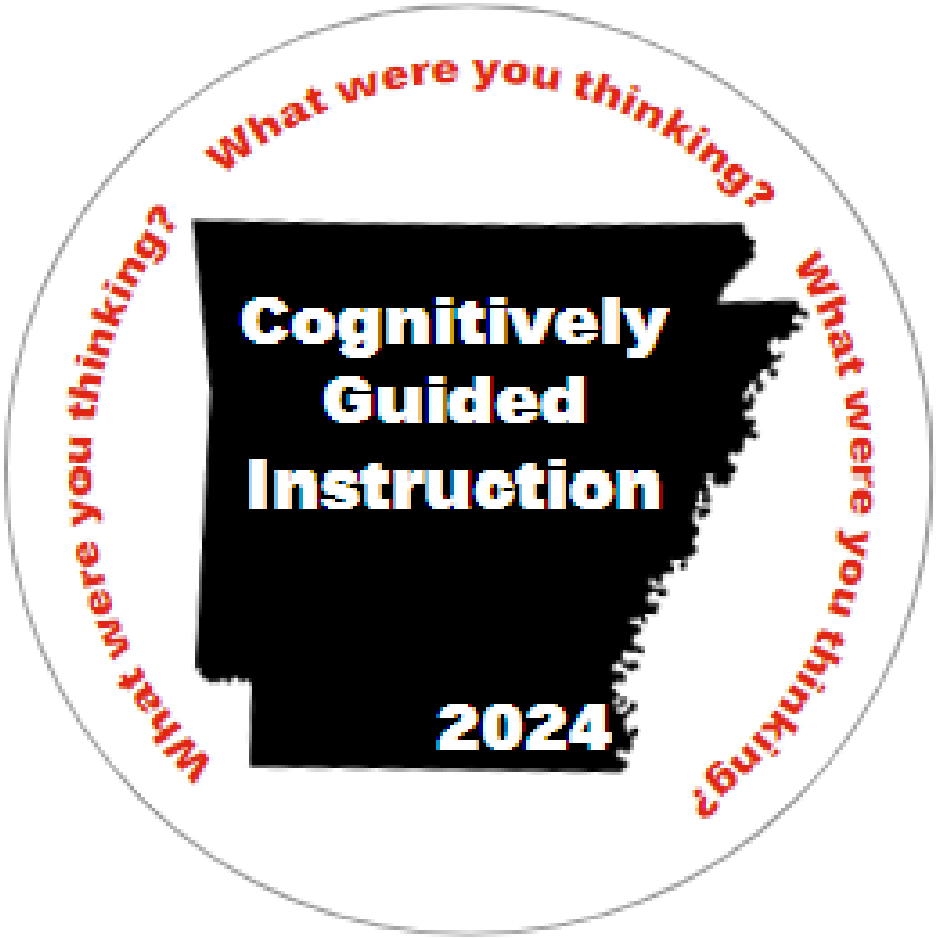
2024 National CGI Conference



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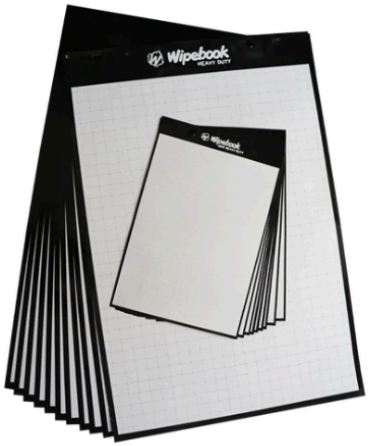

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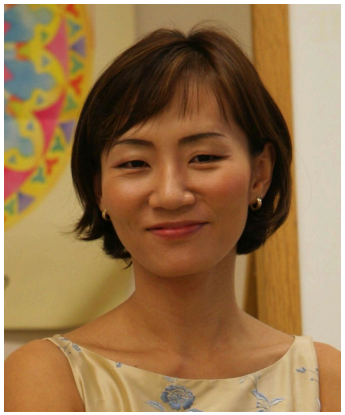
Heather Barron **Laura Wieland** **Parents and Students from Springdale School District**

