Mathematics in a PLC at Work® Summit

Pasadena, CA • December 8–10, 2025

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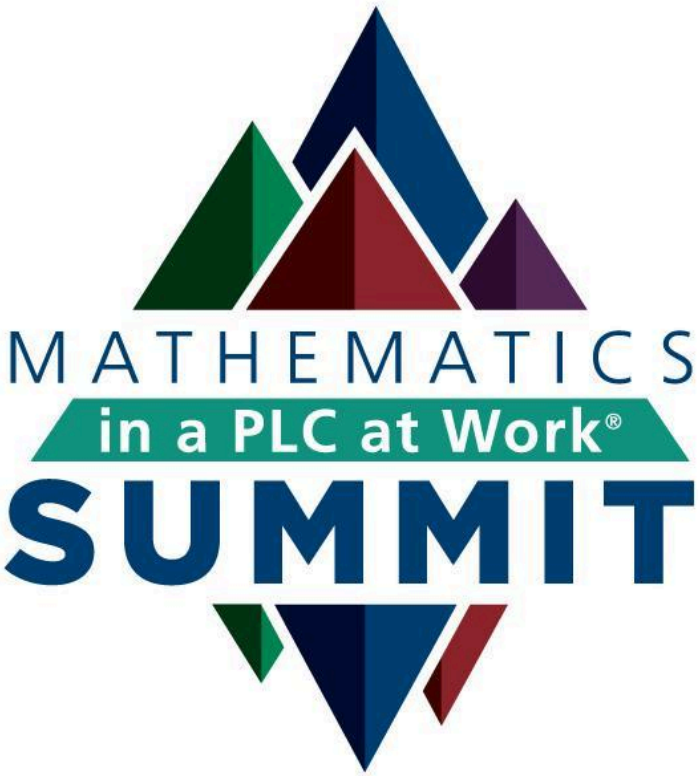


Agenda

Monday, December 8

7:00–8:00 a.m.	Registration and Continental Breakfast	Ballroom Foyer
8:00–9:45 a.m.	**Keynote**—Timothy D. Kanold *Teaching and Learning PreK–12 Mathematics Using the Four Critical Questions of a PLC at Work!*	Ballroom D–H
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	**Breakout Sessions**	See page 3.
11:30 a.m.–1:00 p.m.	Lunch (on your own)	
1:00–2:30 p.m.	**Breakout Sessions**	See page 3.
2:30–2:45 p.m.	Break	
2:45–3:45 p.m.	**Role-Alike Networking Meeting** *Educators meet with others who have similar responsibilities. Come ready to share experiences, discuss practices, and find solutions to student learning issues.*	
	Elementary School Facilitators: Jennifer Deinhart and Brian Buckhalter	103
	Middle School Facilitators: Sarah Schuhl and Georgina Rivera	107
	High School Facilitator: Bill Barnes	Ballroom C
	Building Administrators and District Leaders Facilitator: Timothy D. Kanold	106
	Instructional Coaches and Departmental Chairs Facilitator: Mona Toncheff	101

Tuesday, December 9

7:00–8:00 a.m.	Registration and Continental Breakfast	Ballroom Foyer
8:00–9:45 a.m.	**Keynote**—Sarah Schuhl and Mona Toncheff *Mathematics Assessment in Action*	Ballroom D–H
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	**Breakout Sessions**	See page 3.
11:30 a.m.–1:00 p.m.	Lunch (on your own)	
1:00–2:30 p.m.	**Breakout Sessions**	See page 3.
2:30–2:45 p.m.	Break	
2:45–3:45 p.m.	**Team Time**—*Presenters are available to aid in team discussions.*	Ballroom D–H

Wednesday, December 10

7:00–8:00 a.m.	Continental Breakfast	Ballroom Foyer
8:00–9:45 a.m.	**Working Session**—Georgina Rivera and Mona Toncheff *Sustaining Systemic Change in Mathematics (PreK–12)*	Ballroom C
	Working Session—Bill Barnes and Sarah Schuhl *Accelerating Student Learning Through Effective Mathematics Interventions (PreK–12)*	Ballroom B
	Working Session—Brian Buckhalter, Jennifer Deinhart, and Timothy D. Kanold *Creating Higher- and Lower-Level-Cognitive-Demand Mathematical Tasks (PreK–12)*	Ballroom D–H
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	**Closing Session: Celebration and *Ignite! The Power of Your Story*** *Join presenters in a celebration of your work and growth!* • Sarah Schuhl—What *If*? • Georgina Rivera—Dimming • Bill Barnes—Hope • Jennifer Deinhart—The Mirror • Brian Buckhalter—The Story of Moises • Mona Toncheff—Be Bold! • Timothy D. Kanold—You Never Know …	Ballroom D–H

Agenda is subject to change.

Breakout Sessions at a Glance

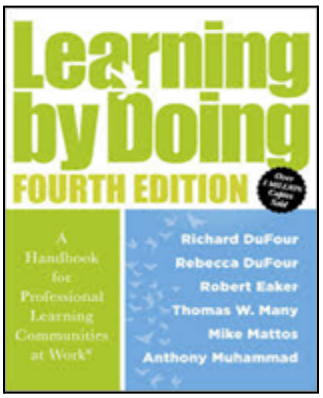
Rooms are listed beneath titles in *blue italics*.
A red asterisk * indicates that the session aligns with the 2023 California Mathematics Instructional Framework.

