Mathematics in a PLC at Work® Summit
Houston, TX • December 5–7, 2022

Agenda

Monday, December 5

7:00–8:00 a.m.	Registration	Plaza Ballroom Foyer
	Continental Breakfast	Galleria Foyer
8:00–9:45 a.m.	**Keynote**—Timothy D. Kanold *Teaching and Learning Mathematics: Using the Four Critical Questions of a PLC at Work!*	Galleria Ballroom
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	**Breakout Sessions**	See Pages 4–5
11:30 a.m.–1:00 p.m.	Lunch (on your own)	
1:00–2:30 p.m.	**Breakout Sessions**	See Pages 4–5
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: Sarah Schuhl & Jennifer Deinhart	Woodway 3
	Middle School Facilitator: Jessica Kanold-McIntyre	Plaza Ballroom 1
	High School Facilitator: Bill Barnes	Plaza Ballroom 2
	Building Administrators & District Leaders Facilitator: Timothy D. Kanold	Woodway 1
	Instructional Coaches & Departmental Chairs Facilitator: Mona Toncheff	Woodway 2

Tuesday, December 6—Assessment

7:00–8:00 a.m.	Registration	Plaza Ballroom Foyer
	Continental Breakfast	Galleria Foyer
8:00–9:45 a.m.	**Keynote**—Sarah Schuhl & Mona Toncheff *Mathematics Assessment in Action*	Galleria Ballroom
9:45–10:00 a.m.	Break	
10:00–11:30 a.m.	**Breakout Sessions**	See Pages 4–5
11:30 a.m.–1:00 p.m.	Lunch (on your own)	
1:00–2:30 p.m.	**Breakout Sessions**	See Pages 4–5
2:30–2:45 p.m.	Break	

2:45–3:45 p.m.	**Team Time** *Presenters are available to aid in team discussions.*	Galleria Ballroom

Wednesday, December 7

7:00–8:00 a.m.	Continental Breakfast	Galleria Ballroom
8:00–9:45 a.m.	**Working Session**—Jessica Kanold-McIntyre & Mona Toncheff *Sustaining Systemic Change in Mathematics* ***(PreK–12)***	Woodway 2
	Working Session—Bill Barnes & Sarah Schuhl *Team Actions That Lead to Effective Interventions* ***(PreK–12)***	Woodway 1
	Working Session—Jennifer Deinhart & Timothy D. Kanold *Creating Higher- and Lower-Level-Cognitive-Demand Mathematical Tasks* ***(PreK–12)***	Galleria Ballroom
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!* ● 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—The Date Always Arrives	Galleria Ballroom

Agenda is subject to change.

Breakouts at a Glance

Presenter & Title	Monday, December 5		Tuesday, December 6 (Assessment Topics)	
	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				
High-Quality Formative Grading Routines **(6–12)**	Plaza Ballroom 2			
High-Quality Formative Homework Routines **(6–12)**		Plaza Ballroom 2		
Actionable Formative Feedback to Engage Students as Learners **(6–12)**			Plaza Ballroom 2	
Evidence of Student Thinking Through Mathematical Tasks **(6–12)**				Plaza Ballroom 2
Jennifer Deinhart				
Developing Procedural Fluency Through Conceptual Understanding **(PreK–5)**	Woodway 3			
Student Goal Setting: The Pathway to Targeted Instruction **(PreK–5)**		Woodway 3		
Facilitating Mathematics Team Meetings Through Progress Monitoring **(PreK–5)**			Woodway 3	
Planning and Designing Effective Mathematics Units That Maximize Student Learning **(PreK–2)**				Woodway 3
Timothy D. Kanold				
Developing Relevant and Meaningful Mathematics Lessons: Three Essential Lesson-Design Criteria **(High School)**	Galleria Ballroom			
Balance: The Secret to Highly Effective Mathematics Tasks and Discourse: Three M*ore* Essential Lesson-Design Criteria for Mathematics Lessons **(High School)**		Galleria Ballroom		
Mathematics Assessment Fidelity and Quality in Your High School Mathematics Department **(High School)**			Galleria Ballroom	
Planning and Designing Effective Mathematics Units That Maximize Student Learning **(High School)**				Galleria Ballroom

