# Mathematics in a PLC at Work Summit • Agenda

## Orlando, FL December 5–7

### Monday, December 5: Focus on K–12 Content and Instruction

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>6:00–8:00 a.m.</td>
<td>Registration</td>
<td>All rooms TBD.</td>
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<tr>
<td></td>
<td>Continental Breakfast</td>
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</table>
| 8:00–9:45 a.m.| **Keynote**—Timothy D. Kanold
First Things First: Building a Solid Mathematics Foundation in a PLC at Work | X                         |
| 9:45–10:00 a.m.| Break                                              |                           |
| 10:00–11:15 a.m.| **Concurrent Keynotes**                            | X                         |
| 11:15 a.m.–12:30 p.m.| Lunch (on your own)                       |                           |
| 12:30–2:00 p.m.| **Breakouts**                                      | X                         |
| 2:00–2:15 p.m.| Break                                              |                           |
| 2:15–3:30 p.m.| **Keynote**—Juli K. Dixon & Alex Dixon
How Do You Fill the Gaps? A Case-Study Approach to Rethinking Your Response to Intervention | X                         |

### Tuesday, December 6: Focus on K–12 Content and Assessment

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>Registration</td>
<td>All rooms TBD.</td>
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<tr>
<td></td>
<td>Continental Breakfast</td>
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</tbody>
</table>
| 8:00–9:30 a.m.| **Keynote**—Matthew R. Larson
| 9:30–10:00 a.m.| Break                                              |                           |
| 10:00–11:15 a.m.| **Concurrent Keynotes**                            | X                         |
| 11:15 a.m.–12:30 p.m.| Lunch (on your own)                       |                           |
| 12:30–2:00 p.m.| **Breakouts**                                      | X                         |
| 2:00–2:15 p.m.| Break                                              |                           |
| 2:15–3:45 p.m.| **Panel Discussion**
Q&A with all presenters provides practical answers to your most pressing questions. | X                         |
**Wednesday, December 7: Next Steps in Your Journey**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:00–8:00 a.m.</td>
<td>Continental Breakfast</td>
<td>All rooms TBD.</td>
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<tr>
<td>8:00–9:30 a.m.</td>
<td>Breakouts</td>
<td>X</td>
</tr>
<tr>
<td>9:30–9:45 a.m.</td>
<td>Break</td>
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<tr>
<td>9:45–11:30 a.m.</td>
<td>Celebration\n<em>Join presenters in a joyous celebration of your work and growth!</em>\n<strong>Keynote</strong>—Diane J. Briars\n<em>Each and Every Child Learns: Next Steps in Your PLC Mathematics Journey</em></td>
<td>X</td>
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</tbody>
</table>

Agenda is subject to change.
# Day 1: Sessions at a Glance

## Monday, December 5

### Concurrent Keynotes: 10:00–11:15 a.m.

<table>
<thead>
<tr>
<th>Speaker</th>
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<tbody>
<tr>
<td>Thomasenia Lott Adams</td>
<td>Creating Academic Success for Every Child</td>
<td>All rooms TBD.</td>
</tr>
<tr>
<td>Sarah Schuhl</td>
<td>Effective Grading Practices: Solving the Grading–Learning Dilemma</td>
<td>X</td>
</tr>
<tr>
<td>Matthew R. Larson</td>
<td>Using NCTM’s PtA to Transform Instruction in Your Mathematics Classroom</td>
<td>X</td>
</tr>
</tbody>
</table>

### Breakouts: 12:30–2:00 p.m.

#### Elementary School

<table>
<thead>
<tr>
<th>Speaker</th>
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<tbody>
<tr>
<td>Thomasenia Lott Adams</td>
<td>The Problem With Problem Solving</td>
<td>All rooms TBD.</td>
</tr>
<tr>
<td>Juli K. Dixon</td>
<td>Six Essential Expectations for Effective Instruction</td>
<td>X</td>
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</tbody>
</table>

