

# Agenda

## San Antonio, TX • December 12–14

### Wednesday, December 12

|                      |  |                   |
|----------------------|--|-------------------|
| 7:00–8:00 a.m.       | Registration   | Los Rios Foyer    |
|                      | Continental Breakfast  | Regency Foyer     |
| 8:00–9:45 a.m.       | <b>Keynote</b> —Timothy D. Kanold<br><i>Every Student Can Learn Mathematics: The HEART of the PLC Life!</i>  | Regency Ballroom  |
| 9:45–10:00 a.m.      | Break  |                   |
| 10:00–11:30 a.m.     | <b>Breakout Sessions</b>   | (See pages 3–4)   |
| 11:30 a.m.–1:00 p.m. | Lunch (on your own)  |                   |
| 1:00–2:30 p.m.       | <b>Breakout Sessions</b>   | (See pages 3–4)   |
| 2:30–2:45 p.m.       | Break  |                   |
| 2:45–3:45 p.m.       | <b>Role-Alike Networking Meetings</b><br><i>Educators meet with others who have similar responsibilities. Come ready to share experiences, discuss practices, and find solutions to student learning issues.</i> |                   |
|                      | <b>Elementary School</b><br>Facilitators: Jennifer Deinhart & Sarah Schuhl   | Regency Ballroom  |
|                      | <b>Middle School</b><br>Facilitator: Bill Barnes   | Pecan             |
|                      | <b>High School</b><br>Facilitator: Matthew R. Larson   | Rio Grande West   |
|                      | <b>Building Administrators &amp; District Leaders</b><br>Facilitator: Timothy D. Kanold  | Rio Grande Center |
|                      | <b>Instructional Coaches &amp; Departmental Chairs</b><br>Facilitator: Mona Toncheff   | Rio Grande East   |

### Thursday, December 13

|                      |   |                  |
|----------------------|---|------------------|
| 7:00–8:00 a.m.       | Registration  | Los Rios Foyer   |
|                      | Continental Breakfast   | Regency Foyer    |
| 8:00–9:45 a.m.       | <b>Keynote</b> —Matthew R. Larson<br><i>How the History of Mathematics Education Informs Instructional Practice Today</i> | Regency Ballroom |
| 9:45–10:00 a.m.      | Break   |                  |
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| 2:30–2:45 p.m.       | Break   |                  |
| 2:45–3:45 p.m.       | <b>Team Time</b><br><i>Presenters are available to aid in team discussions.</i>   | Regency Ballroom |

### Friday, December 14

|                  |   |                  |
|------------------|---|------------------|
| 7:00–8:00 a.m.   | Continental Breakfast   | Regency Foyer    |
| 8:00–9:30 a.m.   | <b>Breakout Sessions</b>  | (See pages 3–4)  |
| 9:30–9:45 a.m.   | Break   |                  |
| 9:45–10:00 a.m.  | <b>Celebration</b> —Bill Barnes<br><i>Join presenters in a celebration of your work and growth!</i>       | Regency Ballroom |
| 10:00–11:30 a.m. | <b>Keynote</b> —Sarah Schuhl & Mona Toncheff<br><i>Teams in Action: Keeping It Real and Forging Ahead</i> | Regency Ballroom |

Agenda is subject to change.