Keynote Speakers

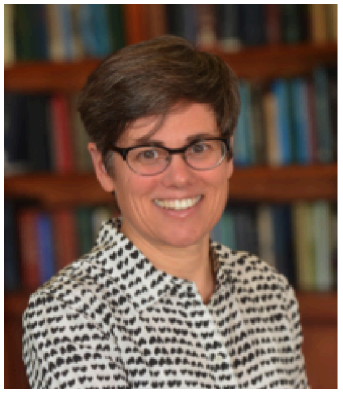


Jae Baek

Jae Baek is a mathematics educator in the Department of Mathematics at Illinois State University, teaching math content and methods courses for pre-service teachers. She also teaches CGI workshops for the CGI Math Teacher Learning Center. Her journey in CGI started as a graduate student under Tom Carpenter at the University of Wisconsin - Madison. Her research focuses on students' understanding of multiplicative problems and strategies and instructional strategies to support their development.

Graham Fletcher

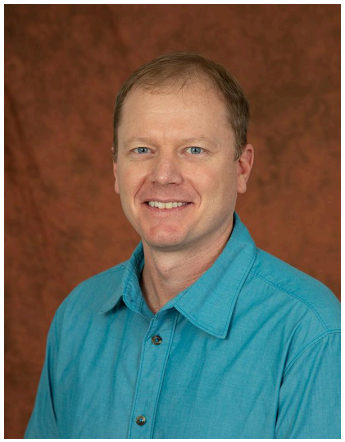
Graham Fletcher has dedicated his career to education, serving in various roles including classroom teacher, math instructional lead, and currently as a math specialist. With a passion for fostering conceptual understanding in elementary mathematics, he continually explores innovative approaches to support both students and teachers. Graham is a coauthor of *Building Fact Fluency* and openly shares his wealth of resources on his website, gfletchy.com.



Megan Franke

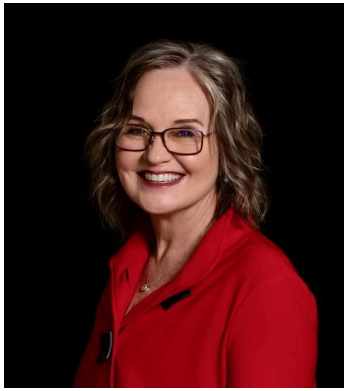
Megan Franke, a Professor of Education at UCLA, along with her colleagues supports and studies teachers as they make use of research based information about the development of children’s mathematical thinking (CGI) in ways that create opportunities for students’ who are typically marginalized to learn mathematics with understanding.

Keynote Speakers



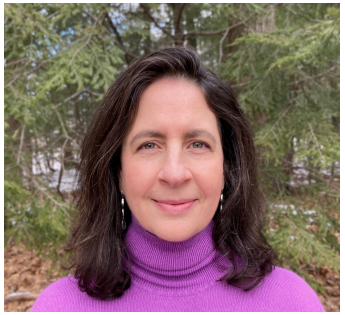
Rob Schoen

Robert Schoen is an associate professor of mathematics education in the School of Teacher Education at Florida State University. Over the past decade, he has directed several randomized controlled trials designed to study the impact of CGI programs on grades K–5 teachers, teaching, and students. Many of the publications and other products of that work can be found through his personal website: www.schoenresearch.com and at www.teachingisproblemsolving.org



Lynne Stratton

Lynne Stratton, Associate Professor of Mathematics Education at Louisiana Tech University, teaches content and methods courses for preservice teachers and graduate students. She also teaches CGI workshops for the CGI Math Teacher Learning Center. Lynne is especially interested in supporting teachers' mathematical understanding and believes that focusing on children's intuitive strategies for problem-solving is the best way to improve teachers' understanding and practice.