#### Middle School

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Topic</th>
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</thead>
<tbody>
<tr>
<td>Diane J. Briars</td>
<td>Building Procedural Fluency From Conceptual Understanding for Grades 6–8</td>
<td>X</td>
</tr>
<tr>
<td>Sarah Schuhl</td>
<td>Content, Practices, and Lessons: Making It Real for Your Students</td>
<td>X</td>
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</table>

#### High School

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<thead>
<tr>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>Timothy D. Kanold</td>
<td>Great Instruction and Discourse</td>
<td>X</td>
</tr>
<tr>
<td>Mona Toncheff</td>
<td>Designing Lessons to Engage Each Learner Every Day</td>
<td>X</td>
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</tbody>
</table>
Day 2: Sessions at a Glance
Tuesday, December 6

Concurrent Keynotes: 10:00–11:15 a.m.

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juli K. Dixon</td>
<td>Linking Five Essential Instructional Shifts to the Formative Assessment Process</td>
<td>All rooms TBD.</td>
</tr>
<tr>
<td>Diane J. Briars</td>
<td>Leading Implementation of Effective Teaching Practices</td>
<td>X</td>
</tr>
<tr>
<td>Mona Toncheff</td>
<td>Unstoppable Learning in Your PLC: Responding When Students Do Not Learn</td>
<td>X</td>
</tr>
</tbody>
</table>

Breakouts: 12:30–2:00 p.m.

Elementary School

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<thead>
<tr>
<th>Speaker</th>
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<tbody>
<tr>
<td>Diane J. Briars</td>
<td>Building Procedural Fluency From Conceptual Understanding for Grades K–5</td>
<td>All rooms TBD.</td>
</tr>
<tr>
<td>Sarah Schuhl</td>
<td>Designing High-Quality Common Assessments With Your Grade-Level Team</td>
<td>X</td>
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</tbody>
</table>

Middle School

<table>
<thead>
<tr>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>Thomasenia Lott Adams</td>
<td>Teaching for Mathematics Proficiency</td>
</tr>
<tr>
<td>Matthew R. Larson</td>
<td>Assessment, Homework, RTI, and MTSS</td>
</tr>
</tbody>
</table>

High School

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<tr>
<th>Speaker</th>
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<tbody>
<tr>
<td>Timothy D. Kanold</td>
<td>Homework and Grading in a PLC Culture</td>
<td>X</td>
</tr>
<tr>
<td>Mona Toncheff</td>
<td>High-Quality Assessment Processes That Engage Teachers and Students in the PLC Assessment Cycle</td>
<td>X</td>
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</tbody>
</table>
# Day 3: Sessions at a Glance

**Wednesday, December 7**

### Breakouts: 8:00–9:30 a.m.

<table>
<thead>
<tr>
<th>Presenter</th>
<th>Topic</th>
<th>Room</th>
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</thead>
<tbody>
<tr>
<td>Thomasenia Lott Adams</td>
<td>No Shh! in Math Class: The Power of Mathematical Discourse in Grades K–8</td>
<td>All rooms TBD.</td>
</tr>
<tr>
<td>Timothy D. Kanold</td>
<td>More Powerful Than Poverty: Daily Teacher Actions That Inspire Each and Every Mathematics Student to Learn</td>
<td>X</td>
</tr>
<tr>
<td>Matthew R. Larson</td>
<td>The Essential Elements of Highly Effective Mathematics Programs</td>
<td>X</td>
</tr>
<tr>
<td>Sarah Schuhl</td>
<td>Diving Deeper Into Effective Grading Practices in Your PLC Culture</td>
<td>X</td>
</tr>
<tr>
<td>Mona Toncheff</td>
<td>Leadership: The Four Keys to Successful K–12 Mathematics Programs</td>
<td>X</td>
</tr>
</tbody>
</table>
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. These key concepts are offered as a handy reference.

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).

High-Leverage Team Actions

Timothy D. Kanold developed 10 high-leverage team actions (HLTAs) that act as a core set of adult functions central to highly effective instruction and student learning success. HLTAs are aligned with the four critical questions of a PLC. They are organized by team actions that take place before the unit begins, during the unit, and after the unit ends.