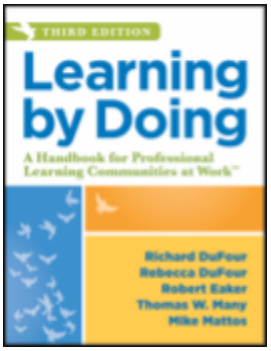
Jessica Kanold-McIntyre				
Developing High-Quality Mathematics Lessons **(6–8)**	Plaza Ballroom 1			
Improving Student Engagement Through Questioning and Task Selection **(6–8)**		Plaza Ballroom 1		
Creating High-Quality Assessments and Embedding Student Reflection **(6–8)**			Plaza Ballroom 1	
Planning and Designing Effective Mathematics Units That Maximize Student Learning (**6-8**)				Plaza Ballroom 1
Sarah Schuhl				
Designing Elementary Mathematics Lessons for Learning **(PreK–5)**	Woodway 1			
Instructional Strategies to Deepen Student Learning of Mathematics **(PreK–5)**		Woodway 1		
Designing Quality Common Mathematics Assessments for Teacher and Student Learning **(PreK–5)**			Woodway 1	
Planning and Designing Effective Mathematics Units That Maximize Student Learning (**3–5**)				Woodway 1
Mona Toncheff				
Building a Student-Centered Classroom **(6–12)**	Woodway 2			
Doing the Math: Learning Together Through Lesson Design Action Research (**PreK–12**)		Woodway 2		
Coaching and Leading a Collaborative Team in Your Mathematics Program (**PreK–12**)			Woodway 2	
The Power of Feedback and Action With Mathematics Assessments **(6–8)**				Woodway 2

The agenda is subject to change.

Key Concepts

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

Four Critical Questions of a PLC

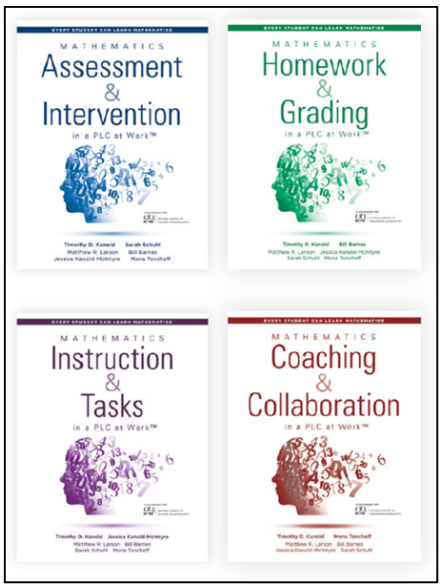


Collaborative teams within schools that function as PLCs focus their work on the four critical questions:

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.

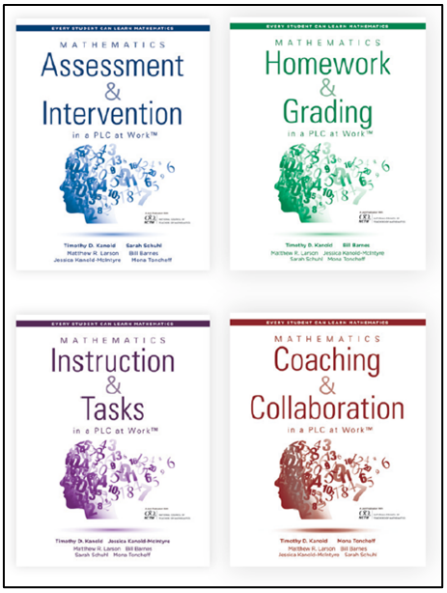
Coaches

- **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 Solution Tree's *Every Student Can Learn Mathematics* series.

Key Concepts

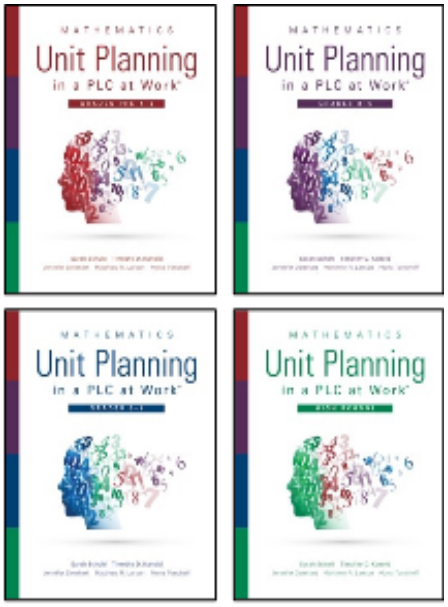
Six Essential Lesson-Design Elements



In Solution Tree's *Every Students 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 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

Unit Design and Planning



Sarah Schuhl, Timothy Kanold, 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 team actions 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.