Tracy Zager

Tracy Zager is a math coach who lives, works, teaches, and learns in Portland, Maine. She is a co-author, along with Graham Fletcher, of the *Building Fact Fluency* toolkits, and is the author of *Becoming the Math Teacher You Wish You'd Had: Ideas and Strategies from Vibrant Classrooms*. Tracy has edited multiple professional development books for teachers and loves learning from and with colleagues.

CGI Conference Schedule with Session Descriptions

Tuesday, June 18, 2024	
5:00	Registration opens
6:00-7:15	Opening Keynote-The History and Legacy of CGI-Lynne Stratton **Ignite Sessions:** • Jeff Flanigan • Jacob Beers • Mindy Porter • Jeff Wasem **Seminar Room**
7:15-8:00	Dessert Buffet/Networking/Collaboration **Cafeteria**

Wednesday, June 19, 2024	
8:30-9:30	**Keynote:** What Is the Role of Fact Fluency in a CGI Classroom? **Tracy Zager** **Cafeteria** *Those of us grounded in CGI research and practices know that giving students ample time to explore direct modeling, counting strategies, and derived fact strategies builds deep understanding of the operations and flexible number sense, and is far preferable to rote drill and memorization. Within our CGI stance, however, is there room for us to discuss how much time, how much practice, and what types of practice might support students in this progression? In this session, we'll think these questions through together!*
9:45-11:00	**Breakout Sessions 1**

Question With a Purpose: Changing the Story with Focused Inquiry **Tara Sanders and Wendy Green (repeated session)** *In CGI, one of the most important skills we can hone is our ability to question. But using these good questions with purpose is vital. In this session, we will work on being purposeful with our questioning while keeping our learning goal and the needs of our students in mind.*	**Room: 500**
Proportional Reasoning: Choosing Your Numbers with Purpose **Olof Steinthorsdottir and Debra Plowman** *Teachers will engage in a problem solving setting. A share-out that exemplifies rich classroom discussion of different strategies will be modeled. Research surrounding the anticipated strategies and the trajectory for which these strategies might be shared will be the focus of the discussion. Clarifying questions (to understand the strategy), Connecting questions (to connect to other strategies), and comparison questions (questions to compare strategies) will be highlighted.*	**Room 513**
What Is CGI and How Do I Fit It Into My Lesson? **Remona Reitz (repeated session)** *Introduction to CGI: Understanding its Significance* *If you are a novice to CGI and find yourself questioning its importance, this workshop is tailor-made for you. This session aims to provide insightful knowledge about CGI, exploring its essence and shedding light on why educators incorporate it into their teaching practices.* *Exploring Problem Types and Difficulty Levels* *Discover the various types of problems and the range of difficulty levels that students encounter when engaging with CGI tasks.* *Implementation in the Classroom* *Gain an understanding of how CGI can be effectively integrated into your classroom. Learn whether it requires additional efforts or seamlessly integrates with your existing lesson plans.*	**Room 504**
Purposeful Math Coaching **Cheryl Queen** *Navigating coaching with all the new educational initiatives can be daunting. In this session, I will share my journey in purposeful math planning with teachers in various grade levels. Intertwining methods from the Purposeful Pedagogy Model, Solution Tree's Instructional Process, and other coaching methods provide one strategy to balance it all as an instructional facilitator. All those ideas above keep student thinking at the center of planning purposeful math instructional opportunities.*	**Room 506**