Presenter	Monday, December 8		Tuesday, December 9	
	10:00–11:30 a.m.	1:00–2:30 p.m.	10:00–11:30 a.m.	1:00–2:30 p.m.
Bill Barnes	Solving the Grading/Learning Dilemma: Effective Grading Practices (PreK–12) *Ballroom B*	Developing Procedural Fluency Through Conceptual Understanding (6–8)* *Ballroom B*	Engaging Students as Learners Through Actionable Formative Feedback (6–12)* *Ballroom B*	Leveraging High-Quality Mathematical Tasks to Gather Evidence of Student Thinking (6–12)* *Ballroom B*
Brian Buckhalter	Enhancing Instruction Through a Deep Understanding of the Mathematical Standards (PreK–12) *106*	Accelerating Grade-Level Learning: The Power of Progressions (PreK–5)* *106*	Designing Common Mathematics Assessments for Teacher and Student Learning (3–5) *106*	Exploring the Power of Feedback and Action With Mathematics Assessments (PreK–5) *106*
Jennifer Deinhart	Developing Procedural Fluency Through Conceptual Understanding (PreK–5)* *103*	Planning for Student Goal Setting and Engagement in Lessons (PreK–5)* *103*	Facilitating Mathematics Team Meetings Through Progress Monitoring (PreK–5) *103*	Planning Effective Mathematics Units Designed to Maximize Student Learning (PreK–5) *103*
Timothy D. Kanold	Creating Relevant and Meaningful Lessons: The First Three Lesson Design Elements of the Mathematics at Work Instructional Framework (High School)* *Ballroom C*	Knowing the Power of Teaching High School Mathematics Well: It's a Matter of Balance! (High School)* *Ballroom C*	Designing Common Mathematics Assessments for Teacher and Student Learning (High School) *Ballroom C*	Planning Effective Mathematics Units Designed to Maximize Student Learning (High School) *Ballroom C*
Georgina Rivera	Get Students Talking! Using Math Language Routines* *101*	Improving Student Engagement Through Task Selection and Purposeful Questioning (6–8)* *101*	Designing Common Mathematics Assessments for Teacher and Student Learning (PreK–2) *101*	Planning for REACTion Days: How to Collectively Respond to Student Learning (PreK–8) *101*
Sarah Schuhl	Teaching Middle School Mathematics: Lessons That Matter! (6–8)* *107*	Exploring Instructional Strategies That Deepen Student Learning of Mathematics (PreK–5)* *107*	Designing Common Mathematics Assessments for Teacher and Student Learning (6–8) *107*	Planning Effective Mathematics Units Designed to Maximize Student Learning (6–8) *107*
Mona Toncheff	Building a Community of Learners (6–12)* *Ballroom D–H*	Coaching and Leading a Collaborative Team in Your Mathematics Program (PreK–12) *Ballroom D–H*	Taking Action With Data: Making the Process Easy, Efficient, and Effective (PreK–12) *Ballroom D–H*	Exploring the Power of Feedback and Action With Mathematics Assessments (6–8)* *Ballroom D–H*

Key Concepts for Mathematics in a PLC at Work®

These key concepts are a handy reference throughout this mathematics Summit. Presenters refer to these concepts repeatedly in sessions. Please take a moment to become familiar.

1. The Four Critical Questions of a PLC

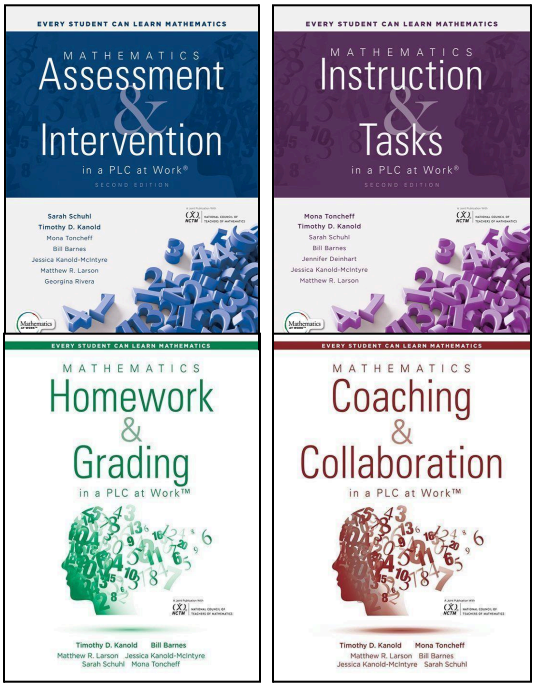


Collaborative teams within schools that function as PLCs focus their work on the four critical questions:

1. What knowledge, skills, and dispositions should every student acquire as a result of this unit, this course, or this grade level?
2. How will we know when each student has acquired the essential knowledge and skills?
3. How will we respond when some students do not learn?
4. How will we extend the learning for students who are already proficient?

