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# Agenda

## Atlanta, GA • December 11–13

### Wednesday, December 11

6:00–8:00 a.m.	Registration	Rooms TBD
	Continental Breakfast	
8:00–9:45 a.m.	<b>Keynote</b> —Timothy D. Kanold <i>The “Every Student Can Learn Mathematics” Story: The HEART of the PLC Life!</i>	
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	<b>Breakout Sessions</b>	
11:30 a.m.–1:00 p.m.	Lunch (on your own)	
1:00–2:30 p.m.	<b>Breakout Sessions</b>	
2:30–2:45 p.m.	Break	
2:45–3:45 p.m.	<b>Role-Alike Networking Meeting</b> <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> Facilitators: Sarah Schuhl & Jennifer Deinhart	
	<b>Middle School</b> Facilitator: Jessica Kanold-McIntyre	
	<b>High School</b> Facilitator: Bill Barnes	
	<b>Building Administrators &amp; District Leaders</b> Facilitator: Timothy D. Kanold	
	<b>Instructional Coaches &amp; Departmental Chairs</b> Facilitator: Mona Toncheff	

## Thursday, December 12

7:00–8:00 a.m.	Registration	Rooms TBD
	Continental Breakfast	
8:00–9:45 a.m.	<b>Keynote</b> —Sarah Schuhl & Mona Toncheff <i>Lesson Design: What Works to Ensure Every Student Learns Mathematics?</i>	
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	<b>Breakout Sessions</b>	
11:30 a.m.–1:00 p.m.	Lunch (on your own)	
1:00–2:30 p.m.	<b>Breakout Sessions</b>	
2:30–2:45 p.m.	Break	
2:45–3:45 p.m.	<b>Team Time</b> <i>Presenters are available to aid in team discussions.</i>	

## Friday, December 13

7:00–8:00 a.m.	Continental Breakfast	Rooms TBD
8:00–10:00 a.m.	<b>Working Session</b> —Jessica Kanold-McIntyre & Mona Toncheff <i>Building Effective Collaborative Teams Through Reflection, Refinement, and Action (K–12)</i>	
	<b>Working Session</b> —Bill Barnes & Sarah Schuhl <i>We Gave the Test. Now What? (K–12)</i>	
	<b>Working Session</b> —Jennifer Deinhart & Timothy D. Kanold <i>Creating Higher- and Lower-Level-Cognitive-Demand Mathematical Tasks (K–12)</i>	
10:00–10:15 a.m.	Break	
10:15–10:30 a.m.	<b>Celebration</b> —Bill Barnes <i>Join presenters in a celebration of your work and growth!</i>	
10:30–11:30 a.m.	<b>Keynote</b> — <i>Ignite! The Power of Your Story</i> <ul style="list-style-type: none"> <li>● Bill Barnes—No Regrets!</li> <li>● Jennifer Deinhart—The Mirror</li> <li>● Mona Toncheff—Be Bold!</li> <li>● Jessica Kanold-McIntyre—Don’t Quit!</li> <li>● Sarah Schuhl—What If?</li> <li>● Timothy D. Kanold—Great Adventure!</li> </ul>	

**Agenda is subject to change.**

## Breakouts at a Glance

Presenter & Title	Wednesday, December 11		Thursday, December 12	
	10:00–11:30 a.m.	1:00–2:30 p.m.	10:00–11:30 a.m.	1:00–2:30 p.m.
<b>Bill Barnes</b>				
Fueling Formative Assessments: High-Quality Grading Routines (6–12)	X			
Fueling Formative Assessments: High-Quality Homework Routines (6–12)		X		
Fueling Formative Assessments: Evidence of Student Thinking Through Mathematical Tasks (6–12)			X	
Fueling Formative Assessments: Actionable Feedback to Engage Students as Learners (6–12)				X
<b>Jennifer Deinhart</b>				
Developing Procedural Fluency Through Conceptual Understanding (K–5)	X			
Student Goal Setting: The Pathway to Targeted Instruction (K–5)		X		
Using High-Level Tasks to Engage Students in Productive Mathematics Discourse (K–5)			X	
Facilitating Mathematics Team Meetings Through Progress Monitoring (K–5)				X
<b>Timothy D. Kanold</b>				
Mathematics Assessment Literacy in Your High School Mathematics Department (9–12)	X			
More Powerful Than Poverty: Daily Teacher Actions That Inspire Every Student of Mathematics to Learn (K–12)		X		
Three Essential Lesson-Design Elements for Mathematics Lessons (9–12)			X	
Three <i>More</i> Essential Lesson-Design Elements for Mathematics Lessons (9–12)				X

