Fractional and Decimal Computation (Grades 3-5)**

*Seyoung Holte, Northeast Georgia RESA*

Fractions are not a foreign language, yet it is misunderstood by many. In this session, we will engage in tasks and games to promote fractional reasoning and computational fluency following the fraction progression. Throughout the session, we will look for and discuss opportunities where Standards for Mathematical Practices are promoted and Effective Mathematics Teaching Practices are applied.

**107 We Grow: Instilling a Growth Mindset in the Classroom (Grades 6-12)**

*Michelle Ihrig, South Gwinnett High*

It may seem counter-intuitive though explicitly teaching students about having a growth mindset can yield significant results in and out of the classroom. Come see real results, view lesson, and hear excerpts from actual students about how a growth mindset impacted them. Time will also be allotted for share-outs and collaboration.

**108 Work Smarter, Not Harder with Math Workshop (Grades 6-8)**

*Jennifer Jochen, Smith Curriculum and Consulting (Vendor)*

Love the idea of using Math Workshop in your math class but struggle with the organization, the planning, the management and implementation? During this session we will explore how to make your life easier by working smarter, and not harder so that your students can succeed with Math Workshop immediately!

**109 Inspiring Students to engage in Mathematical Discourse (Grades K-12, College)**

*Lloyd Jones, Curriculum Associates (Vendor)*

Join us for a discussion on how teachers and administrators can support the development of productive math discourse in the classroom through well-planned and well-sequenced discussions of student work.

Participants will experience:

- o Mathematical routines that engage students (calling attention to their reasoning and encouraging participation).
- o Questioning strategies to encourage and promote discourse among students and within the class.
- o Problem solving strategies that promote discourse and supports deeper learning for all students.

**110 Discovering Happiness with Math and Science (Grades 6-8)**

*Nancy Kelly & Lynette Clark, Rockdale County Schools*

During this session, presenters will equip teachers with tools that will promote happiness and growth mindset with their students. This session will focus on principles to teaching happiness; based on the science behind happiness while incorporating Next Generation Science and GSE Math aligned activities.

**111 Collaboration that Leads to Effective Learning in Mathematics (Grades 3-12, College)**

*Eleajah McElroy, Griffin-Spalding County Schools*

Learning strategies provide access to rigorous mathematics for all students. Collaborative learning strategies are most effective when purposefully planned for in advance of instruction. Participants will examine the characteristics of an effective, collaborative classroom and apply these ideas to their own instruction. Analyze when, why, and how to use collaborative strategies to promote effective groups.

**112 "Write On" for Math! (Grades K-5)**

*Casey McNeely & DeeDee Bennett, Bulloch County Schools*

Are you interested in learning how various writing genres can be incorporated into mathematics? Are you wondering how to ask good questions to elicit "outrageous" written responses from students and how to provide effective feedback that develops both the student's mathematical understanding and writing ability? Don't let it "wipe you out." Join us as we explore some "rad" ideas to "Write On" in math!

**113 Making Math Practice More Interesting (Grades 6-12)**

*Melissa Morgan, Hart County High School*

Are your students tired of using worksheets to get the practice they need? Do they always want to play review games, but you don't have time to design them and set them up? In this session, you will learn creative ways to give your students the practice they need without taking a lot of prep time.

**114 Composing & Decomposing: Not Just for Our Youngest Students (Grades K-5)**

*Nancy Ricciardi, Retired from Kilpatrick Elementary*

K-1 students spend lots of time composing and decomposing numbers, but there's so much more to apply as students move through elementary school. Often as teachers we can't see the applications because we learned math so differently from students today. Come discover applications for fractions, time, measurement, and a variety of other areas.

**115 Student Guided & Self Correcting Math Centers (Grades K-5)**

*Rich Stuart, Learning Wrap-ups, Inc. (Vendor)*

Learn about, play with and keep Math Center materials that are Student Guided, Hands-on, and Self Correcting.

**116 Connecting the Dots - Primary Domino Math Games (Grades K-2)**

*Lori Triplett, Box Cars and One-Eyed Jacks (Vendor)*

Come prepared to play games that incorporate the use of standard double - six dominoes that teach the following concepts: numerations, patterns, graphing, operations and fact fluency, place value. Dominoes are easy to use and integrate into your math programs and appeal to all students. Game boards, student samples, journal writing ideas will be shared throughout. Time saving management tips will be shared and ideas are ideal for whole class, small centers and family math nights.