# Breakouts at a Glance

| Presenter & Title   | Wednesday,<br>December 12 |                  | Thursday,<br>December 13 |                   | Friday,<br>December 14 |
|---|---------------------------|------------------|--------------------------|-------------------|------------------------|
|   | 10:00–11:30 a.m.          | 1:00–2:30 p.m.   | 10:00–11:30 a.m.         | 1:00–2:30 p.m.    | 8:00–9:30 a.m.         |
| <b>Bill Barnes</b>  |                           |                  |                          |                   |                        |
| Engaging Students in Their Mathematics Learning by Providing Actionable Feedback (6–12)                       | Pecan                     |                  |                          |                   |                        |
| Using High-Quality Grading to Support the Formative Assessment Process (6–12)                                 |                           | Pecan            |                          |                   |                        |
| Eliciting Evidence of Student Learning Through Higher-Level-Cognitive-Demand Tasks (6–12)                     |                           |                  | Rio Grande East          |                   |                        |
| Homework: The High-Quality Independent Practice Routines That Support the Formative Assessment Process (6–12) |                           |                  |                          | Pecan             |                        |
| Tearing Down the Silos: Mathematics Teaching as Professional Practice (6–12)                                  |                           |                  |                          |                   | Pecan                  |
| <b>Jennifer Deinhart</b>  |                           |                  |                          |                   |                        |
| Developing Procedural Fluency Through Conceptual Understanding (K–5)  | Rio Grande West           |                  |                          |                   |                        |
| Student Goal Setting: Actions After Assessments (K–5)   |                           | Rio Grande West  |                          |                   |                        |
| Identifying Essential Standards: Prioritizing Your Mathematics Curriculum (K–5)                               |                           |                  | Rio Grande West          |                   |                        |
| Facilitating Mathematics Team Meetings Through Progress Monitoring (K–5)                                      |                           |                  |                          | Rio Grande West   |                        |
| Using High-Level Tasks to Engage Students in Productive Mathematics Discourse (K–5)                           |                           |                  |                          |                   | Rio Grande West        |
| <b>Timothy D. Kanold</b>  |                           |                  |                          |                   |                        |
| Mathematics Assessment Literacy in Your High School Mathematics Department! (9–12)                            | Regency Ballroom          |                  |                          |                   |                        |
| Teaching and Thriving in the P–L–C Life! (K–12)   |                           | Regency Ballroom |                          |                   |                        |
| Three Essential Lesson-Design Elements for High School Mathematics Lessons (9–12)                             |                           |                  | Rio Grande Center        |                   |                        |
| Three <i>More</i> Essential Lesson-Design Elements for High School Mathematics Lessons (9–12)                 |                           |                  |                          | Rio Grande Center |                        |
| More Powerful Than Poverty: Inspiring All Students to Learn Mathematics (K–12)                                |                           |                  |                          |                   | Rio Grande Center      |

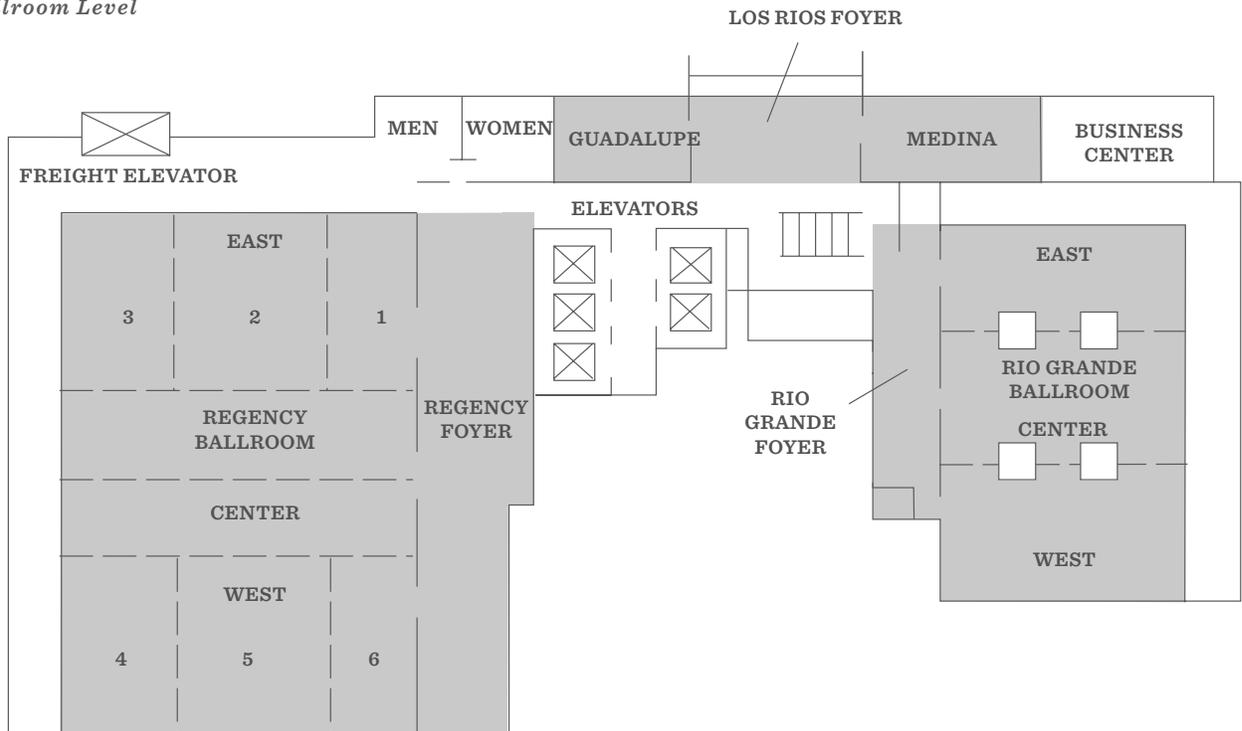
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| <b>Matthew R. Larson</b>   |                           |                   |                          |                  |                        |
| Designing Effective Mathematics Interventions at the Secondary Level (6–12)                    | Rio Grande East           |                   |                          |                  |                        |
| Essential Elements of Highly Effective Mathematics Programs (K–12)                             |                           | Rio Grande East   |                          |                  |                        |
| Implementing Research-Informed Instructional Practices (K–12)                                  |                           |                   | Regency Ballroom         |                  |                        |
| Taking Action: Connecting Equity-Based and Research-Informed Instructional Practices (6–12)    |                           |                   |                          | Regency Ballroom |                        |
| Catalyzing Change in High School Mathematics: Initiating Critical Conversations (9–12)         |                           |                   |                          |                  | Rio Grande East        |
| <b>Sarah Schuhl</b>  |                           |                   |                          |                  |                        |
| Designing Quality Common Mathematics Assessments (K–5)   | Rio Grande Center         |                   |                          |                  |                        |
| Ensuring <i>All</i> Students Learn Mathematics (K–12)  |                           | Rio Grande Center |                          |                  |                        |
| Lessons That Matter: Teaching Mathematics in Middle School (6–8)                               |                           |                   | Pecan                    |                  |                        |
| When Content Isn't Enough: Strategies to Help Students <i>Really</i> Learn Mathematics (K–5)   |                           |                   |                          | Rio Grande East  |                        |
| Effective Grading Practices: Solving the Grading–Learning Dilemma (K–12)                       |                           |                   |                          |                  | Regency Ballroom       |
| <b>Mona Toncheff</b>   |                           |                   |                          |                  |                        |
| High-Quality Mathematics Assessment Feedback Processes (6–8)                                   | Live Oak                  |                   |                          |                  |                        |
| Assessments in Action (K–5)  |                           | Live Oak          |                          |                  |                        |
| Building a Student-Centered Classroom (6–12)   |                           |                   | Live Oak                 |                  |                        |
| Designing Lessons to Engage Each Learner Every Day! (K–5)                                      |                           |                   |                          | Live Oak         |                        |
| How to Lead a Culture of Reflection, Refinement, and Action With Your Mathematics Teams (K–12) |                           |                   |                          |                  | Live Oak               |