<b>Jessica Kanold-McIntyre</b>				
Creating High-Quality Assessments and Embedding Student Reflection (6–8)	X			
Using Technology to Support the Formative Assessment Process in the Mathematics Classroom (6–12)		X		
Developing High-Quality Mathematics Lessons (6–8)			X	
Improving Student Engagement Through Questioning and Task Selection (6–8)				X
<b>Sarah Schuhl</b>				
Designing Quality Common Mathematics Assessments for Teacher and Student Learning (K–5)	X			
Ensuring Every Student Learns Mathematics (K–12)		X		
Designing Elementary Mathematics Lessons for Learning (K–5)			X	
When Content Isn't Enough: Strategies to Help Students <i>Really</i> Learn Mathematics (K–5)				X
<b>Mona Toncheff</b>				
High-Quality Mathematics Assessment Feedback Processes: The Power of Feedback and Action (6–8)	X			
Assessments in Action (K–5)		X		
Building a Student-Centered Classroom (6–12)			X	
Designing Lessons to Engage Each Learner Every Day (K–5)				X

**Agenda is subject to change.**

# Key Concepts

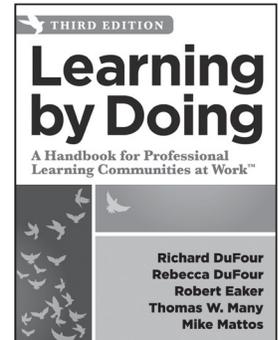
These key concepts are offered as a handy reference. Presenters refer to these concepts repeatedly in sessions. Please take a moment to become familiar.

## 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).

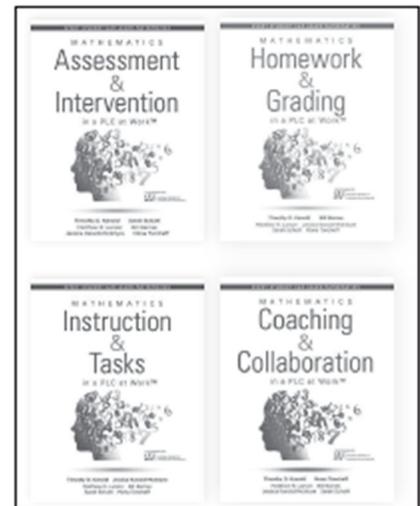


## Team and Coaching Actions

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.

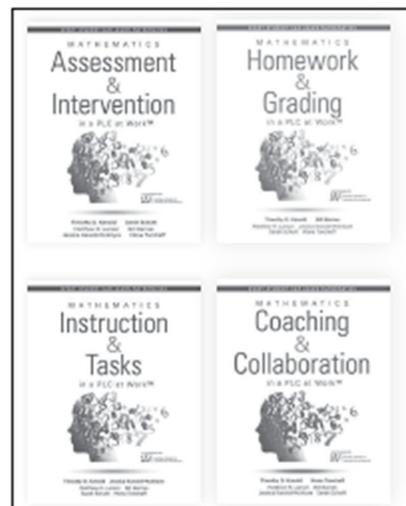
The team and coaching actions are featured in the *Every Student Can Learn Mathematics* series (2018).

# Key Concepts

## Six Essential Lesson-Design Elements

In the *Every Students Can Learn Mathematics* series (Solution Tree, 2018), teachers reflect on current lesson planning and design practice. Examining six essential elements of every mathematics lesson they design and ultimately use with students each day.

1. Essential learning standards: the *why* of the lesson
2. Prior-knowledge warm-up activities
3. Academic language vocabulary as part of instruction
4. Lower- and higher-level-cognitive-demand mathematical task balance
5. Whole-group discourse and small-group discourse balance
6. Lesson closure for evidence of learning

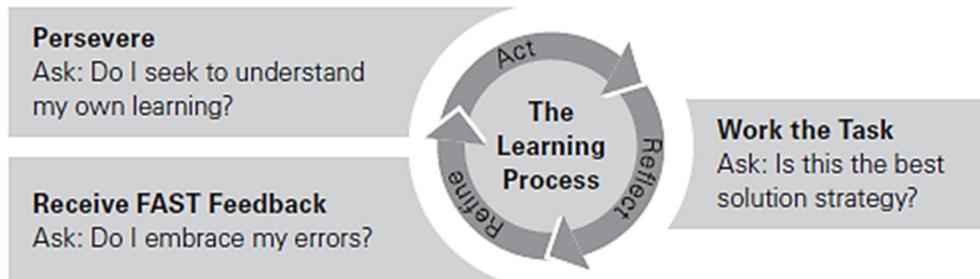


## Reflect, Refine, and Act Cycle

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 the development of skills toward learning. Those skills are part of an ongoing process teachers pursue with colleagues.