**117 Solving Equations with Number Lines and Strip Diagrams (Grades 6-8)**

*Cristina Tyriss, Russell Middle School*

In this session, we will discuss how students develop a conceptual understanding of solving equations with the use of open number lines and strip diagrams.

**118 Classroom Misbehavior - Not the Productive Struggle We're Seeking (Grades K-12)**

*Peter Vajda, Center for Teacher Effectiveness (Vendor)*

Learn "8:00 Monday morning" research-based strategies of a fair and simple classroom management system that will eliminate unwanted behaviors by 70% or more. Learn the essential steps of teaching to expected behaviors and discover the benefits and the importance of positive interactions with your students.

**119 Technology: The Best Co-Teacher Ever (Grades K-12, College)**

*Kimmia Webb & Jessica Lane, Marietta Middle School*

Have you ever wished you had another teacher in the room to help you? Perhaps you could use another person for remediation, reinforcement of skills, or differentiation? Let me show you how technology can be your co-teacher. I will introduce you to a variety of ways that technology can be incorporated into your classes and give you the helping hand you need. These resources include: nearpod, Edpuzzle, your Smart Board, and more! Bring your laptop or an electronic device, and let's have a good time making this school year easy on you and fun for your students.

**120 Set the Stage to Engage (Grades K-12, College)**

*Melinda Wilder, Bartow County School System*

During this session, participants will have the opportunity to explore instructional strategies that have been proven to engage even the most uninterested students. Teachers will be given access to multiple strategies that can be adapted to any grade level.

**9:45-11:15 AM****121 Engaging Students in AP Calculus (Grades 9-12)**

*Vicki Carter, West Florence High School (GA<sup>2</sup>MPT Session)*

Participants will engage in some activities using different instructional approaches that include task cards, writing prompts, circuits, and games. In order to learn and retain information in meaningful ways, students must be actively involved in what they are learning. Participants will observe some examples of student work and videos of students engaged in classroom activities. Samples of task cards, writing prompts, circuits, and games will be shared with the participants for use in the classroom. Resources for additional material will be shared with the participants.

**122 Building Fraction Sense for All Through Arts-Infused Tiered Tasks (Grades 3-5)**

*Stacey Foster, Westchester Elementary School*

Infusing art, movement, and music into tiered fractions tasks provides ALL students with opportunities to develop fraction sense. In this session, participants will experience arts-infused fraction tasks and explore simple ways to incorporate choice to empower and stretch students far beyond where traditional fraction bars could ever take them.

**123 Precalculus Engagement (Grades 9-12)**

*Rebecca Gammill & Tonya Richardson, Kennesaw Mountain High School*

Are you looking for activities to integrate into your Precalculus curriculum? Come join us to discover hands-on activities, projects, and ideas to enhance engagement, foster conceptual learning, and inspire your students.

**124 Flipping not Flopping (Grades 6-12)**

*Padgett Gilbert, Cartersville City Schools*

Turn your classroom into a place where students are actively engaged in the class. The "flipped" approach to teaching allows the teacher to take on more of a facilitator role and creates an atmosphere where students can learn at their own pace. Students will be able to work independently, in small groups, or receive the one-one-one help they need from the teacher. Come learn how to make your flip successful and learn ideas that you can take back to the classroom immediately!

**125 Introduction to Confidence Intervals Using Hypothesis Tests (Grades 9-12)**

*Vicki Greenberg, The Lovett School (GA<sup>2</sup>MPT Session)*

A student activity will be demonstrated on guiding students to use their knowledge of hypothesis tests to discover a confidence interval. This approach to introducing confidence intervals has lead students to have a deeper and richer understanding of confidence intervals.

**126 Developing Authentic Understanding in Middle School Students (Grades 6-8)**

*Jane Hannon, ETA Hand2mind (Vendor)*

How do we help students find meaning in mathematics? How do we help them develop understanding? Hands-On Standards from ETA hand2mind! Using easy-to-follow standards-based lessons from Hands-On Standards, we will learn how to use manipulatives to develop genuine understanding of challenging middle school mathematics concepts.