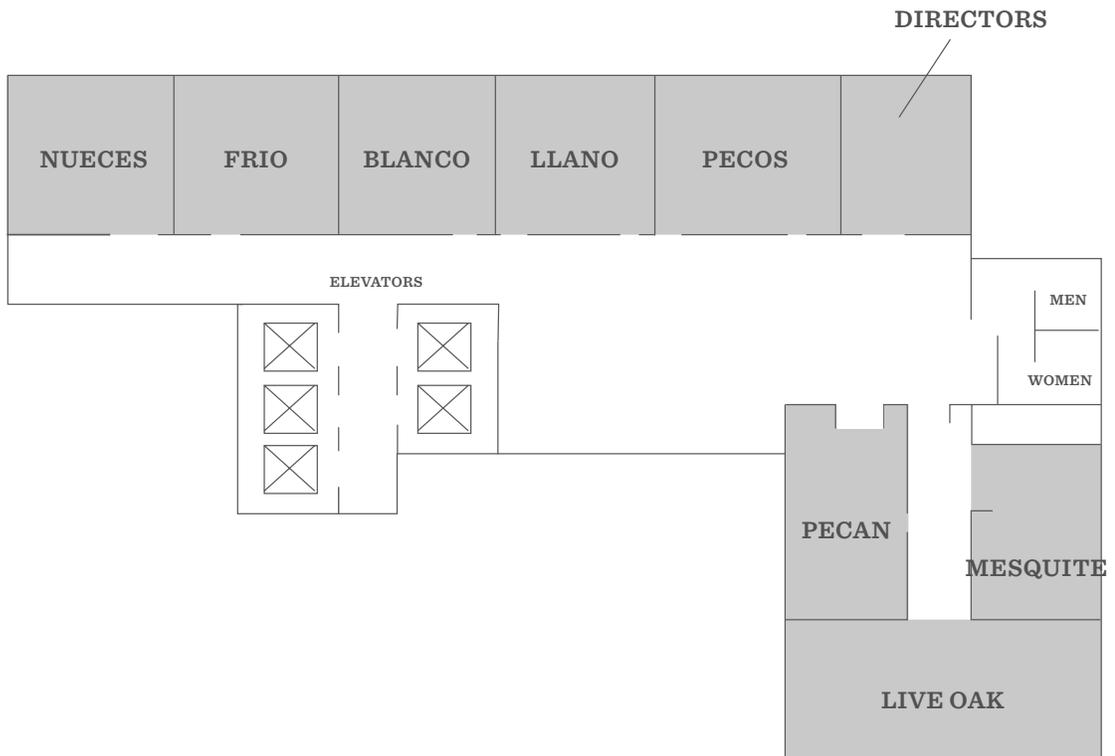
Agenda is subject to change.