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

- **Reflect**—Work the task, and then ask: “Is this the best solution strategy?”
- **Refine**—Receive FAST feedback and ask, “Do I embrace my errors?”
- **Act**—Persevere and ask, “Do I seek to understand my own learning?”



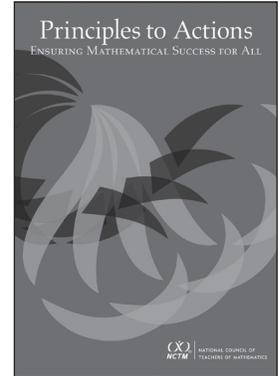
The intent of the *Every Child Can Learn Mathematics* series is to provide educators with a systemic way to structure and facilitate deep team discussions to lead an effective and ongoing adult and student learning process each and every school year.

# 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.

# Keynote Descriptions

## Timothy D. Kanold

### The “Every Student Can Learn Mathematics” Story: 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 *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.”

## Sarah Schuhl & Mona Toncheff

### Lesson Design: What Works to Ensure Every Student Learns Mathematics?

What matters most in a lesson? As part of lesson planning, educators must consider myriad components, including structure, task selection, student engagement, and transitions. So, what are the most critical elements to plan for when designing quality mathematics lessons? How can teachers and teams grow their toolkit of effective instructional practices and routines? What are teachers and students *doing* during each part of a lesson?

In this keynote, Sarah Schuhl and Mona Toncheff share six essential elements of lesson design from the *Every Student Can Learn Mathematics* series (Solution Tree, 2018). (See page 7.) They connect how teachers in collaborative mathematics teams can use daily instruction as a component of their strong formative assessment processes. Sarah and Mona also identify conditions needed for learners to develop productive perseverance and learn from one another. The intentional planning of quality daily lessons focuses on the continued learning of every student every day.

## All Presenters

### Ignite! The Power of Your Story

In this high-energy, risk-taking format, the summit faculty strive to ignite the *power of story* in your mathematics teaching and leading lives. *There is one caveat.* Each presentation is five minutes, with 20 slides that advance every 15 seconds whether the presenter is ready or not! The margin for error is thin.

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

- Bill Barnes—No Regrets!
- Jennifer Deinhart—The Mirror
- Mona Toncheff—Be Bold!
- Jessica Kanold-McIntyre—Don’t Quit!
- Sarah Schuhl—What *If?*
- Timothy D. Kanold—Great Adventure!

# Working Session Descriptions

## **Jessica Kanold-McIntyre & Mona Toncheff**

### **Building Effective Collaborative Teams Through Reflection, Refinement, and Action (K–12)**

How does a mathematics team best collaborate to magnify student achievement? What protocols and structures can help build a culture of transparency? What supportive conditions support meaningful collaboration? Through this working breakout session, teacher leaders, coaches, and administrators reflect on leadership practices and disciplines necessary for leading a collaborative culture.

Participants also explore protocols teams utilize to engage in a *reflect, refine, and act cycle*—a triad that encompasses lifelong learning concepts— to practice careful inspection of student learning with instruction and assessments. (See page 7.) Participants create action plans to implement the leadership strategies that address the foundation of a PLC at Work.

## **Bill Barnes & Sarah Schuhl**

### **We Gave the Test. Now What? (K–12)**

How do teachers and students use common assessment results? What should teacher teams look for as they examine the effectiveness of instructional practices? How does each student use the feedback to articulate what he or she has learned and make a plan for continued learning? Participants explore how collaborative teams analyze data from common assessments to collectively plan for Tier 1 or Tier 2 interventions and extensions.

In this session, attendees determine structures for student reflection after common mid-unit and end-of-unit assessments. They identify protocols to analyze student data through common assessments. Finally, they brainstorm Tier 2 team interventions to address learners who have not yet grasped essential standards.