Innovative Strategies to Build a Community of Mathematicians **Jamie Ramsey and Jessie Walls (repeated session)** *A community of mathematicians doesn't develop naturally- it happens through strategic and intentional choices that compound over time. This session will focus on practical routines and instructional practices to give students voice and choice as we support their number sense and work as problem solvers. We will focus on ways to get students engaged and talking, to support all students in their learning journey, and to see themselves as mathematicians.*	**Room 510**
Understanding Fractions in the CGI Classroom: A Progression of Strategies from Direct Modeling to Derived Facts **Ryan Flessner and Brendan Scribner (repeated session)** *This session will examine a progression of strategies related to computation with fractions. Strategies will range from direct modeling to derived facts. Hands-on materials such as pattern blocks will be used to create strong visual models based on concrete experiences. Games will be played to model addition and subtraction of fractions and to provide participants with ideas they can take back to their classrooms and schools for immediate use. The concrete materials, the use of games, and the strong visual images created will then allow those in attendance to engage in discussions related to direct modeling strategies tied to multiplication and division of fractions. Using these concrete materials will create a foundation upon which one can build as we move beyond direct modeling into counting strategies and derived facts.* *Tools and strategies such as number lines, arrow language, ratio tables, area models, partial sums/differences/products/quotients, and others will be used to facilitate the transfer of knowledge from the concrete to the abstract. We will end the session with an examination of the traditional U. S. algorithms common in schools across the country. Throughout our examination of this progression, we will tie the "steps" within each algorithm to number sense and properties of operations (commutativity, distributivity, identity, etc.). We'll ensure that the ideas we explore allow both children and adults to teach and learn with understanding.*	**Room 501**
CGI as a Tool for Equitable and Responsive Curriculum Adaptation **Corey Drake and Mike Wallus (repeated session)** *For decades, elementary mathematics curriculum materials have been viewed as constraints on responsive and equitable teaching, particularly for teachers who have deep knowledge of the development of children's mathematical thinking and want to be responsive to the strengths and needs of the students in their classroom. In this session, we instead view curriculum materials as an opportunity or an invitation - an invitation to take a series of well-developed tasks that follow a coherent mathematical storyline and use them to support the specific children in your classroom.* *We will explore how teachers can use their deep knowledge of children's mathematical thinking - and of equitable teaching practices - to support responsive, inclusive, and equitable learning opportunities for all students. We will then discuss and rehearse how to identify opportunities within curriculum materials for eliciting and building on children's mathematical thinking and their multiple ways of thinking about and solving problems. We will also share examples, including videos and planning documents, of equitable and responsive curriculum use in action and explore how teachers' decisions and moves leverage the opportunities provided in curriculum materials. Finally, we*	**Room 503**

	will share ideas for getting to know students' interests, strengths, and needs in ways that support adapting curriculum materials to build on children's existing understandings and strategies.	
	To Fluency and Beyond!! Connecting Addition Basic Fact Fluency to Addition of Multi-Digit Whole Numbers, Fractions, and Decimals **Erin McCain (repeated session)** *"We know that too many of our students leave our schools with a vision of mathematics as a set of unconnected and independent facts with no clear sense of how the ideas fit together…" Henry Kemper (Former NCTM President). Together we will explore mathematical connections that have the power to transform not only our students' understanding of mathematics, but also our own understanding of how mathematics works together. Connections will be made from addition fact fluency to multi-digit whole number addition as well as fraction and decimal operations.*	**Room 507**
	Counting Collections Beyond Place Value **Holly Woodruff and Hannah Pigman** This session dives into utilizing counting collections to reach standards beyond counting and place value and is especially helpful for K-2 teachers needing to provide enrichment and for 3-5 teachers looking to teach from other domains. We will dive deeper into extending the task of the counting collection for fractions, measurement, multiplicative reasoning, and multi-digit operations.	**Room 509**
Snacks sponsored by EdPuzzle		
11:15-12:15	**Breakout Sessions 2**	
	Inspire Curiosity and Wonder in Mathematics with Argumentation **Jody Guarino and Chepina Rumsey (repeated session)** *This session will focus on nurturing wonder and curiosity with students as they explore mathematics through the lens of argumentation. Building upon the intuitive knowledge children bring to our classrooms and their sense-making, we will consider ways to leverage wonder and instructional routines (including choral counting and true/false open number sentence) that open opportunities for argumentation. Investigate the layers of argumentation; noticing and wondering, conjecturing, justifying, and extending. Participants will experience the layers of argumentation, see examples of tasks and routines along with vignettes of students engaged in argumentation so that they can continue to grow wonder in their own classrooms.*	**Room 500**
	Understanding Children's Strategies for Multidigit Multiplication **Jae Baek** *In this session, participants will explore strategies that students in grades 4-5 generate for multi digit multiplication. We will discuss different types of strategies and mathematical concepts and properties embedded in students'*	**Room 300**