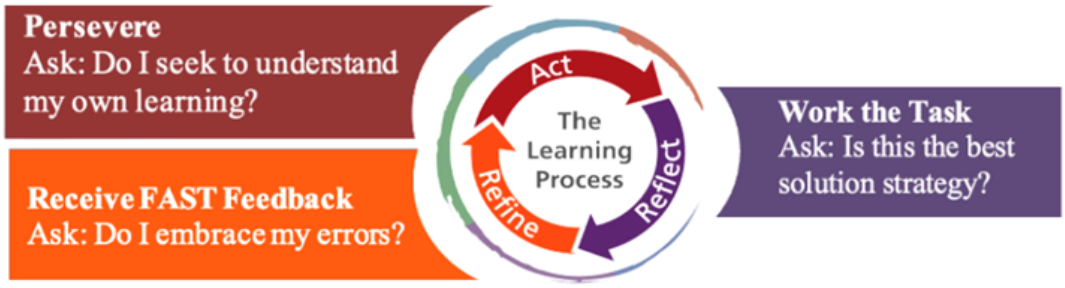
1. Generate essential learning standards.
2. Create a unit calendar.
3. Identify prior knowledge.
4. Determine vocabulary and notations.
5. Identify resources and activities.
6. Agree on tools and technology.
7. Record reflections and notes.

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 *process*, teachers, and students:

- **Reflect—**Work on 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 Solution Tree's *Every Child 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.

Keynote Descriptions

Timothy D. Kanold

Teaching and Learning 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 teachers consider while pursuing the PLC life in all instruction, assessments, and interventions.

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

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

Mathematics Assessment in Action

How can common assessments motivate and engage each and every learner? How can they be used to learn and assess students' critical thinking in mathematics? When intentionally designed and used, high-quality assessments inform teachers and students about what students have learned and not learned *yet*. Sarah Schuhl and Mona Toncheff share team actions needed to create meaningful assessment processes.

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, cheer, and reflect 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—The Date Always Arrives

Working Session Descriptions

Jessica Kanold-McIntyre & 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, an implementation gap exists between improvement recommendations and systemic change to ensure high levels of mathematics learning for all. Mathematics leaders and educators must identify, confront, and make long-overdue changes to the structures, policies, and instructional approaches, focusing on meaningful and relevant mathematics.

Participants network with mathematics leaders to analyze current systemic structures, identify potential barriers, and determine supports to improve the shared vision of equitable mathematics teaching and learning. Participants collectively explore how to build a learning culture for all by discussing beliefs about mathematics learning and aligning practices and policies with the shared vision and productive beliefs.

Bill Barnes & Sarah Schuhl

Team Actions That Lead to Effective Interventions (PreK–12)

Teachers in mathematics collaborative teams work tirelessly to grow student learning. Yet, despite every effort, students still struggle. *Why is this happening? What can be done*? How can teacher and team actions accelerate student learning to grade level and beyond?

In this working session, participants consider *how* teachers and teams can grow students' critical reasoning during core instruction and targeted interventions. What strategies strengthen Tier 1 and Tier 2 instruction? Bill Barnes and Sarah Schuhl encourage participants to share and explore ways to accelerate mathematics learning to grade level and beyond. Together, teams can ensure higher levels of mathematics learning for every student.

Jennifer Deinhart & Timothy D. Kanold

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

High-Quality Formative Grading Routines (6–12)
Course grades communicate a measure of success to students and their families. However, grades derived from scoring systems can vary significantly 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 for grades. Participants reflect on current practice, consider how to improve collaborative grading procedures, identify strengths, and develop plans for transforming and enhancing professional practice.

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

High-Quality Formative Homework Routines (6–12)
Independent practice, otherwise known as homework, can be integral to student learning. In this collaborative session, participants learn to transition from traditional homework to independent practice contributing 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.

Actionable Formative Feedback to Engage Students as Learners (6–12)
When John Hattie wrote *Visible Learning*—a seminal text on seeing through students' eyes, he described 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.

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 collaborate to explore a standard definition of higher- and lower-level-cognitive-demand tasks and 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.

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 crucial 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 this work. Participants also discover common pitfalls to avoid.

Student Goal Setting: The Pathway to Targeted Instruction (PreK–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.