# Hyatt Regency San Antonio

## Ballroom Level



## Hill Country Level



# Key Concepts

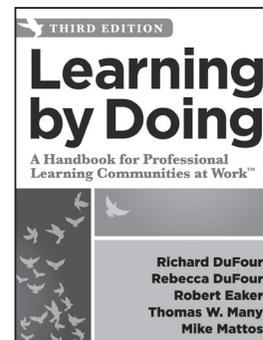
These key concepts are offered as a handy reference. Presenters refer to these concepts repeatedly in sessions. Please take a moment to become familiar.

## Four Critical Questions of a PLC

Collaborative teams within schools that function as PLCs focus their work on the four critical questions:

1. What do students need to know and be able to do?
2. How will we know when they have learned it?
3. What will we do when they haven't learned it?
4. What will we do when they already know it?

The four critical questions are featured in *Learning by Doing: A Handbook for Professional Learning Communities at Work*, 3rd ed. (DuFour, DuFour, Eaker, Many, & Mattos, 2016).

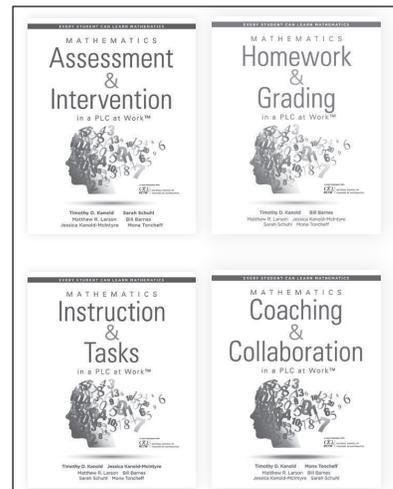


## Team and Coaching Actions

Timothy D. Kanold and his colleagues developed eight team and coaching actions as a core set of adult collaborative behaviors. These actions increase the likelihood of more equitable mathematics learning for K–12 students.

### Teams

- **Team action 1:** Develop high-quality common assessments for the agreed-on essential learning standards.
- **Team action 2:** Use common assessments for formative student learning and intervention.
- **Team action 3:** Develop high-quality mathematics lessons for daily instruction.
- **Team action 4:** Use effective lesson designs to provide formative feedback and student perseverance.
- **Team action 5:** Develop and use high-quality common independent practice assignments for formative student learning.
- **Team action 6:** Develop and use high-quality common grading components and formative grading routines.



### Coaches

- **Coaching action 1:** Develop PLC structures for effective teacher team engagement, transparency, and action.
- **Coaching action 2:** Use common assessments and lesson-design elements for teacher team reflection, data analysis, and subsequent action.

The team and coaching actions are featured in the *Every Student Can Learn Mathematics* series (2018).

# Key Concepts

## NCTM's Mathematics Teaching Practices

NCTM established eight mathematics teaching practices that research indicates need to be consistent components of every mathematics lesson.

Teachers need to:

1. Establish mathematics goals to focus learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
7. Support productive struggle in learning mathematics.
8. Elicit and use evidence of student thinking.



Mathematics teaching practices are featured in *Principles to Actions: Ensuring Mathematical Success for All* (2014), a guide of recommended, research-informed actions, based on NCTM's core principles and intended for administrators, teachers, and specialists of mathematics.

## Standards for Mathematical Practice

The eight Standards for Mathematical Practice (also known as the Mathematical Practices) form the backbone for building understanding in mathematics.

According to the Common Core State Standards Initiative, the standards “describe varieties of expertise

that mathematics educators at all levels should seek to develop in their students.”



The Mathematical Practices are a combination of standards through NCTM and the National Research Council. Students who achieve Mathematical Practices can:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

The Mathematical Practices are available at [www.corestandards.org/Math/Practice](http://www.corestandards.org/Math/Practice) for printing and download.

# Session Descriptions

## **Bill Barnes**

### **Engaging Students in Their Mathematics Learning by Providing Actionable Feedback (6–12)**

John Hattie describes feedback as one of the most “powerful influences on student learning.” In this interactive session, Bill Barnes explores feedback as an integral part of the formative assessment process. Participants examine student work to practice providing meaningful and actionable feedback.