The four critical questions are featured in *Learning by Doing: A Handbook for Professional Learning Communities at Work,* 4th ed. (DuFour, DuFour, Eaker, Many, Mattos, & Muhammad, 2024).

2. Mathematics Team and Coaching Actions



Timothy D. Kanold, Sarah Schuhl, Mona Toncheff, and their colleagues have developed a research-affirmed mathematics framework built on five team and two coaching actions for adult collaborative behavior. These actions increase the likelihood of more equitable and successful mathematics learning experiences for PreK–12 students.

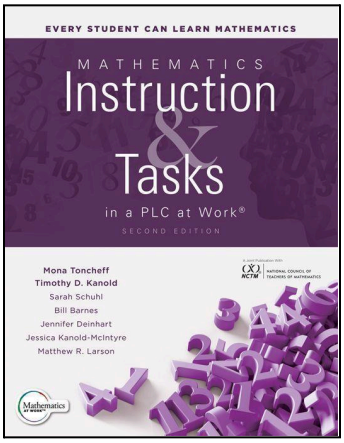
- **Team action 1:** Develop high-quality common assessments for the agreed-on essential learning standards.
- **Team action 2:** Use common assessments for formative student learning and intervention.
- **Team action 3:** Develop high-quality mathematics lessons for daily instruction.
- **Team action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

The five team and coaching actions are featured in Solution Tree's *Every Student Can Learn Mathematics* series. The Mathematics in a PLC at Work series includes second editions of *Mathematics Instructions & Tasks* (2024) and *Mathematics Assessment & Intervention* (2024).

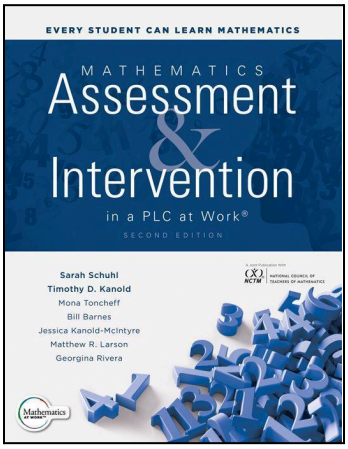
3. Six Essential Lesson-Design Elements



In Solution Tree's *Every Student Can Learn Mathematics* series, teachers reflect on current lesson planning and design practice. They examine six essential elements of every mathematics lesson they design and use with students daily.

1. Essential learning standards: the *why* of the lesson
2. Prior-knowledge routines
3. Mathematical language routines
4. Lower- and higher-level-cognitive-demand mathematical task balance
5. Mathematical discourse routine balance
6. Lesson closure for evidence of routines

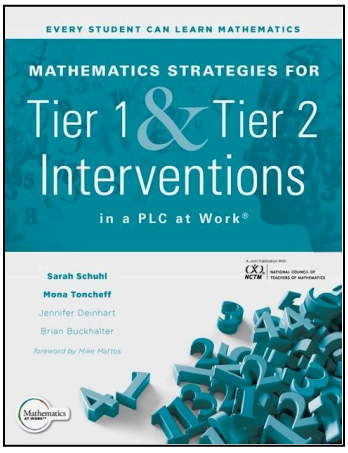
4. Six Essential Assessment-Design Elements



In Solution Tree's *Every Student Can Learn Mathematics* series, teachers examine their current assessment planning, design, and formative process routines. They examine six essential research-affirmed elements for the collaborative and effective use of their ongoing unit assessments.

1. Agreed-on essential learning standards for the unit
2. Common high-quality unit assessments
3. Calibration routines
4. Teacher data analysis and action routines
5. Student self-assessment and action routines
6. Team response to student learning using Tier 2 intervention criteria

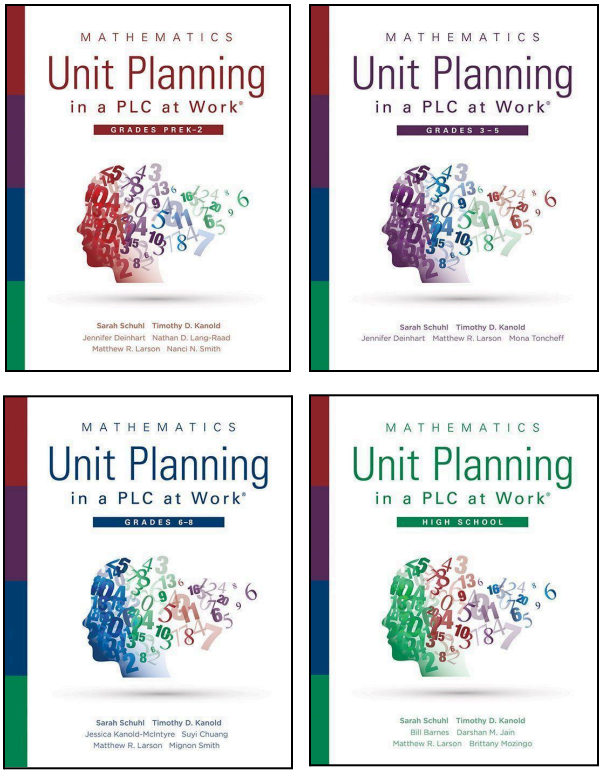
5. Five Essential Tier 1 and Tier 2 Intervention Elements



In Solution Tree's *Every Student Can Learn Mathematics* series, teachers reflect and strengthen their practices in Tier 1 and Tier 2 interventions as part of their school's multitiered system of support. They explore five research-affirmed elements to collaboratively accelerate student learning to grade or course level and above.