Before the Unit
HLTA 1. Making sense of the agreed-on essential learning standards (content and practices) and pacing
HLTA 2. Identifying higher-level-cognitive-demand mathematical tasks
HLTA 3. Developing common assessment instruments
HLTA 4. Developing scoring rubrics and proficiency expectations for the common assessment instruments
HLTA 5. Planning and using common homework assignments

During the Unit
HLTA 6. Using higher-level-cognitive-demand mathematical tasks effectively
HLTA 7. Using in-class formative assessment processes effectively
HLTA 8. Using a lesson-design process for lesson planning and collective team inquiry

After the Unit
HLTA 9. Ensuring evidence-based student goal setting and action for the next unit of study
HLTA 10. Ensuring evidence-based adult goal setting and action for the next unit of study
HLTAs are featured in *Beyond the Common Core: A Handbook for Mathematics in a PLC at Work* series, edited by Timothy D. Kanold (2015).

**NCTM’s Mathematics Teaching Practices**

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

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.

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 for printing and download.
Session Descriptions: Day 1, December 5

**Keynote: 8:00–9:45 a.m.**

Timothy D. Kanold  
First Things First: Building a Solid Mathematics Foundation in a PLC at Work

Timothy D. Kanold opens the summit by describing the foundational elements of a PLC at Work culture and the ongoing school improvement journey for educators, leaders, and learners in the area of mathematics.

This foundation is built upon the *four critical questions of a PLC* that drive coherent, sustainable for improvement in any school or district.

Dr. Kanold explains how to move from rhetoric to reality. Participants identify how to build a collaborative culture to promote continuous adult learning. They review how to respond to the needs of each student in a timely, directive, and systematic way using 10 *high-leverage team actions*—a core set of adult activities central to highly effective instruction and student learning success. (See list on page 6.)

Dr. Kanold notes, “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 every day.”

**Keynote: 2:15–3:30 p.m.**

Juli K. Dixon & Alex Dixon
How Do You Fill the Gaps? A Case-Study Approach to Rethinking Your Response to Intervention

Students with special needs are often taught exclusively through key words and direct instruction. In this session, teachers learn firsthand from a student with special needs who shares a better method: *teaching for understanding in an inclusive environment.*

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**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?
Participants learn through the story of Juli K. Dixon’s daughter, Alex. Alex was a normal, bright, healthy girl, when a sudden onset of a mysterious illness took over her life. Months of treatments failed to provide relief from acute pain and muscle spasms. Doctors across the country were at a loss. A last attempt at treatment—brain surgery—stopped the spasms but caused a massive stroke. At age 12, Alex had to relearn everything. Now aged 19, Alex shares her story and amazing recovery. She provides strategies to help students with special needs to learn mathematics in a deep way.

As a mathematics expert and educator, Dr. Dixon used everything she knew to reteach Alex. Her perspectives are relevant to current issues in general mathematics education, as well as to teach students with special needs. Mother and daughter together help participants rethink RTI for mathematics.

**Concurrent Keynotes: 10:00–11:15 a.m.**

**Thomasenia Lott Adams**
**Creating Academic Success for Every Child**
With so many moving parts to the school experience, teachers must stay focused on the how to empower children for success.

Thomasenia Lott Adams emphasizes that students must come first—over processes, procedures, and duties that can divert educators from the goal of educating every child. Dr. Adams, notes, “Making children *truly matter* is the passport to their success. It is a logical statement, yet the commitment is far more involved.” In this keynote, Dr. Adams shares insights from school and life experiences that have impacted the lives of her students.

**Sarah Schuhl**
**Effective Grading Practices: Solving the Grading–Learning Dilemma**
Grades have long been used to report learning in assessments, report cards, and other classroom activities. Despite how embedded grades are in the system, questions inevitably arise: How are grades aligned to student learning? What is the purpose of each grade? Who are the users of the information?

As instructional and assessment practices shift to meet the intent of rigorous standards, grades are too often an afterthought that muddy the accurate reporting of student learning. Sarah Schuhl explores what to consider when grading and reporting students’ learning of mathematics.