Attendees use discussion tools and resources to enhance collaborative team actions and student learning. As teachers improve feedback quality, they also can engage students to improve self-efficacy and learning.

### **Using High-Quality Grading to Support the Formative Assessment Process (6–12)**

Course grades, often shared on a report card, are designed to communicate a measure of success to students and their families. However, grades are derived by scoring systems that typically vary from one classroom to the next.

In this interactive session, participants discuss the nature of grading and how to establish a clear and common purpose. Participants reflect on current practice, consider new grading strategies, identify strengths, and develop plans for transforming and improving professional practice. Bill Barnes helps attendees focus on how to leverage discussion tools, examine student trackers, and consider how grading can support the formative assessment process.

### **Eliciting Evidence of Student Learning Through Higher-Level-Cognitive-Demand Tasks (6–12)**

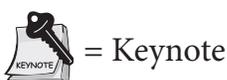
Formative assessment is an ongoing process where teachers collect evidence of student learning and use it to deepen student understanding. In this hands-on session, Bill Barnes shows how to design or select mathematical tasks that elicit meaningful evidence of student learning.

Participants work together to explore a common definition of higher-level- and lower-level-cognitive-demand tasks, and they develop strategies to engage students in mathematical learning. Bill reviews strategies to improve task design, selection, and implementation. Participants leave with hundreds of resources to support collaborative planning and task implementation.

### **Homework: The High-Quality Independent Practice Routines That Support the Formative Assessment Process (6–12)**

Independent practice, otherwise known as homework, can be an integral part of student learning. In this collaborative session, participants learn how to transition from traditional homework to independent practice routines that contribute meaningfully to the formative assessment feedback process.

Attendees consider new strategies, share professional practice, and develop plans and opportunities for growth. These highly practical strategies are easy to implement; they enhance the work of collaborative teams working in a PLC culture.



# Session Descriptions

## **Bill Barnes**

### **Tearing Down the Silos: Mathematics Teaching as Professional Practice (6–12)**

Teaching mathematics is an all-consuming enterprise that often leaves teachers scrambling to keep up with the grind. Ironically, the side effect is feeling “I’m better off just doing this myself” while the cure lies in the power of collaboration.

Participants collaborate to explore costs of working in silos from the perspective of equity and access in student learning. Bill Barnes shows how to break free from teaching mathematics in isolation by establishing clear expectations and actions for students, teachers, and collaborative teams. Participants consider four variance-reducing team actions that improve mathematics teaching and learning.

## **Jennifer Deinhart**

### **Developing Procedural Fluency Through Conceptual Understanding (K–5)**

Procedural fluency—skill in carrying out arithmetic and algebraic procedures flexibly, accurately, and efficiently—is an important component of mathematical proficiency. It also reflects the first critical question of a PLC: What do students need to know and be able to do?

Many students fail to develop fluency despite best efforts. Connecting procedures to underlying concepts is essential. This session examines elementary school content progressions for ratio and proportional relationships that build procedural fluency from conceptual understanding. Jennifer Deinhart shows how teachers and collaborative teams identify tasks and strategies that aid in this work. Participants also discover common pitfalls to avoid.

### **Student Goal Setting: Actions After Assessments (K–5)**

Jennifer Deinhart explores how teams—through the lens of student goal setting—can answer the four critical questions of a PLC:

1. What do students need to know and be able to do?
2. How will we know when they have learned it?
3. What will we do when they haven’t learned it?
4. What will we do when they already know it?

As teams dig deeply into essential standards and quality assessments, they see how goal setting leads to more targeted instruction. By helping students reflect on their work after an assessment, teachers can guide students’ next steps in learning. In this session, participants explore how teams develop content and learning progressions centered on essential standards. Along the way, they learn how to have purposeful data discussions that yield productive results.

### **Identifying Essential Standards: Prioritizing Your Mathematics Curriculum (K–5)**

In a PLC at Work, collaborative teams must identify essential standards within the mathematics curriculum. To implement a guaranteed and viable curriculum while providing systematic and targeted interventions, educators must determine which standards are most essential.

Jennifer Deinhart establishes criteria for identifying essential standards and prioritizes critical standards for high levels of learning. She makes sense of agreed-upon essential standards by examining content, determining best practices, and deciding unit pacing.

# Session Descriptions

## Jennifer Deinhart

### **Facilitating Mathematics Team Meetings Through Progress Monitoring (K–5)**

In a PLC at Work, educators use common assessment results to answer the last two critical questions of learning: How will we respond when students do not learn? How will we extend the learning for students who have demonstrated proficiency?