**127 Mission Impossible Escape Room (Grades K-12)**

*Jacqueline Hennings, Rockdale County Public Schools*

Participants will experience how an Escape Room can transform the learning experiences in the mathematics classroom

**128 Making The Shift to a Mathematical Growth Mindset (Grades K-12)**

*Tamoco Hill, Rutland High School*

As educators in the field of mathematics, we often hear the words "I can't do math" or "Math is not for me". The purpose of this session is to help fellow educators change how students think and feel about math. Different strategies will be presented and discussed on how to present math, structure math problems, guide students, and give feedback that keeps all students engaged in the learning process

**129 Using the Cell Phone Addiction in Your Favor: Enhancing Instruction Using Video and Music (Grades 9-12)**

*Katie Hodgson, Spalding High & Michelle Purmort, Simpson Middle School*

If you are tired of competing with your student's smartphones, then come to this session to find out how to enhance your classroom instructional environment using music and video in Algebra and Geometry.

**130 Creating Relevant and Accessible Online Math Content (Grades 9-12, College)**

*Larissa Holm-Smith, Athens Technical College*

This session aims to provide participants with methods for creating accessible equations, graphs, and additional content in e-documents using Microsoft Office Products and/or Google Drive.

**131 Battling to Success with Student Goal Setting (Grades K-8)**

*Michelle Ihrig, South Gwinnett High School*

Prodigy Game is a free, online math resource tied to the Georgia Standards of Excellence. Bring your laptop/tablet to learn how to create a class, assign tasks, connect with parents, and battle it out. Use goal-setting for students to reach even higher.

**132 Problem Solving in the Secondary Singapore Math Classroom (Grades 6-12)**

Location: International Paper 2

*Emily Isbell, Charles R. Drew Charter School*

From January - May 2018, I had the opportunity to learn about the math education system in Singapore while participating in the Fulbright Distinguished Awards in Teaching program. In this session, I will share my experiences living and working in school in Singapore, the best practices I learned around mathematical problem solving, and encourage teachers to apply for this amazing Fulbright opportunity.

### **133 Setting Up Math Workstations for Success (Grades 6-8)**

*Jennifer Jochen, Smith Curriculum and Consulting (Vendor)*

So are you ready to implement Math Workstations but are intimidated by what to include each week? Join me in this hands-on and engaging session where we will discover how to implement new concepts each week in Math Workshop to increase student engagement and decrease your stress!

### **134 Bringing Creativity into Math (Grades 3-5)**

*Destiny Lindsey & Heidi Eisenreich, Georgia Southern University*

Incorporating creativity in a mathematics classroom is conducive toward higher order thinking and critical thought. Participants will engage in tasks about measurement, volume, and linear equations to foster creativity. We will discuss these tasks and possible ways to approach the topics in a creative way so teachers can bring them back to their classroom when they return.

### **135 Literacy in the Mathematics Classroom (Grades 3-12, College)**

*Eleajah McElroy, Griffin-Spalding County Schools*

Cognitive engagement is best expressed through language. Participants will closely examine how purposeful and planned integration of reading and writing strategies supports students in achieving mathematics learning targets and how to apply this strategy integration to their own instruction. Closely examine literacy strategies and analyze how they lend support to student success with mathematics content.

### **136 Expert Panel Discussion: Mathematics Leadership in Education and Instruction: Promoting Productive Struggle (Grades K-12, College)**

*Michelle Mikes, Cobb County Schools*

Join our experts on ideas for engaging *students, teachers, and parents* in embracing productive struggle to encourage strong mathematical habits of mind, perseverance, and thinking flexibly with mathematics concepts.

Our panel of experts include:

Brian Lack, Forsyth County Schools,  
Brian Lawler, Kennesaw State,  
Jonna McGaughy, *Hendricks Elementary*,  
Greg Sherman, Cobb County Schools,  
Lya Snell, GaDOE Math Program Manager, and  
Robbin Hill, Lovinggood Middle School.

### **137 Explicit CRA with Fractions (Grades 3-5)**

*Joshua Nelson & Christina Pike, Cotton Indian Elementary School*

Students often struggle with making a strong connection between concrete models, accurate visual representations, and abstract strategies/algorithms. Certain manipulatives, used in a specific manner, facilitate these connections better than others. In our session, we will explore how to subtract and multiply fractions in such a way that students can easily bridge the gap between the concrete, representational and abstract.

### **138 Engage with Good Problems (Grades 3-12)**

*Jeanne Rast, St. John the Evangelist*

Student struggle, mathematical discourse, teaching for understanding, mathematical fluency, effective questioning, and much more! How can we implement the NCTM Effective Teaching Practices and the Standards for Mathematical Practice with a focus on content standards? Embrace strategies and techniques that support these undertakings by exploring problems and resources that foster critical thinking and student engagement.