Participants can expect to:

1. Understand the challenges of traditional grading practices.
2. Explore grading practices that share accurate and useful information related to student learning.
3. Learn how to use a grading protocol to deepen team collective responses to learning.
Session Descriptions: Day 1, December 5

Concurrent Keynotes: 10:00–11:15 a.m. (cont’d)

Matthew R. Larson
Using NCTM’s PtA to Transform Instruction in Your Mathematics Classroom
With all the change and challenge swirling in schools today, it is easy to become distracted. Through NCTM’s eight mathematics teaching practices, teachers can stay focused. (See sidebar.)

The session is based on NCTM’s groundbreaking book Principles to Actions: Ensuring Mathematical Success for All (2014), also known as PtA. Matthew R. Larson explains that instructional practice is the most controllable in-school factor that contributes to student learning.

Simply stated, effective teaching is the non-negotiable core to ensure that each and every student learns at high levels. NCTM’s mathematics teaching practices provide the ground rules for developing productive teaching practices.

<table>
<thead>
<tr>
<th>Mathematics Teaching Practices</th>
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<td>6. Build procedural fluency from conceptual understanding.</td>
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<td>7. Support productive struggle in learning mathematics.</td>
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<td>8. Elicit and use evidence of student thinking.</td>
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Breakouts: 12:30–2:00 p.m.

Elementary School
Thomasenia Lott Adams
The Problem With Problem Solving
Since NCTM published Problem Solving in School Mathematics in 1980, teachers have focused on problem solving as a key instructional practice. Today, it is still a valuable focus and critical challenge in the classroom. Thomasenia Lott Adams explores factors teacher teams can address to increase student achievement through problem solving.
Breakouts: 12:30–2:00 p.m. (cont’d)

Juli K. Dixon

Six Essential Expectations for Effective Instruction
Effective administrators are the instructional leaders in their schools. Productive leaders in mathematics teaching must know what to look for and promote in instruction. Juli K. Dixon presents six essential expectations for effective instruction that emphasize Mathematical Practices and content to increase mastery for every learner:

1. Teaching with coherence
2. Leading with concepts
3. Staying focused
4. Emphasizing reasoning
5. Facilitating perseverance
6. Supporting practices

Participants create a shared image of classrooms where solid mathematics instruction is in place, and they generate a plan for targeted professional improvement in mathematics teaching.

Middle School
Diane J. Briars

Building Procedural Fluency From Conceptual Understanding for Grades 6–8
Procedural fluency—skill in carrying out arithmetic and algebraic procedures flexibly, accurately, efficiently, and appropriately—is an important component of mathematical proficiency. It also reflects the first critical question of a PLC: What do students need to know and be able to do?

Many students fail to develop fluency despite best efforts. Connecting procedures to underlying concepts is essential.

This session examines middle school content progressions for ratio and proportional relationships that build procedural fluency from conceptual understanding. Diane J. Briars explores how teachers and collaborative teams identify tasks and strategies to aid in this work. They also learn common pitfalls to avoid.
Session Descriptions: Day 1, December 5

Breakouts: 12:30–2:00 p.m. (cont’d)

Sarah Schuhl

Content, Practices, and Lessons: Making It Real for Your Students
Sarah Schuhl shows how to engage students in learning mathematics content by tapping key elements of lesson design. In this session, she uses the Mathematical Practices and NCTM’s eight mathematics teaching practices to provide the latest research-proven methods. (See both on page 7.)

Sarah answers two questions: How can student knowledge be deepened through discourse, multiple representations, and problem solving? How can teachers incorporate these actions in lessons every day?

She delves into mathematics approaches to engage middle school learners, and participants investigate the use of high-level tasks during instruction. Sarah shows how to combine the best information and tools to meet the daily needs of each learner.

High School

Timothy D. Kanold

Great Instruction and Discourse
Timothy D. Kanold explores how teachers and collaborative teams can improve student proficiency based on well-organized whole-group questioning and small-group discourse as part of a daily classroom formative assessment process.

By extending checks for understanding during a lesson, teachers can analyze student work and help students persevere through productive struggle. They also can provide meaningful student feedback that inspires sustained effort in class every day.