Jennifer Deinhart explores meeting structures and data discussion protocols to help teams determine student needs, as well as to identify strengths and weaknesses within team practices for instruction. Teams reflect during collaborative time and consider plans of action.

### **Using High-Level Tasks to Engage Students in Productive Mathematics Discourse (K–5)**

Teachers can facilitate rich discussions with students by engaging them in cognitively demanding tasks. Students also engage in the Mathematical Practices through high-level tasks. Jennifer Deinhart helps collaborative teams select tasks, design lessons, and include questions to guide students in productive discourse.

Jennifer shows how students can make sense of problems and persevere in solving them by constructing arguments and critiquing others' reasoning. Participants consider questioning and facilitating techniques that support productive discussion in the mathematics classroom.



## Timothy D. Kanold

### **Every Student Can Learn Mathematics: The HEART of the PLC Life!**

Timothy D. Kanold sets the stage for the Mathematics in a PLC at Work Summit. He examines fundamental beliefs about student learning that teachers consider while pursuing their PLC lives as mathematics leaders.

Dr. Kanold explores the *what* and the *why* of the PLC culture and inspires attendees to stay connected to the heartprint of their work lives through a fully engaged, well-balanced, and high-energy effort—every day, every month, and every season of their professional journeys.

Dr. Kanold emphasizes, “The collaborative teacher team is the engine that drives the PLC process, erases inequities in student learning experiences, and empowers teachers and leaders to make great decisions for mathematics learning.”

### **Mathematics Assessment Literacy in Your High School Mathematics Department! (9–12)**

Timothy D. Kanold asks, “Is your mathematics department assessment literate? Are your tests and quizzes of high quality? Are tests scored with fidelity and accuracy? *How do you know?*” Dr. Kanold then answers the most important assessment question of all, “What happens when you return graded tests to your students?”

Participants examine eight actions for designing highly effective mathematics unit assessments. They develop plans to accurately score unit assessments. Finally, they explore how to use common assessments as a tool for student reflection and goal setting.



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# Session Descriptions

## **Timothy D. Kanold**

### **More Powerful Than Poverty: Inspiring All Students to Learn Mathematics (K–12)**

Far too many students do not believe they can learn mathematics, especially students born into poverty.

Some experts believe that until poverty is solved, student potential remains unfulfilled. Timothy D. Kanold believes differently—an answer to poverty rests in the ability to create greater student agency and ownership in learning. Teachers can improve student perseverance!

On a practical level, Dr. Kanold presents insights and ideas teachers can apply to their current work. Participants explore how neuroscience informs the impact teachers have on student agency and engagement during lessons. They examine correlations between poverty and student-growth mindsets, ranking research-affirmed lesson design factors against the impact of poverty.

Teacher credibility and inspiration are more powerful factors than poverty!

### **Teaching and Thriving in the P–L–C Life! (K–12)**

When teachers commit to the PLC at Work process, they must reflect on key questions: Are you a person open to influence and shared values? Are you able to be relationally intelligent and work interdependently with others?

The PLC culture is built upon three key aspects—professional, learning, and community. Each is central to learning success for teachers and students. In this session, Dr. Kanold explores how a fully formed *professional* develops shared and transparent *learning* routines as part of a school and team *community*.

Based on *HEART! Fully Forming Your Professional Life as a Teacher and Leader* (2017), this session focuses on how teachers honor team covenants and use their talents to magnify team work. In doing so, they unleash their “unselfish genes,” but not to the point where they allow others to take advantage.

Dr. Kanold helps teachers cut through the noise of work and erase student-learning inequities caused by an isolated work culture. Participants learn whether they are givers, takers, or matchers for their teams. By knowing which style is most successful, they can take a deep look at how helping others drives their success in the mathematics classroom.

### **Three Essential Lesson-Design Elements for Mathematics Lessons (9–12)**

In the 2018 *Every Student Can Learn Mathematics* book series, Timothy D. Kanold writes, “Teaching mathematics so *each and every student learns* the K–12 college-preparatory mathematics curriculum, develops a positive mathematics identity, and becomes empowered by mathematics is a complex and challenging task” (p. 1).

The right criteria for mathematics instruction are certain but not prescriptive! Research provides the freedom to act and teach within well-defined boundaries and criteria.

In part 1 of this session for high school mathematics teachers and leaders, Dr. Kanold establishes three of six research-affirmed criteria: 1) knowing the relevance—or the *why* of the lesson, 2) establishing the lesson’s meaningfulness from the students’ point of view, and 3) using prior knowledge and vocabulary activities effectively.