## **Jennifer Deinhart & Timothy D. Kanold**

### **Creating Higher- and Lower-Level-Cognitive-Demand Mathematical Tasks (K–12)**

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

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.

This session empowers participants from all grade levels or courses to write mathematical tasks they can own for future units of study.

# Breakout Session Descriptions

## Bill Barnes

### **Fueling Formative Assessments: High-Quality Grading Routines (6–12)**

Course grades communicate a measure of success to students and their families. However, grades derive from scoring systems that can vary greatly from one classroom to the next.

In this interactive session, participants discuss the nature of grading, as well as establishing 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.

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

### **Fueling Formative Assessments: High-Quality Homework Routines (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 that contributes meaningfully to formative assessment processes.

Attendees consider new design strategies, share professional practice, and develop plans and opportunities for growth. Bill Barnes helps educators improve feedback, including common scoring expectations that students receive from teachers and peers. These practical strategies are easy to implement; they enhance the work of collaborative teams working in a PLC at Work culture.

### **Fueling Formative Assessments: Evidence of Student Thinking Through Mathematical Tasks (6–12)**

Formative assessment is an ongoing process where 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 hundreds of resources, including common scoring expectations, to support collaborative planning and task implementation.

### **Fueling Formative Assessments: Actionable Feedback to Engage Students as Learners (6–12)**

As author of *Visible Learning*—a seminal text on seeing through the eyes of students, John Hattie describes feedback as one of the most “powerful influences on student learning.” 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.

## **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 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 ratio and proportional relationships 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.

### **Student Goal Setting: The Pathway to Targeted Instruction (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 targeted instruction. By helping students reflect on their work after an assessment, teachers can guide students' next steps in learning.

Participants explore how teams develop content and learning progressions centered on essential standards. Along the way, they learn to have data discussions that yield productive results.

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

Teachers can facilitate rich discussions with students by undertaking cognitively demanding tasks. Students also engage in Standards for Mathematical Practice through high-level tasks. (See standards on page 8.) Jennifer Deinhart helps collaborative teams select tasks, design lessons, and include questions to guide students in productive discourse.

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.

### **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 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. Teams reflect during collaborative time and consider plans of action.

### **Timothy D. Kanold**

#### **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? Do teachers score 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 actions for designing highly effective mathematics unit assessments. (See “Team and Coaching Actions” on page 6.) They develop plans to score unit assessments accurately. Finally, they explore how to use common assessments as a tool for student reflection and goal setting.

#### **More Powerful Than Poverty: Daily Teacher Actions That Inspire Every Student of Mathematics to Learn**

Timothy D. Kanold explores essential practices of K–12 teachers who inspire student learning every day. For many students, poverty is a big hurdle. Some experts believe that until society solves poverty, student potential will remain fulfilled. Dr. Kanold believes differently—an answer rests in the hearts of teachers themselves. Motivation and inspiration are more powerful than poverty!

In this session, participants explore how neuroscience influences student motivation and inspiration. Dr. Kanold helps educators focus on becoming:

- Teachers of positive influence and energy
- Teachers who use highly effective elements of math instruction in every lesson
- Persons of wisdom with a strong knowledge base and growth mindset

On a practical level, Dr. Kanold presents insights and ideas that mathematics teachers can apply to their current work. Teachers who establish spheres of engagement and interest can forever impact the lives of their students.

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

In the *Every Student Can Learn Mathematics* book series (2018), 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.

In part 1 of this session for high school mathematics teachers and leaders, Dr. Kanold establishes three of six 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 vocabulary activities effectively.

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

In part 2 of this session on highly effective instruction for high school teachers and leaders, Timothy D. Kanold examines the final three research-affirmed lesson-design indicators for mathematics lessons. These are: 4) using balanced levels of cognitive-demand tasks, 5) balancing whole-group and small-group discourse to maximize student engagement, efficacy, and perseverance, and 6) using student-led closure for evidence of learning.

## **Jessica Kanold-McIntyre**

### **Creating High-Quality Common Assessments and Embedding Student Reflection (6–8)**

How do teacher teams evaluate the quality of assessments? Jessica Kanold-McIntyre focuses on criteria to build high-quality common assessments to ensure rigor and create equity across classrooms. As a part of the formative assessment process, students must respond to teacher feedback. Session participants explore ideas to inspire students to reflect on their learning and set goals for continuous improvement in mathematics.