**139 Using the Standards for Mathematical Practice to Create Authentic Assessments (Grades 3-5)**

*Sandra Robinson, J Squared Math Consulting (Vendor)*

In this session, participants will explore how the Standards for Mathematical Practice may be used to create or select authentic assessment items that connect concepts to skills and promote a deeper level of mathematical understanding.

**140 SeeSaw + Math = Perfect Match (Grades K-2)**

*Lyssa Sahadevan, East Side Elementary & Jonna McGaughy, Hendricks Elementary*

Join two primary teachers as they share meaningful ways to incorporate SeeSaw into your math time! This free app allows students to explain their thinking, take challenges, and learn from each other. Leave with ready to use ideas and activities your K-2 students can use tomorrow!

**141 Writing in Math Class (Grades 6-8)**

*Emily Stewart & Christy Ridley, Adairsville MS, Heather Hulse, Woodland Middle School, Emily Brownlow, Armuchee Middle School, & Linda Segars, Northwest Georgia RESA*

"I'm not an ELA teacher so why is it important to have students write in math class?" Do you have these type of thoughts about writing? If yes, join us! In this session, we will share what we learned about student thinking and understanding as we introduced writing into our math. It is easier than you think and worth the effort!

**142 The Power of Visualization in Mathematics (Grades K-12)**

*James Tanton, Ambassador for the Mathematical Association of America (MAA) (Keynote Speaker)*

This session will demonstrate the astounding power – and fun! – of visual thinking in mathematics. Let's see how fundamental and crucial pictures are to problem-solving, doing joyful mathematics and engaging in deep learning.

**143 Do Your Classroom Management Strategies Add Up? (Grades K-12)**

*Peter Vajda, Center for Teacher Effectiveness (Vendor)*

Frustrated by students' misbehaviors? Dealing with discipline matters taking up valuable teaching time? I'll share some core beliefs and introduce you to theories that help you understand the impact of low level inappropriate behaviors on your students and classroom.

**144 Removing Barriers from Teaching with a PC Tablet (Grades 6-12)**

*Michael Welskop & Mary Colclasure, Simpson Middle School*

Come and see how using a PC tablet has changed our ability to manage our classrooms, help meet the needs of our students, allowed us to teach literally anywhere we have a projector, and eliminate wasted time when we have to be out. We will show you the components we use, what they cost, demonstrate how the tablet has made video making portable, and much more.

**12:30 - 2:00 PM**

**145 AP Statistics Reading Report (Grades 9-12)**

*Billy Esra, Bishop Hall Charter School & Jean Linner, Lassiter High School (GA<sup>2</sup>MPT Session)*

This session will not only provide those who attend with rubrics for the 2018 AP Statistics exam; it will also give insights into how each question was graded. The rubric used at the reading has much more detail and the presenters will give you their views on common mistakes made by students and ways to improve for future exams.

**146 2018 AP Calculus Reading (Grades 9-12, College)**

*Marshall Ransom, Georgia Southern University (GA<sup>2</sup>MPT Session)*

The nine problems on the 2018 AP Calculus Exam will be discussed. This will include comments on how the exam was scored. The speaker has been an AP Calculus reader and table leader since 1991.

## 1:00 – 2:00 PM

### 147 Teaching Math on a Shoestring Budget (Grades K-2)

*Rhonda Amerson, Alayna Bland, Tiffany Cartie, & Taylor Cravey, Middle Georgia State University*

Math is worth the struggle, but it shouldn't cause a financial struggle for the teacher. In this interactive workshop we will demonstrate standards-based math labs that utilize recyclable materials and inexpensive items. These labs will provide students with hands-on experiences that have the potential to increase the students' self confidence in math and their understanding of a variety of mathematical concepts. Labs will include place value cups, ice tray geoboards, and much more!

### 148 I See, I Hear, I Wonder – Using Visual Literacy to Ignite a Productive Struggle (Grades 6-12)

Location: EMS Senior Pavilion

*Michelle Bateman, Dekalb County School District (Featured Speaker)*

How do we get our students to persevere and make sense of the mathematics when they cannot relate at all to the mathematics being taught? Let's look at how Visual Literacy can be used to foster mathematical understanding and reasoning through thoughtful Math Talk and authentic work products. Through various simulations, participants will leave with tangible activities that can be incorporated in the mathematics classroom to ignite a **Productive Struggle**.