# Session Descriptions

## Timothy D. Kanold

### **Three More Essential Lesson-Design Elements for Mathematics Lessons (9–12)**

In this second session on mathematics instruction for high school teachers and leaders, Dr. Kanold examines three more of six research-affirmed criteria for high school mathematics lesson design: 1) using balanced levels of cognitive-demand tasks, 2) establishing balanced and effective whole-group and small-group discourse to maximize student engagement and perseverance, and 3) using lesson closure effectively.

Participants can expect to explore differences between lower-level- and higher-level-cognitive-demand tasks. They also compare current practice against research-affirmed criteria supporting the use of student and teacher whole-group discourse during lessons.



## Matthew R. Larson

### **How the History of Mathematics Education Informs Instructional Practice Today**

Arguments concerning what to teach in mathematics and how to teach it are as old as the nation itself. If schools are to improve mathematics learning for each and every student, they must stop recycling the same old debates. Instead, it is time to seek balance in program design.

Matthew R. Larson explores how the history of mathematics education informs effective practice today. He addresses how to respond to critics of mathematics education.

### **Designing Effective Mathematics Interventions at the Secondary Level (6–12)**

Designing mathematics interventions at the secondary level is more challenging than it is at the elementary level. Participants examine how they can leverage high-quality common assessments. In that way, they can drive targeted, research-informed supports to engage struggling students.

### **Essential Elements of Highly Effective Mathematics Programs (K–12)**

To enhance the learning of every student, teachers must build mathematics improvement efforts that include features of highly effective programs as outlined in *Principles to Actions: Ensuring Mathematical Success for All* (2014). In this session, Matthew R. Larson explores five of these essential elements:

1. Access and equity
2. Curriculum
3. Tools and technology
4. Assessment
5. Professionalism

Dr. Larson also reviews steps schools and districts can take to put these elements in place.

### **Implementing Research-Informed Instructional Practices (K–12)**

Effective teaching is a non-negotiable priority, and it ensures each and every student learns mathematics at a high level. Matthew R. Larson, who was on the writing team for NCTM's groundbreaking *Principles to Actions: Ensuring Mathematical Success for All* (2014), reviews eight research-informed teaching practices from the book. (See page 8.) He also uses video to reflect on the strategies.



= Keynote

# Session Descriptions

## Matthew R. Larson

### **Taking Action: Connecting Equity-Based and Research-Informed Instructional Practices (6–12)**

Matthew R. Larson links eight research-informed teaching practices from *Principles to Actions* (2014) to equity-based instructional strategies to strengthen learning and cultivate positive student identities in mathematics. Participants explore case studies to analyze teaching with the goal of developing ambitious teaching methods to support each and every mathematics student. (See page 8.)

### **Catalyzing Change in High School Mathematics: Initiating Critical Conversations (9–12)**

Matthew R. Larson provides an overview of NCTM's recently released publication *Catalyzing Change in High School Mathematics: Initiating Critical Conversations*. In the publication, NCTM recognizes that while high school mathematics works for some students, it does not work for all.

*Catalyzing Change* speaks to the purposes of high school mathematics, as well as challenges in current structures and student classroom experiences. Dr. Larson offers essential concepts that each and every student needs to succeed in all aspects of professional and personal life. He is a contributing author for this work.



## Sarah Schuhl & Mona Toncheff

### **Teams in Action: Keeping It Real and Forging Ahead**

Team and coaching actions provide a road map for collaborative teams focused on student learning. Together, mathematics teachers and leaders work to link instruction, assessment, and student re-engagement to ensure every student learns mathematics.

What will this look like and sound like back at school sites? How do these actions grow teacher and student learning? Sarah Schuhl and Mona Toncheff put the pieces together to help participants understand how to shift practices and empower participants to lead the work one step at a time.

In this session, participants explore how teams answer the four critical questions of a PLC. They will consider how to enact the team and coaching actions and plan next steps. (See concepts on page 7.)

## Sarah Schuhl

### **Designing Quality Common Mathematics Assessments (K–5)**

High-quality assessments provide both teachers and students with evidence of what has been learned and what has not been learned yet. What elements help strengthen team-created common assessments? How are students involved in the assessment process, and how do they learn from their assessments?

In this session, participants explore how collaborative teams create a balanced assessment system to prepare all students for success in mathematics.