	strategies. Based on the students' strategies, we will discuss instructional strategies to promote their learning using representations and task design.	
	Purposeful Problem Type Selection: What Are All These Problems for Anyway? **Leticia Greene** *Develop a deeper understanding of how children make sense of the different problem types and learn how a specific problem type can help address essential learning goals – when are the problems useful and what they help to develop.*	**Room 513**
	Leveraging Desmos for In-Person Instruction **Holly Woodruff and Hannah Pigman** *In the last few years teachers have become experts at utilizing technology for remote learning. While we may have found a new normal with many students back to in-person instruction we can still reap the benefits of digital tools such as Desmos. In this session, we will focus on leveraging Desmos for in-person instruction in the classroom through centers, word problems, fluency tasks, and more. Teachers will create digital tasks through Desmos and see how to implement them for in-person instruction without sacrificing mathematical discourse and collaboration within a regular math block.*	**Room 509**
	Math is social! Leveraging Partnerships in Counting Collections **Sue Kim and Myuriel von Aspen** *This session will address the power of partnerships in counting collections and how this opportunity of collaboration can inspire mathematical learning and social learning to emerge authentically. We will watch young people engage in their collections to figure out how to record representations, keep track of a count, and make decisions about how to use tools to support their understanding of the counting principles while making sense of the math in the process. Considerations around how to set up partnerships in class will be discussed and shared by observing situations of students collaboratively at work.*	**Room 504**
	It's a Marathon, Not a Sprint! Navigating a Decade-Long Journey with Cognitively Guided Instruction **Kaitlyn Swan-O'Shea, Pedro Galindo, Heidi Ragan (repeated session)** *Embark on our district's decade-long journey with Cognitively Guided Instruction (CGI), recognizing that equitable mathematics instruction is a marathon, not a sprint. Serving over 7,000 students and 300 teachers in Los Angeles County, El Monte City School District embraces linguistic and ethnic diversity, with 80% Hispanic/Latino, 17% Asian, and 34% multilingual learners. Attendees will explore how El Monte's marathon journey with CGI has unfolded, with each step contributing to equitable mathematics instruction. Participants will gain insights into our robust CGI implementation model, which includes redesigning the math classroom and supporting teachers and administrators with comprehensive workshops, abundant resources, lab days, and coaching sessions.* *During the session, participants will delve into:* ● *Designing school and district mathematics plans with CGI as the cornerstone.*	**Room 512**