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 and identify strengths and weaknesses within team practices for instruction. Teams reflect during collaborative time and consider plans of action.

Planning and Designing Effective Mathematics Units That Maximize Student Learning (PreK-2)

Through the unit planning process, mathematics teams engage in collaborative discussions to build a shared understanding of standards students need to learn and a plan to ensure that learning. Unit planning allows mathematics teams to determine the equitable learning experiences students engage in within a unit. It guides the design of effective common assessment processes. Strong foundations are established to guarantee what students learn across a team. Throughout the session, Jennifer Deinhart explores 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 to make sense of the content students must learn and to clarify 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, which teams can readily use back at their schools.

Timothy D. Kanold

Developing Relevant and Meaningful Mathematics Lessons: Three Essential Lesson-Design Criteria (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.

Balance as the Secret to Highly Effective Mathematics Tasks and Discourse: Three *More* Essential Lesson-Design Criteria (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.

Mathematics Assessment Fidelity and Quality 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 using common assessments for student reflection and goal setting.

Planning and Designing Effective Mathematics Units That Maximize Student Learning (9–12)
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 allows mathematics teams to determine the equitable learning experiences students 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 the session, 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 will 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. Timothy D.

Kanold shares examples, tools, and protocols for effective unit planning that teams can readily use at their schools.

Jessica Kanold-McIntyre

Developing High-Quality Mathematics Lessons (6–8)
What essential lesson elements 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* (2018):

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

Participants engage in the *reflect, refine, and act cycle*—a triad encompassing lifelong learning concepts—as they explore how to embed the six elements into their lesson designs. (See page 6.) As teachers review the six elements, 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 asking a question (the 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 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.

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.

Planning and Designing Effective Mathematics Units That 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 allows mathematics teams 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 the session, 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 will 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. Jessica Kanold-McIntyre shares examples, tools, and protocols for effective unit planning that teams can readily use at their schools.

Sarah Schuhl

Designing Elementary Mathematics Lessons for Learning (PreK–5)
Each daily lesson is an opportunity to grow a student's mathematical understanding. How do teachers plan for that learning? What key criteria should be considered when designing mathematics lessons each day? Consider what the teacher and students are doing during each part of the lesson and how learning grows using feedback generated and shared throughout the lesson.

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 grow students' understanding of mathematics.

Exploring Instructional Strategies to 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 explore strategies to build a conceptual understanding of mathematics they can readily apply to daily lessons.

Designing Quality Common Mathematics Assessments for Teacher and Student Learning (PreK–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.

Planning and Designing Effective Mathematics Units That Maximize Student Learning (3–5)
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 allows mathematics teams to determine the equitable learning experiences for students to engage within a unit. It also guides the design of effective common assessment processes. Strong foundations are established to guarantee what students will learn across a team. Throughout the session, Sarah Schuhl explores the elements of high-quality unit planning, beginning with clear essential learning standards as drivers for common assessments and student learning and reflection.

Participants will 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 will share examples, tools, and protocols for effective unit planning that teams can readily use at their schools.

Mona Toncheff

Building a Student-Centered Classroom (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? Examine strategies for making student thinking visible to promote critical thinking and strategies to positively promote students to defend their thinking and critique the thinking of others.

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

Doing the Math: Learning Together Through Lesson-Design Action Research (PreK–12)
One of the most significant student achievement inequities is the variance in mathematics learning experiences from classroom to classroom. How can a team of teachers work together to build a shared vision for high-quality instruction and improve the mathematics learning of every student? How can teachers and teams break down the isolation of traditional teaching and make teaching a public event? This session explores how mathematics teams engage in action research about student learning through team-designed lessons and classroom student observations.

In this interactive session, teachers, coaches, and administrators will explore tools and structures to create and reflect upon lesson design that promotes grade-level mathematics understanding. Participants will reflect on their instructional math vision and examine strategies to support intentional lesson design that connect the mathematical content standards, process standards, and high-yield instructional strategies.

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 foundational elements does a coach employ to support each learner? A mathematics coach can help teams and teacher capacity focused on increased student learning. Experience the power of using protocols during coaching cycles to assist teams with equitable instruction in meeting the needs of each and every learner.

Participants identify the elements of a strong mathematics coaching program. They then examine strategies and protocols to support coaching cycles. Mona Toncheff shares how to monitor and help individuals and teams build collective efficacy.

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 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.