1. High-quality Tier 1 instruction
2. A culture of learning
3. Mathematics foundations
4. Student engagement
5. High-quality Tier 2 interventions

6. Unit Design and Planning



Sarah Schuhl, Timothy D. Kanold, Jennifer Deinhart, Mona Toncheff, Jessicca McIntyre, Bill Barnes, and colleagues developed unit planning books specific to grade bands PreK–2, 3–5, 6–8, and high school. Each book in the *Mathematics Unit Planning in a PLC at Work* series highlights the team dialogue and foundational planning needed as a framework when teams address the research-affirmed actions described in the *Every Student Can Learn Mathematics* series. Mathematics teams build a shared understanding and record the following in each unit plan before the unit begins.

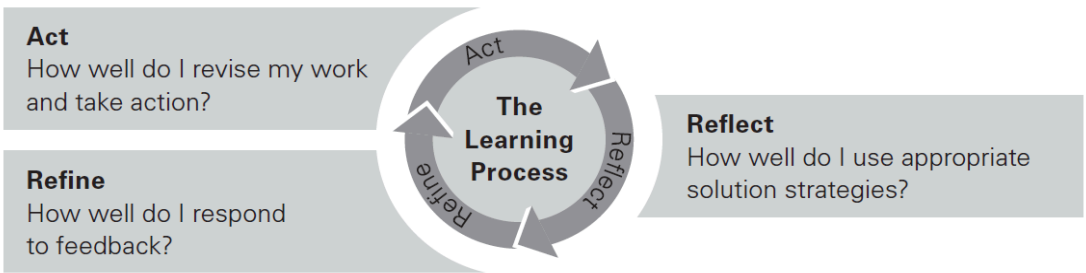
1. Generate essential learning standards.
2. Create a unit calendar.
3. Identify prior knowledge.
4. Determine vocabulary and notations.
5. Identify resources and activities.
6. Agree on tools and technology.
7. Record reflections and notes.

7. Reflect, Refine, and Act Cycle

The *reflect, refine, and act cycle* shows the perspective of Dr. Kanold and his colleagues toward the process of lifelong learning—for teachers and students. The very nature of the profession is about developing skills for learning. Those skills are part of an ongoing process teachers pursue with colleagues.

When teachers embrace mathematics learning as a collaborative *process*, teachers, and students:

- **Reflect—**How well do I make sense of the mathematics task, solve it with a chosen strategy, and determine, "Is this the best solution strategy?"
- **Refine—**How well do I learn mathematics based on feedback about my work, solution pathways, and any possible errors?
- **Act—**How well do I persevere, apply learning from the mathematics task to future tasks, and determine what I have learned that I can use again?



The intent of Solution Tree's *Every Student Can Learn Mathematics* series and the *Mathematics Unit Planning in a PLC at Work* series is to provide educators with a systemic way to structure and facilitate deep team discussions to lead an effective and ongoing adult and student learning process each and every school year.

Session Descriptions—Day 1

KEYNOTE

Timothy D. Kanold

Teaching and Learning PreK–12 Mathematics Using the Four Critical Questions of a PLC at Work!
Timothy D. Kanold sets the stage for the Mathematics in a PLC at Work Summit. He examines fundamental beliefs about student learning that PreK–12 teachers and leaders embrace while pursuing the PLC life in their mathematics instruction, assessments, and interventions.

Dr. Kanold also explores the *what* and *why* of the PLC life, and inspires attendees to stay connected to their work lives through a fully engaged and high-energy effort built upon the foundation of the four PLC At Work critical questions.

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."

MORNING BREAKOUT SESSIONS

A red asterisk ***** *indicates that the session aligns with the 2023 California Mathematics Instructional Framework.*

Bill Barnes

Solving the Grading/Learning Dilemma: Effective Grading Practices (PreK–12)
Grades are intended to communicate a measure of success to students and their families. Unfortunately, grades derived from scoring systems can vary greatly from one classroom to the next. Teachers are often left alone to decide which course elements to include and the weighting of each when determining the final grade.

In this interactive session, participants discuss the nature of grading and how to establish a clear and common purpose for grades. Participants reflect on current practice, consider how to improve collaborative grading procedures, identify strengths, and develop plans for transforming and improving professional practice. Participants reflect on how both formative (homework, classwork, etc.) and summative (tests, quizzes, performance assessments, etc.) elements influence practices.

Bill Barnes helps attendees focus on leveraging discussion tools, examining student trackers, and considering how grading can support formative assessment processes.