Dr. Kanold shares two high-leverage team actions (see complete list on page 6) that best support this session:

- HLTA 6. Using higher-level-cognitive-demand mathematical tasks effectively
- HLTA 7. Using in-class formative assessment processes effectively

This motivational and engaging presentation is based on Beyond the Common Core: A Handbook for Mathematics in a PLC at Work, High School (2015).
Mona Toncheff

Designing Lessons to Engage Each Learner Every Day

How do high school teachers and teams make connections among content, mathematical habits of mind, and NCTM’s eight mathematical teaching practices? (See practices on page 7.) How do educators close the gap between the intended and the enacted curriculum?

Intentional lesson design is the key to unlocking these questions. Lessons that develop rich and meaningful mathematics must create access, build interest, motivate, and engage each and 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 to quality lesson design and investigate using high-level tasks during instruction.
Session Descriptions: Day 2, December 6

**Keynote: 8:00–9:30 a.m.**

Matthew R. Larson  
**Balancing the Equation: A Guide to Meaningful Mathematics Teaching and Learning**

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

Matthew R. Larson explores implications from the past as educators create learning opportunities for students, as well as how to more effectively respond to critics of mathematics education today. Dr. Larson helps teachers work with parents and stakeholders to express what meaningful learning looks like today.

**Concurrent Keynotes: 10:00–11:15 a.m.**

Juli K. Dixon  
**Linking Five Essential Instructional Shifts to the Formative Assessment Process**

Juli K. Dixon explores five essential instructional shifts that emphasize the Mathematical Practices and the content they support. Participants connect the five shifts to the formative assessment process through high-cognitive-demand tasks, productive questioning, and evidence-based decision making. Dr. Dixon uses authentic video from classrooms to enhance understanding of the shifts.

Dr. Dixon focuses on these five shifts:

1. Students provide strategies rather than learning them from the teacher.
2. Teacher provides strategies “as if” from students.
3. Students create the context.
4. Students do the sense making.
5. Students talk to students.

Participants make sense of practices with respect to teacher and student actions, unpack norms supportive of student engagement in the practices, and create a shared image of classrooms where focus is on student engagement in the practices within a formative assessment process.
Session Descriptions: Day 2, December 6

Concurrent Keynotes: 10:00–11:15 a.m. (cont’d)

Diane J. Briars
Leading Implementation of Effective Teaching Practices
Diane J. Briars looks deeply at teaching and learning mathematics to prepare students for their futures in the 21st century.

She poses questions such as, What commitments must teachers make in lesson planning and design to develop conceptual understanding, procedural fluency, and productive habits of mind? Which teaching practices produce the greatest impact? What leadership actions are needed to support this collaborative team work?

Dr. Briars outlines criteria for mathematical tasks that promote high levels of learning for each and every student. She explores how teachers and teams can improve student achievement based on a vision of well-organized and effective mathematics teaching practices as part of a student-active 21st century classroom.

Mona Toncheff
Unstoppable Learning in Your PLC: Responding When Students Do Not Learn
Some students in a grade level or course struggle to learn mathematics. When this happens, how should teams collectively respond? It is important for teams to work together to answer the third critical question of a PLC: What will we do when students haven’t learned?

Mona Toncheff reveals leadership and instructional processes needed to ensure the learning of each and every student. Participants address ways to implement rigorous content standards while developing mathematical habits of mind. Mona emphasizes how teams should develop ownership for the learning of each student.

In this session, participants can expect to:

- Reflect on victories and stumbling blocks related to helping students learn.
- Explore collective response strategies to student learning before, during, and after a unit of instruction.
- Create a plan of action to build a collective response.
Breakouts: 12:30–2:00 p.m.

Elementary School
Diane J. Briars
Building Procedural Fluency From Conceptual Understanding for Grades K–5
Procedural fluency—skill in carrying out arithmetic and algebraic procedures flexibly, accurately, efficiently, and appropriately—is an important component of mathematical proficiency. It also reflects the first critical question of a PLC: What do students need to know and be able to do?

Many students fail to develop fluency despite best efforts. Connecting procedures to underlying concepts is essential.