### **Using Technology to Support the Formative Assessment Process in the Mathematics Classroom (6–12)**

Are you looking for meaningful ways to collect and use evidence of student learning as part of the formative assessment process? In this session, Jessica Kanold-McIntyre discusses how to monitor student learning and provide feedback to students.

Participants explore tools that help mathematics teachers gather evidence of student learning to inform instructional decisions. As a result, educators have better ideas to support discussion and engagement. Jessica reviews essential standards and task selection as key components for the formative assessment process. She offers practical ideas to implement assessments in classrooms. As a result, teachers gain a toolkit of ideas to gather evidence of learning using technology.

### **Developing High-Quality Mathematics Lessons (6–8)**

What essential elements of a lesson should teachers consider to maximize student engagement, communication, and perseverance? In this session, Jessica Kanold-McIntyre reviews the six elements of lesson design from *Mathematics Instruction and Tasks in a PLC at Work* (Solution Tree, 2018):

7. Essential learning standards: the *why* of the lesson
8. Prior-knowledge warm-up activities
9. Academic language vocabulary as part of instruction
10. Lower- and higher-level-cognitive-demand mathematical task balance
11. Whole-group discourse and small-group discourse balance
12. Lesson closure for evidence of learning

Participants engage in the *reflect, refine, and act cycle*—a triad that encompasses lifelong learning concepts—as they explore how to embed the six elements into their lesson designs. (See page 6.) As teachers review sample lessons, they discuss how to continue key conversations in their collaborative teams.

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

Every teacher has had difficulty in asking a question (one you were sure would prompt a lively discussion), only to have students stare back in silence. Equally as challenging are one-word replies from students. But these situations are no reason to panic.

When a question falls flat, it's simply time to ask, "What happened?" This session explores the power of questioning within a lesson, specifically when implementing a higher-level task.

Jessica Kanold-McIntyre focuses on questioning strategies that support student-to-student dialogue and promote perseverance through a rigorous task. Participants learn how to use high-cognitive-demand tasks to support student engagement and perseverance while balancing the use of whole-group and small-group discourse.

Participants review using questioning as a part of the in-class formative assessment process. They learn how to facilitate and monitor student engagement in classroom conversations.

## **Sarah Schuhl**

### **Designing Quality Common Mathematics Assessments for Teacher and Student Learning (K–5)**

High-quality assessments provide teachers and students with evidence showing what students have learned and not yet learned. How does an assessment's structure affect how teachers analyze student learning and instructional practices? 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?

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 learning.

### **Ensuring Every Student Learns 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 every student learns mathematics? How do they plan for core instruction and match interventions to the mathematics skills students struggle to learn?

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

Session participants learn how to determine essential content standards and prerequisite skills to assess through common 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.

### **Designing Elementary Mathematics Lessons for Learning (K–5)**

Teaching mathematics is not the same as teaching from a textbook. As part of lesson design, how do teachers effectively plan for student learning every day? How does lesson design promote opportunities for student learning through feedback from both the teacher and fellow students?

Sarah Schuhl explores ways to engage learners and promote learning through connections, task selection, problem solving, and student discourse. Participants examine quality lesson design focused on the engagement and learning of every student. Throughout the session, Sarah shares instructional strategies to deepen student understanding of mathematics.

### **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 content knowledge deepen through inferences, multiple representations, or strategies to solve tasks? Which literacy strategies might also be effective when teaching mathematics? Participants determine key elements of lesson design to meet the learning needs of elementary-level mathematics students.

## **Mona Toncheff**

### **High-Quality Mathematics Assessment Feedback Processes:**

#### **The Power of Feedback and Action (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 item alignment, rigor of standards, and types of feedback that promote reflection and action. Participants examine how to develop high-quality assessments that engage and motivate learners.

### **Assessments in Action (K–5)**

How can assessments motivate and engage each and every learner? How can they improve learning? High-quality assessments, which include content and process standards, inform teachers and students about what pupils have learned and not 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 promote critical thinking to make student reasoning visible; they also focus on building a student-centered classroom culture. As participants learn to promote student collaboration, they develop skills to balance small-group and whole-group discourse. Mona Toncheff shows how to engage students in daily mathematics conversations. Teachers leave the session armed with strategies and tools to build a student-centered classroom.

### **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? (See list on page 8.) 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.