Brian Buckhalter

Enhancing Instruction Through a Deep Understanding of the Mathematical Standards (PreK–12)
Effective instruction begins with a shared, in-depth understanding of content standards and the level of mathematical rigor required for each standard. Establishing this clarity enables teachers and teams to make informed decisions about daily instruction. During unit planning, it is essential for teams to

unpack each essential standard, breaking it down into its key components. A common understanding of these expectations empowers teams to:

- Develop clear and measurable learning targets.
- Design meaningful and engaging learning experiences for all students.
- Identify appropriate interventions and extensions to support diverse learning needs.
- Assess student progress toward mastery effectively.

In this session, participants engage with a structured model for unpacking essential standards, developing daily learning targets, and crafting student-friendly "I can" statements. Participants apply this model to their own grade-level standards and begin identifying instructional and assessment materials that align with specific learning targets.

Jennifer Deinhart

Developing Procedural Fluency Through Conceptual Understanding (PreK–5)*

Procedural fluency—skill in carrying out arithmetic and algebraic procedures flexibly, accurately, and efficiently—is a key 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. Jennifer Deinhart examines content progressions for multiplication and division that build procedural fluency from conceptual understanding. Teachers and collaborative teams can identify tasks and strategies to aid in this work. Participants also discover common pitfalls to avoid and instead learn routine teaching and progress monitoring practices to employ while supporting students' learning journey toward mastery and fluency.

Timothy D. Kanold

Creating Relevant and Meaningful Lessons: The First Three Lesson Design Elements of the Mathematics at Work Instructional Framework (High School)*

In the *Every Student Can Learn Mathematics* book series (2018, 2024), Timothy D. Kanold writes, "Teaching mathematics, *so each and every student* learns the PreK–12 college and career preparatory mathematics curriculum, develops a positive mathematics identity, and becomes empowered by mathematics is a complex and challenging task."

The right criteria for mathematics instruction are certain, but not prescriptive. Educational research provides the freedom to act and teach within well-defined boundaries. In this inspirational session for high school mathematics teachers and leaders, Dr. Kanold establishes three essential research-affirmed lesson design indicators: 1) knowing the relevance and context—or the *why* of the lesson—through essential standards, 2) making a lesson *meaningful* to students through prior knowledge activities, and 3) using mathematical language routines effectively to build into student self-efficacy and perseverance during the mathematics lesson.

Georgina Rivera

Get Students Talking! Using Math Language Routines*

Are you looking for ways to get your students talking and problem solving together? All students are mathematics language learners, and using intentional routines helps amplify students' voices and build their mathematical vocabulary, which are critical to learning mathematics.

Participants in this session learn how to embed opportunities for student talk into lessons focused on applying mathematical thinking and collaborative problem solving. Mathematical language routines that support sense making and vocabulary are also explored, including the strategies Collect and Display, Three Reads, and Clearer and Stronger.

Sarah Schuhl

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

When planning mathematics lessons, what are essential elements to consider to maximize student engagement, communication, and perseverance? In this session, Sarah Schuhl explores how teachers plan for the six elements of lesson design in the Mathematics at Work Instructional Framework to grow student learning. Teachers learn about the importance of instructional routines using examples focused on deepening student understanding in a lesson through discourse, multiple representations, and problem solving. Participants reflect on the elements of lesson design and consider how to strengthen their own instructional practices to meet the needs of all middle school mathematics students.

Mona Toncheff

Building a Community of Learners (6–12)*

How do you build rich and meaningful discussions into your daily lesson design? How do you transition from 32 (or more) individual students to a community of learners that support each other in the learning process? How do you support developing students' mathematical identity and agency? Mona Toncheff examines strategies for how to make student thinking visible to promote critical thinking, as well as strategies to positively promote students who defend their thinking and critique that of others.

Participants identify the foundations for building a classroom culture that promotes a focus on student collaboration, and understand the core factors for establishing a student-centered community and how to balance small-group and whole-group discourse. Participants analyze strategies to engage each and every student in daily mathematics conversations, and they leave the session armed with strategies and tools to build a community of learners.

AFTERNOON BREAKOUT SESSIONS

Bill Barnes

Developing Procedural Fluency Through Conceptual Understanding (6–8)*

There has been a conscious and deliberate shift in focus for mathematics teaching and learning. This shift requires that mathematics instruction be designed to develop the critical thinking, reasoning, and creative problem-solving skills of students. Generations of overemphasis on procedural fluency served as a barrier to accessing mathematics for many students.

In this interactive session, Bill Barnes explores how to help students engage in learning mathematics at the appropriate level of rigor. Participants consider the conceptual development for procedures and application, as well as design and discuss instructional strategies that leverage concrete-representational-abstract mathematical models that are likely to lead to deeper understanding.

Brian Buckhalter

Accelerating Grade-Level Learning: The Power of Progressions (PreK–5)*

Students enter classrooms with varying levels of readiness, yet all students are expected to master grade-level standards. One of the most important decisions teams make is how they use their instructional time, which directly impacts what students learn. To support this, collaborative teams build a shared understanding of the progression of learning leading to grade-level content and recognize the critical role of prerequisite skills during real-time instruction.

Participants in this session:

- Analyze the progression of mathematical concepts across grade levels.
- Identify essential prerequisite skills, knowledge, and dispositions for grade-level learning.
- Explore tasks and routines that accelerate learning by integrating timely support for grade-level expectations.