= Keynote

# Session Descriptions

## **Sarah Schuhl**

### **Ensuring *All Students Learn Mathematics* (K–12)**

Learning mathematics at high levels enables students to logically reason, advance to the next grade level or course, and become college and career ready. Unfortunately, too many students struggle to learn content from one year to the next. How do teachers collaborate to ensure all students learn mathematics? How do they plan for core instruction and match interventions to the mathematics skills students struggle to learn?

The use of essential standards, instructional practices, and common formative assessments play a critical role in accelerating and continuing learning for mathematics students.

Session participants learn how to determine essential content standards and prerequisite skills to assess through common formative assessments. They identify higher-level mathematical tasks to use as formative feedback during instruction and explore how to remediate and intervene when students struggle to learn.

### **Lessons That Matter: Teaching Mathematics in Middle School (6–8)**

Sarah Schuhl explores ways to engage students using strategies that focus on the Standards for Mathematical Practice and NCTM’s mathematics teaching practices. How can student knowledge deepen through discourse, multiple representations, and problem solving? How can teachers incorporate these actions in daily lessons to engage all students in learning? Sarah helps participants determine key elements of lesson design to meet the needs of all middle school mathematics students.

### **When Content Isn’t Enough: Strategies to Help Students *Really Learn Mathematics* (K–5)**

Sarah Schuhl explores ways to engage students using strategies focused on process standards—the habits of mind students develop to reason and problem solve. How can student knowledge be deepened through inferences, multiple representations, or strategies to solve tasks? Which literacy strategies might also be effective in teaching mathematics? Participants determine key elements of lesson design to meet the learning needs of all elementary-level mathematics students.

### **Effective Grading Practices: Solving the Grading–Learning Dilemma (K–12)**

Teachers use grades to report learning on report cards and assessments or about classroom activities. Essential questions about grading exist: How do grades align with student learning? What is the purpose of each grade? Who uses this information?

As instructional and assessment practices shift to meet rigorous standards, grades too often are an afterthought that muddy accurate reports of student learning. Session participants learn what to consider when grading and reporting mathematical learning.

Sarah Schuhl helps educators understand challenges surrounding traditional grading practices. They explore grading practices that share accurate, useful information. Finally, they discover how to use grading protocols to deepen collective responses to learning.

# Session Descriptions

## **Mona Toncheff**

### **High-Quality Mathematics Assessment Feedback Processes (6–8)**

High-quality assessments provide teachers and students evidence of learning content and process standards. Mona Toncheff helps participants discover processes that use focused, high-quality assessments aligned to standards. Participants analyze student work to learn how to guide further instruction.

Participants learn the work collaborative teacher teams do to establish an assessment process before, during, and after each unit. They focus on developing assessments that engage and motivate learners.

### **Assessments in Action (K–5)**

How can assessments motivate and engage each and every learner? How can they be used for learning? High-quality assessments, which include content and process standards, inform teachers and students about what has been learned and what has not been learned yet. Mona Toncheff outlines four actions teachers and teams need to create meaningful assessment processes.

Participants can expect to learn criteria essential to high-quality assessment design. As they develop a plan to create meaningful common assessments, teachers also explore ways to use common assessments as a tool for student reflection and goal setting.

### **Building a Student-Centered Classroom (6–12)**

How do teachers build rich and meaningful discussions into daily lesson design? How do they transition from 32 or more individual students to a community of learners who support each other in the learning process?

Participants learn how to make student reasoning visible by promoting critical thinking and building a student-centered classroom culture. As teachers learn how to promote student collaboration, they also learn how to balance small-group and whole-group discourse. Mona Toncheff shows how help students defend their own thinking, as well as critiquing that of others.

### **Designing Lessons to Engage Each Learner Every Day! (K–5)**

How do teachers and teams connect content, mathematical habits of mind, and NCTM's eight mathematical teaching practices? How do educators close the gap between intended and enacted curricula?

Intentional lesson design is the key to unlocking these questions. Lessons that develop rich and meaningful mathematics must provide access, build interest, inspire learning, and engage every student.

Mona Toncheff explores tools and strategies collaborative teams, school site leaders, and district leaders use to create compelling and engaging lessons. Session participants learn critical components for quality lesson design and investigate using high-level tasks during instruction.

### **How to Lead a Culture of Reflection, Refinement, and Action With Your Mathematics Teams (K–12)**

How does the collaboration of the mathematics team magnify the impact of student achievement? Participants in this session reflect on leadership strategies and disciplines to create a continuous cycle of reflection, refinement, and action. They also engage in protocols for teams to practice careful examination of student learning with instruction and assessments.

Mona Toncheff inspires leaders to nurture a culture of change, growth, reflection, and improvement. She explores how to create a culture of transparency through instruction.