This session examines elementary school content progressions for numbers and operations that build procedural fluency from conceptual understanding. Diane J. Briars explores how teachers and collaborative teams identify tasks and strategies to aid in this work. They also learn common pitfalls to avoid.

Sarah Schuhl
Designing High-Quality Common Assessments With Your Grade-Level Team
Next-generation assessments reflect the critical thinking required of students learning mathematics. How do teachers ensure students meet learning expectations? How are students involved in the process and in using assessments as learning tools? In this session, based on the series Beyond the Common Core: A Handbook for Mathematics in a PLC at Work (2015), Sarah Schuhl explores how collaborative teams can create a balanced assessment system to help each and every student succeed in learning mathematics.

Participants can expect to:
- Learn criteria essential to quality assessment design.
- Understand the balance of formative assessment processes and common assessments.
- Identify ways to use common assessments to promote student learning.

Middle School
Thomasenia Lott Adams
Teaching for Mathematics Proficiency
To reach student proficiency, mathematics instruction must reflect content and targeted purposes that fully engage learners. Thomasenia Lott Adams reviews examples of mathematical experiences that help students build proficiency.
Session Descriptions: Day 2, December 6

Breakouts: 12:30–2:00 p.m. (cont’d)

Matthew R. Larson
Assessment, Homework, RTI, and MTSS
There is a great deal of emphasis today on best practice. However, continual improvement of instruction and assessment is a better way to improve student learning. In this session, Matthew R. Larson looks at high-leverage team actions 3, 4, 5, 7, and 9, focusing on assessment and homework processes that increase student learning. In addition, he identifies intervention strategies to target students who struggle to learn mathematics. (See complete list on page 6.)

| HLTA 3. | Developing common assessment instruments |
| HLTA 4. | Developing scoring rubrics and proficiency expectations for the common assessment instruments |
| HLTA 5. | Planning and using effective common homework assignments |
| HLTA 7. | Using in-class formative assessment processes effectively |
| HLTA 9. | Ensuring evidence-based student goal setting and action for the next unit of study |

High School
Timothy D. Kanold
Homework and Grading in a PLC Culture
Timothy D. Kanold shows how teachers and collaborative teams can help students perform at high levels on homework and on assessments. This motivational and engaging session is based on the series Beyond the Common Core: A Handbook for Mathematics in a PLC at Work (2015).

Dr. Kanold examines collaborative team actions regarding homework protocols—both in product and process. He shows how to score and grade exams in ways guaranteed to improve student motivation and learning for each unit of essential content.

Using high-leverage team actions 4, 5 and 10, Dr. Kanold highlights critical research-affirmed assessment decisions that can help math results soar.

| HLTA 4. | Developing scoring rubrics and proficiency expectations for the common assessment instruments |
| HLTA 5. | Planning and using effective common homework assignments |
| HLTA 10. | Ensuring evidence-based adult goal setting and action for the next unit of study |
Mona Toncheff
High-Quality Assessment Processes That Engage Teachers and Students in the PLC Assessment Cycle

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

Participants can expect to:

- Understand the work collaborative teacher teams do before, during, and after each unit to establish an assessment process.
- Explore common formative assessments and the relationship of those items to the expectations of the standards.
- Learn how to develop assessments that engage and motivate learners.
Thomasenia Lott Adams
No Shh! in Math Class: The Power of Mathematical Discourse in Grades K–8
Of NCTM’s eight mathematics teaching practices, the fourth—Facilitate meaningful mathematical discourse—is vital. According to Principles to Actions: Ensuring Mathematical Success for All (2014), “Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.”

In this session, Thomasenia Lott Adams shows participants how to establish discourse as a sociomathematical norm in the classroom.

Juli K. Dixon
Making Sense of Mathematics for Teaching
With Your Collaborative Team: The TQE Process
To support student mastery, teachers must engage with the mathematics they teach. This engagement is best constructed within a collaborative team before the unit begins.