Jennifer Deinhart

Planning for Student Goal Setting and Engagement in Lessons (PreK–5)*

Teacher teams strengthen teaching and learning when they engage in collaborative discussions to build a shared understanding of the essential standards students must learn and develop plans to ensure that learning. Working together, teachers determine the equitable and engaging learning experiences students need along a learning progression. Just as importantly, teacher teams invest students in their learning through targeted goal setting and students' ongoing monitoring of their own learning.

Throughout this session, participants learn how to make mathematics accessible to students and utilize differentiation strategies along a progression of learning for essential standards. Explore as a

team how to increase student learning by elevating engagement and incorporating student goal setting and action in lessons.

Participants in this session:

- Consider guidelines that support teams in determining which grade-level concepts are most essential as a focus for teaching and learning.
- Explore how to differentiate instruction to ensure all students have access to grade-level instruction.
- Learn how to elevate engagement and student investment by employing high-leverage Tier 1 and Tier 2 strategies in lessons.

Timothy D. Kanold

Knowing the Power of Teaching High School Mathematics Well: It's a Matter of Balance! (High School)*

In this second energizing session on highly effective mathematics instruction for high school teachers and leaders, Timothy D. Kanold examines with depth the research-affirmed "balance" issues for highly effective lesson design: *the daily choice of tasks and discourse*. Herein lies the power of the teacher every day, and it is a power that, if not measured, results in inequity, rigor variance, and unbalanced learning for high school students. Using balanced levels of cognitive-demand tasks and whole-group and small-group discourse will maximize student engagement, efficacy, perseverance, and learning. This work becomes our daily lesson design challenge.

Georgina Rivera

Improving Student Engagement Through Task Selection and Purposeful Questioning (6–8)*

Have you ever been excited to use a task with groups of students in your lesson, only to find students fall silent? The situation may not be representative of the task. When a question doesn't spark student engagement, it's simply time to ask, "What could I have done differently?" In this session, Georgina Rivera explores the power of questioning within a lesson, specifically when implementing a higher-level task.

Rivera focuses on questioning strategies that support student-centered dialogue and promote perseverance through a rigorous task. Participants learn how to use questions worth answering, paired with high-cognitive-demand tasks, to support student engagement and perseverance while balancing the use of whole-group and small-group discourse.

Sarah Schuhl

Exploring Instructional Strategies That Deepen Student Learning of Mathematics (PreK–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 content knowledge deepen through inferences, multiple representations, or strategies to solve tasks? Which literacy

strategies might also be effective when teaching mathematics? Participants examine strategies to build conceptual understanding of mathematics that can readily be applied to daily lessons.

Mona Toncheff

Coaching and Leading a Collaborative Team in Your Mathematics Program (PreK–12)
How does a mathematics coach work with teams to strengthen the learning of both teachers and students? What are the foundational elements a coach employs to support each and every learner? A mathematics coach can support teams and teacher capacity focused on increased student learning. In this session, participants experience the power of using protocols during coaching cycles to assist teams with equitable instruction to meet the needs of each and every learner.

Participants identify the elements of a strong mathematics coaching program and examine strategies and protocols to support coaching cycles. Mona Toncheff shares how to effectively monitor and support both individual and team actions to build collective teacher efficacy.

Session Descriptions—Day 2

KEYNOTE

Sarah Schuhl and Mona Toncheff

Mathematics Assessment in Action

How can common assessments motivate and engage each and every learner? How can they be used for learning and assess the critical thinking required of students learning mathematics? High-quality assessments, when intentionally designed and used, inform both teachers and students about what has been learned and what has not been learned *yet*. Sarah Schuhl and Mona Toncheff share team actions needed to create meaningful assessment processes.

MORNING BREAKOUT SESSIONS

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Bill Barnes

Engaging Students as Learners Through Actionable Formative Feedback (6–12)*

In *Visible Learning*—an influential text on seeing through the eyes of students—John Hattie describes feedback as one of the most "powerful influences on student achievement." Bill Barnes explores feedback as an integral part of formative assessments in this hands-on session. Participants examine student work to practice providing meaningful and actionable input.

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.

Brian Buckhalter

Designing Common Mathematics Assessments for Teacher and Student Learning (3–5)

High-quality assessments provide evidence to teachers and students about what students have learned and not yet learned. What are the elements needed to strengthen team-created common assessments? How are students involved in the assessment process so they *learn* from each one? Participants in this session learn how to build common assessments that can be used formatively for continued learning and create equity across classrooms.

Brian Buckhalter shows how collaborative teams create common mid-unit and end-of-unit assessments *before a unit begins* to prepare students for success. He examines student reflection structures, exploring ways to use assessments to promote student learning, and provides insights for how teacher teams use assessments to determine next instructional steps.

Jennifer Deinhart

Facilitating Mathematics Team Meetings Through Progress Monitoring (PreK–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 demonstrate 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. Participants learn to engage as teams in the formative assessment process by gathering evidence of student learning, analyzing student work to gauge level of proficiency, and determining a reengagement plan that targets specific learning needs. Specific strategies are shared for meeting students' needs during core and responsive instruction settings. Educators process how to be reflective and transparent during collaborative time and consider plans of action.