### 149 math Shakers - There's a Whole Lot of Shaking Going On (Grades K-5)

*Carrie Brockway, Box Cars and One-Eyed Jacks (Vendor)*

Come play with our most popular and engaging math manipulative! A pill container filled with dice has proven to be the favorite of students and teachers alike. The math shake break activities incorporate all learning channels, allow students to move and learn in your daily math class. The activities are easy to differentiate and can be used whole class or in small groups. You will be amazed with how many concepts can be practiced with this dollar store manipulative: all operations, patterns, place value including decimals, fractions, make tens, doubles, commutative and associative properties. Journal masters, student samples will be shared. Come prepared to play, dance and learn!

### 150 Application of Trigonometric Ratios with a Clinometer (Grades 9-12)

*Julie Carter, Middle Georgia State University*

Are you looking for a fun and exciting way for students to solve trigonometric application problems? During this session we will discuss how to build a clinometer and use it to measure trees, buildings, and other structures around your school. Students will love the hands on experience and develop an authentic understanding of trigonometric ratios.

### 151 Standards Based Grading in the Secondary Mathematics Classroom (Grades 6-12)

*Luke Christopher, Hart County High School*

Do your grades accurately reflect your students' knowledge? Can you easily pinpoint which standards your students are struggling with just by checking your gradebook? Standards based grading can help. In this hands-on session, you will learn how to set up your gradebook using a standards based model so you can provide differentiation and remediation with ease.

### 152 Fostering Independent Learners (Grades 6-12)

*Mary Colclasure, Simpson Middle School & Michael Welskop, Simpson Middle School*

In this session, we will discuss how we foster student independence through the use of a prescribed study plan, by implementing topic previewing, and teaching students to create their own study guides for assessments. We help students learn to problem solve and work through struggles. We will provide copies of our study plan and show examples of how we preview material and motivate students.

### 153 Where Do I Begin? Putting the Pieces Together – Standards Based Instruction (Grades 6-8)

*Tammy Duncan & Tom Kleinberg, Jasper Middle School*

In this session, we will examine the process of creating a TRUE standards-based classroom and provide the tools necessary for implementation.

**154 Differentiation Through Leveled Text Dependent Question Stems (Grades 3-12)**

*Tamoco Hill, Dalton State College*

Some students are able to quickly figure out a starting point to solving a problem while others need more time or scaffolding. The purpose of the session is to present various leveled stems to meet students where they are so that they can be successful at working independently on a problem through productive struggle without the aid of the teacher.

**155 Math is Better With C.R.E.A.M. on top! (Grades K-2)**

*Beatrice Holmes, Georgia Gwinnett College & SeTia Freeman, Stockbridge Elementary, Henry County Schools*

Come explore instructional strategies that are the C.R.E.A.M. of the crop! Discover how to engage all learners by promoting student agency and self-efficacy through the use of technology. In this session we will explore innovative practices to ensure success for diverse learners. With the assistance of technology you too can make your mathematics instruction Culturally Responsive, Equitable, Accessible, and Meaningful.

**156 5-Minute Journal Prompts: Formative Assessment with Flair (Grades 6-12)**

*Arjan Khalsa, Activate Learning (Vendor)*

What takes 5 minutes and has the highest correlation to student achievement of any activity? You guessed it: Journal Prompts! Help your team to deliver "exit tickets" that engage students while guiding classroom practice. Learn both the ART and the SCIENCE of maximizing the final minutes of math class.

**157 The Struggle is Real (Grades K-5)**

*Richard Kilburn, Tiffani Huff, & Julie Walton, Middle Georgia State University*

Finding students who struggle with mathematics is not difficult for any educator, after all, even Einstein admitted to having them! The trouble for educators is knowing how to effectively use the struggle to help the student progress instead of feeling defeated. During this session the discussion will center on how we view instruction and communicate math to our students.

**158 Non-Cognitive Skills & the Transition from High School to College Mathematics (Grades 9-12, College)**

Location: International Paper 2

*Leslie Davidson-Rossier & Heather Howington, University of North Georgia*

Quantitative Skills and Reasoning is an entry level college math course designed for students in non-STEM majors. This course is designed to teach students a set of mathematical tools useful for decision making. It is important for students' success to develop non-cognitive skills and recognize differences between their high school and college math classes. This session will discuss these non-cognitive skills and the impact they have in aiding students' transition from high school to college.