In this interactive session, participants experience how selecting the correct tasks and engaging with them as teams of learners is crucial preparation. This engagement includes developing effective questions that provide evidence of student learning through the use of tasks, questions, and evidence (the TQE process). Teachers share how to respond to students who do not meet learning goals, as well as students who do. As part of this session, participants make sense of mathematics for teaching to unpack mathematics progressions to support responses to the four critical questions of the PLC. (See four questions on page 6.)

Juli K. Dixon uses video of authentic classrooms to highlight how and why a collaborative team must establish a shared image of rigorous mathematics instruction. This session is a must for teachers, supervisors, and administrators seeking increased K–12 mathematics achievement.

Breakouts: 8:00–9:30 a.m. (cont’d)

Timothy D. Kanold

More Powerful Than Poverty: Daily Teacher Actions That Inspire Each and Every Mathematics Student to Learn

Timothy D. Kanold explores essential elements of teachers who inspire student learning every day. For many students, poverty is a big hurdle. Some experts believe that until poverty is solved, student potential remains unfulfilled. Dr. Kanold believes differently—an answer rests in the hearts of teachers themselves.

Motivation and inspiration are more powerful than poverty! Participants examine research-affirmed elements of brain function regarding student motivation and inspiration. Dr. Kanold helps educators focus on becoming:
- A teacher of positive influence and energy
- A teacher who uses highly effective elements of math instruction in every lesson
- A person of wisdom with a strong knowledge base and growth mindset

On a practical level, Dr. Kanold examines these issues with insight and ideas that can be implemented into the context of current work as professional teacher of mathematics. Teachers who establish their own spheres of vitality can forever change the lives of their students.

Matthew R. Larson

The Essential Elements of Highly Effective Mathematics Programs

To raise the proficiency of every student while closing learning differentials, program improvement must include features of highly effective mathematics programs outlined in Principles to Actions: Ensuring Mathematical Success for All (2014). This session engages participants in exploring five supporting principles from Principles to Actions:
- Access and equity
- Curriculum
- Tools and technology
- Assessment
- Professionalism

Matthew R. Larson reviews action steps that schools and districts must take to ensure these principles are in place.
Session Descriptions: Day 3, December 7

Breakouts: 8:00–9:30 a.m. (cont’d)

Sarah Schuhl
Diving Deeper Into Effective Grading Practices in Your PLC Culture
It is difficult to accurately grade and report student learning during classroom activities or on work shown on assessments. What evidence demonstrates proficiency? How does a number or letter communicate what students have learned and not yet learned? This session focuses on ways to transform the grading and reporting of student learning.

Sarah Schuhl makes time to share ideas and address questions. Participants work collaboratively to brainstorm shifts needed in current grading practices to reflect student learning. They also create action plans to better match learning and grades.

Mona Toncheff
Leadership: The Four Keys to Successful K–12 Mathematics Programs
Teacher leaders manage daily demands that pull people in many different directions. How do educators know these directions provide supportive conditions for instructional change and improved student achievement?

In this session, Mona Toncheff investigates four keys of effective mathematics leadership. Leaders at all levels work together to examine tools and resources to improve mathematics teaching and learning, build leadership capacity, and empower students and families as equal partners. Participants can expect to:

- Identify a vision for teaching and learning mathematics in a school or district.
- Analyze gaps between vision and current reality to inform next steps.
- Learn how to design and nurture leadership structures essential for exemplary mathematics programming in a school, district, or state.
Keynote: 9:45–11:30 a.m.

Diane J. Briars

Each and Every Child Learns: Next Steps in Your PLC Mathematics Journey

Diane J. Briars closes the summit by focusing on next steps to drive the coherence and sustainability for mathematics program improvements in schools and districts.

Dr. Briars notes, “We believe the grade-level or course-based collaborative teacher mathematics team is the engine that drives improvement for every child. It is our hope to sustain the thinking and learning of every teacher and to empower teachers and leaders to make great decisions for mathematics learning every day.”

She shares lessons learned from her time as NCTM president, offers resources for personal improvement as teachers and leaders, and provides clarity about teacher actions that matter most. Specifically, Dr. Briars shows how to focus time and energy on appropriate resources, while responding to the needs of every child.