Timothy D. Kanold

Designing Common Mathematics Assessments for Teacher and Student Learning (High School)
At the heart of every professional learning community is the design and use of highly effective mathematics assessment routines and formative processes. In this inspiring session, Dr. Kanold asks, "How do all members of your mathematics department and collaborative teams respond to demonstrations of student learning? Are your unit-by-unit tests and quizzes of high quality, modern, and used for the purpose of formative learning? Do all teachers score the assessment tests 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 assessments to your students?"

Participants examine eight specific unit-by-unit actions for designing a highly effective mathematics assessment process and learn how to score unit assessments accurately. Finally, they explore how to use common assessments as a tool for student reflection, self-efficacy, goal setting, perseverance, and engagement.

Georgina Rivera

Designing Common Mathematics Assessments for Teacher and Student Learning (PreK–2)
High-quality and culturally relevant assessments provide teachers and students with evidence showing what students have learned and not learned yet. What are the elements needed to strengthen team-created common assessments? How are students involved in the assessment process so they learn from each one?

Georgina Rivera shows how collaborative teams create common mid-unit and end-of-unit assessments before a unit begins. She also examines student reflection structures, exploring ways to assess where students are in their learning progression and reveal misconceptions so teams can develop next steps.

Sarah Schuhl

Designing Common Mathematics Assessments for Teacher and Student Learning (6–8)
High-quality assessments provide evidence to teachers and students about what students have learned and not yet learned. What are the elements needed to strengthen team-created common assessments? How are students involved in the assessment process so they *learn* from each one? In this session, participants learn how to build common assessments that can be used formatively for continued learning and create equity across classrooms.

Sarah Schuhl shows how collaborative teams create common mid-unit and end-of-unit assessments *before a unit begins* to prepare students for success. She examines student reflection structures, exploring ways to use assessments to promote student learning, and provides insights for how teacher teams use assessments to determine next instructional steps.

Mona Toncheff

Taking Action With Data: Making the Process Easy, Efficient, and Effective (PreK–12)
The third big idea of a professional learning community is to focus on results. Effective mathematics teams view data as a powerful tool for meeting the needs of individual students and for informing and improving the professional practice of the entire team. Mona Toncheff explores meaningful ways to analyze student thinking and strategies to leverage data for collectively responding to student learning with targeted interventions and extensions.

Participants in this session discover how to increase reliability in the data that teams collect and explore protocols to analyze student data.

AFTERNOON BREAKOUT SESSIONS

Bill Barnes

Leveraging High-Quality Mathematical Tasks to Gather Evidence of Student Thinking (6–12)*
Formative assessment is an ongoing process in which teachers collect evidence of 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 learning.

Bill reviews strategies to improve task design, selection, and implementation. 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. By determining strategies to improve feedback from teachers and peers, participants leave with resources, including common scoring expectations, to support collaborative planning and task implementation.

Brian Buckhalter

Exploring the Power of Feedback and Action With Mathematics Assessments (PreK–5)
High-quality assessments provide teachers and students with evidence of content learning and process standards. A vital component of the assessment process is the reflection on learning by both

teachers and students. Through feedback from teachers, students are afforded opportunities to support and document their own learning. Brian Buckhalter shows how assessments, evidence of student thinking, and feedback work in tandem as a process to promote learning for all students.

Participants explore team actions to establish these processes, including reflection of assessment item alignment, progressions to proficiency, types of feedback that promote reflection and action, and tools and strategies to engage young students in acting on feedback when reflecting on their learning.

Jennifer Deinhart

Planning Effective Mathematics Units Designed to Maximize Student Learning (PreK–5)
Through the unit planning process, mathematics teams engage in collaborative discussions to build a shared understanding of the standards students need to learn and a plan to ensure that learning. Unit planning provides mathematics teams an opportunity to determine the equitable learning experiences students will engage in within a unit and guides the design of effective common assessments processes. Strong foundations are established to guarantee what students will learn across a team. Participants explore the elements of high-quality unit planning—beginning with clear essential learning standards as drivers for common assessments and student learning and reflection.

Participants learn a process for making sense of the content students must learn and clarifying the pacing within each unit of instruction. Unit planning is an essential part of the collaborative team process. Jennifer Deinhart shares examples, tools, and protocols for effective unit planning that teams can readily use back at their schools.

Timothy D. Kanold

Planning Effective Mathematics Units Designed to Maximize Student Learning (High School)
Through the unit planning process, PLC at Work mathematics teams engage in collaborative discussions to build a shared understanding of the standards students need to learn, and create a plan to ensure that learning. Unit planning provides mathematics teams an opportunity to determine the equitable learning experiences students will engage in within a unit and guides the design of effective common assessment processes. Strong foundations are established to guarantee what students will learn across a team and the pacing guidelines each team member will follow. Throughout this session, participants explore the elements of high-quality unit planning—starting with clear essential learning standards as drivers for common assessments, student learning, and reflection.

Participants learn a process for making sense of the content students must learn and clarifying the pacing within each unit of instruction. Unit planning, and then delivering that plan, is an essential part of the collaborative team process, especially for the new teachers in a team. Dr. Timothy Kanold shares examples, tools, and protocols for effective unit planning that teacher teams can readily use during their PLC work back at their schools.