**159 STEM-tastic Fun! (Grades K-5)**

*Angie Meredith, ETA Hand2mind (Vendor)*

Looking for ideas for family involvement? Come learn about ETA hand2mind's solution for easy-to-implement ideas for after school, STEM family night, or your own classroom through STEM Make-It Take-It projects. We will also experience open-ended tasks that encourage students to explore engineering concepts through STEM Bins!

**160 Speed Trap: An application of the Other Trig Functions (Grades 9-12)**

*Vincent Panetta, Cedar Shoals High School*

The sine and cosine functions are often used to model circular motion, waves, and other phenomena. However, the "other" trig functions are usually "discovered" by means of applying trigonometric identities. In this session, I will show how to connect trig functions to their geometric definitions and share a contextual use for secant, cosecant, tangent, and cotangent which allows students to develop deeper meanings!

**161 Factoring and Completing the Square: Concrete to the Abstract (Grades 9 -12)**

*Michelle Purmort & Lauren Broski, Spalding High School*

Do your students understand how grouping works with factoring? Come to the session to explore how to use algebra tiles to build a foundational understanding to teach factoring with algebra tiles and completing the square.

**162 Cybersecurity, Cryptography and Matrices (Grades 9-12, College)**

*Fabrian A. Rankine, Dooly County High School*

Cybersecurity is one of the United States' national priorities with cyber-attacks coming from home and abroad, including a recent attack in Metro-Atlanta. Thus, to counter these attacks and stay ahead of the hackers, we need stronger and more secure ways to protect our data on the internet, and Cryptography is one way of doing this. We will explore the ways that we can encrypt our data using Matrices.

**163 Using Microsoft Excel in the Mathematics Classroom (Grades K-12)**

*Adam Raymond, Rockdale Magnet School for Science and Technology*

Learn how to use Microsoft Excel in your classroom to create random problems for student practice, help with grading, and flexible data analysis. To get the most out of the session, bring a device with Microsoft Excel installed.

**164 Enhancing Math Instruction Through the Use of Graphing Calculators (Grades 6-12, College)**

*Lorenzo Robinson & Lawanda Knight, Renaissance Middle School*

Participants will explore several uses of the TI-84 graphing calculator. We will unlock some of the hidden gems of this technology and provide some key instructions and suggestions of how this new learning can benefit both teachers and students. We will also explore various menus, including the calculator's catalog to determine how to access different functions that the participants or their students may have difficulty locating.

**165 Professional Learning Communities (PLCs) with Math Labs (Grades K-12)**

*Tynisha Robinson, Marietta City Schools & Julie Pinto, Hillgrove High School*

The goal of this session is to introduce PLCs to authentic opportunities for professional development by implementing Math Lab-sites. We will discuss "hands-on" mathematics learning by following principle with practice. We will show how we practice learned theory with students in classrooms. Learn how to lead PLCs through this work and watch videos of the implementation and next steps for genuine professional learning!

**166 Characterizing How Expert Algebra Teachers Promote Productive Struggle (Grades 9-12)**

*Joel Roth & David Glssmeyer, Kennesaw State*

While frameworks for analyzing teacher actions have been developed, little research describes how expert teachers promote productive struggle in their classrooms. We report findings from using a productive struggle framework and a cognitive demand framework to characterize how nine National Board Certified algebra teachers promoted productive struggle in a lesson.

**167 Assess and Correct: Breaking Barriers to Math Performance (Grades K-5, College)**

*Sharlonne Smith, Middle Georgia State University*

In this session, participants will discuss diagnosing the misunderstanding of mathematical concepts in an elementary classroom. Intuition, domain knowledge, and reasonable diagnosis applications can make the difference between increased understanding of concepts with proficiency, and prolonged student growth/academic success.

**168 A Special Content Knowledge Task on Functions and Rate of Change (Grades 6-12)**

*Halil Tasova & Irma Stevens, University of Georgia*

In this session, we will explore a task that is designed to analyze student responses on a task to get insights into how students understand rates of change and to have discussions about potential ways to respond to their thinking. We will use a real-world situation to explore how the rate of change is represented in a graph by reasoning quantitatively.

## Closing Session

2:30 PM

### Teaching the Problem-Solving Mindset while Teaching

*James Tanton, Ambassador for the Mathematical Association of America (MAA)*

Is the ultimate goal for upper-grade mathematics mastery of advanced content or is the content simply a vehicle for developing advanced thinking and problem solving? Can we have both? In this session, the speaker will present his personal thoughts on these matters, with concrete examples and concrete mathematics.

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