Georgina Rivera

Planning for REACTion Days: How to Collectively Respond to Student Learning (PreK–8)
As part of the PLC process, it is critical for collaborative teams to engage in creating and administering common assessments designed for formative feedback. Once the common assessment has been given, what do you and your teacher team do with the collected data and student work? How do you use student results to design your team's next steps?

Georgina Rivera explores how to analyze and sort student work from common assessments to be able to design REACTion days which collectively respond to student learning. Participants examine who can be part of the collective response, what strategies to use, and how to structure a REACTion day in order to ensure all students have mastered the essential learning.

Sarah Schuhl

Planning Effective Mathematics Units Designed to Maximize Student Learning (6–8)
Through the unit planning process, mathematics teams engage in collaborative discussions to build a shared understanding of the standards students need to learn and a plan to ensure that learning. Unit planning provides mathematics teams an opportunity to determine the equitable learning experiences students will engage in within a unit and guides the design of effective common assessment processes. Strong foundations are established to guarantee what students will learn across a team. Throughout this session, participants explore the elements of high-quality unit planning—beginning with clear essential learning standards as drivers for common assessments and student learning and reflection.

Participants learn a process for making sense of the content students must learn and clarifying the pacing within each unit of instruction. Unit planning is an essential part of the collaborative team process. Sarah Schuhl shares examples, tools, and protocols for effective unit planning that teams can readily use back at their schools.

Mona Toncheff

Exploring the Power of Feedback and Action With Mathematics Assessments (6–8)*
High-quality assessments provide teachers and students with evidence of learning content and process standards. Mona Toncheff shows how assessments, evidence of student thinking, and feedback work in tandem as a process to promote learning for all students.

Participants explore team actions to establish these processes, including reflection of assessment item alignment, progressions to proficiency, and the types of feedback that promote reflection and action. Mona Toncheff shares tools and strategies to engage students in acting on feedback that engage and motivate learners.

Session Descriptions—Day 3

WORKING SESSIONS

Georgina Rivera and Mona Toncheff

Sustaining Systemic Change in Mathematics (PreK–12)

Urgent calls for reform in mathematics education date back at least four decades. Despite all the reforms, there is still an implementation gap between the recommendations for improvements and the meaningful systemic change needed to ensure high levels of mathematics learning for all. Mathematics leaders and educators need to identify, confront, and make long overdue changes to the structures, policies, instructional approaches, and focus on meaningful and relevant mathematics.

In this working session, participants network with mathematics leaders to analyze current systemic structures, identify potential barriers, and determine supports needed to improve a shared vision of equitable mathematics teaching and learning. Participants collectively explore how to build a culture of learning for all, discuss beliefs about mathematics learning, and conduct impactful conversations on how to align practices and policies with the shared vision and productive beliefs.

Bill Barnes and Sarah Schuhl

Accelerating Student Learning Through Effective Mathematics Interventions (PreK–12)

Mathematics collaborative teams are made of teachers who work tirelessly to grow student learning. Yet, despite every effort, there are students still struggling. Why, and what can be done? What are the teacher and team actions needed to accelerate student learning to grade level and beyond?

In this working session, attendees consider *how* teachers and teams can plan to grow the critical reasoning of students during core instruction and through targeted interventions. What are effective strategies to strengthen Tier 1 and Tier 2 instruction? Participants share with others and explore strategies to accelerate learning of mathematics to grade level and beyond. Together, teams can ensure higher levels of mathematics learning for every student.

Brian Buckhalter, Jennifer Deinhart, and Timothy D. Kanold

Creating Higher- and Lower-Level-Cognitive-Demand Mathematical Tasks (PreK–12)

In this working session, participants create higher-level and lower-level-cognitive-demand tasks that are grade- or course-specific by standard and usually taught during January.

Working in small-group teams, participants develop mathematical tasks or problems with guidance from presenters. They post the tasks by standard on poster paper as part of a gallery walk, and participants can take pictures of the mathematical tasks during the rotation. Brian Buckhalter, Jennifer Deinhart, and Timothy D. Kanold empower participants from all grade levels or courses to write mathematical tasks they can own for future units of study.

All Presenters

Ignite! The Power of Your Story

In this high-energy, risk-taking format, the mathematics Summit faculty strives to ignite the *power of story* in your mathematics teaching and leading lives. *There is one caveat*. Each presentation is five minutes, with twenty slides that advance every fifteen seconds, whether the presenter is ready or not! The margin for error is thin. The presentations and titles are as follows:

- Sarah Schuhl—What *If*?
- Georgina Rivera—Dimming
- Bill Barnes—Hope
- Jennifer Deinhart—The Mirror
- Brian Buckhalter—The Story of Moises
- Mona Toncheff—Be Bold!
- Timothy D. Kanold—You Never Know …

The audience is the judge and beneficiary of these seven distinctive, fast-paced sessions—launching pads for a new chapter in your mathematics teaching and leadership life. Be prepared to clap, cheer, cry, and reflect as you join in the excitement, energy, and compassion of *Ignite!*