	• *Organizing professional learning through coaching, lab days, and student work analysis.* • *Engaging families in workshops and events centered on CGI to bridge classroom and home environments.* • *Participants will depart equipped with actionable strategies and a deeper understanding of designing systems to support CGI. Remember, in the journey of achieving equitable mathematics instruction, it's a marathon, not a sprint.* *We invite you to join us as we continue to build momentum, pacing ourselves, staying focused, and moving forward steadily. With endurance and perseverance, we will reach the finish line of mathematical success for all!*	
	Responding to Learner Needs in Multidigit Addition **Cheryl Queen (repeated session)** *Multidigit addition is a complex idea combining base ten understanding and the properties of operations. In this session. We will use a vignette of videos of a 4th grade student solving various multidigit addition problems. Analyzing this student's thinking will allow us to make connections to the progression of the base ten computational standards. Using the Purposeful Pedagogy Model, we will strategically create a plan to support this student's thinking which will help us with future students who need support.*	**Room 506**
	Diverse Abilities in Mathematics Education **Ashley Anderson (repeated session)** *Children learn through play, especially in early education. Our birth through 8 year olds deserve the opportunity to play math, explore and discover math in the world, and make sense of mathematics through fun, and engaging "PLAY." My focus work this year has been demonstrating and coaching birth to 3rd grade providers and educators on how to teach math through play. In this session we will discuss how to plan and implement developmentally appropriate teaching and learning activities for our preK-1 classrooms, with an emphasis on Play-based learning.*	**Room 16**
	Innovative Strategies to Build a Community of Mathematicians **Jamie Ramsey and Jessie Walls (repeated session)** *A community of mathematicians doesn't develop naturally- it happens through strategic and intentional choices that compound over time. This session will focus on practical routines and instructional practices to give students voice and choice as we support their number sense and work as problem solvers. We will focus on ways to get students engaged and talking, to support all students in their learning journey, and to see themselves as mathematicians.*	**Room 510**
12:15-1:00	Lunch Provided	

1:00: 2:30	Work Session ONE (1 ½ hours)	
	CGI 101: Designed for Beginners **Stacie Mathis** *Have you been hearing your friends talk about teaching math using "CGI" and felt out of the loop? Come and spend some time learning more about this mysterious journey called Cognitively Guided Instruction. This session will give a brief introduction about the theory that has changed and impacted so many teachers' around the world as well as their understanding of math. This teaching style has developed a love of mathematics in both teachers and students everywhere! During the session, we will talk about CGI beginnings and the research. We will also take a quick look at different problem types and solution strategies that young mathematicians use. Learn how to develop a new excitement in your math culture as you begin your new CGI math journey!*	**Room 300**
	Equivalency and Fraction Division **Linda Jaslow and Jae Baek** *In this session, we will explore students' strategies in fraction division problems. We will take a deeper look at the mathematics embedded in the students' strategies and how these problems help students to develop a robust understanding of equivalency.*	**Room 18**
	CGI and HQIM: Can They Work Together, Seriously? **Kim Romain** *With such an emphasis on implementing (high-quality instructional material) HQIM, many CGI-trained teachers find themselves in a dilemma. How can I do one and still honor the other? In this session, a former CGI trainer will facilitate a discussion where participants will:* *Gain an understanding of how CGI and HQIM really can work together when approached with intentional planning. Look at an HQIM lesson and learn to plan with intention to get the most out of the material and gain a deeper insight into student understanding.* *Gain insight into ways that HQIM and CGI can complement each other.* *Join us as we explore this subject and equip educators to harness the combined strengths of CGI and HQIM.*	**Seminar Room**
	Building Foundations: Intentional Planning for Classroom Success **Pamela Allen and Jennifer Wolford** *CGI emphasizes understanding how students naturally approach and solve mathematical problems based on their own cognitive development. It's about recognizing that children come to the classroom with rich mathematical knowledge and building upon that foundation.* *Getting to know students and their mathematical ideas is fundamental for effective teaching. By understanding their*	***Room 16***

	thinking processes, educators can tailor instruction to meet students where they are, fostering a deeper understanding of mathematical concepts. *This session will highlight 2 teachers working together throughout the year in a kindergarten classroom. We will discuss the screeners we used, the instructional decisions we've made together, and most importantly, the success that the students have seen. Topics will include counting collections, the counting principles, purposeful planning, and the CGI framework.*	
	All Fractions (Discussions) Are Not Created Equal **Lynne Stratton** *Teachers will engage in a problem solving setting. A share-out that exemplifies rich classroom discussion of different strategies will be modeled. Research surrounding the anticipated strategies and the trajectory for which these strategies might be shared will be the focus of the discussion. Clarifying questions (to understand the strategy), Connecting questions (to connect to other strategies), and comparison questions (questions to compare strategies) will be highlighted.*	**Room 503**
2:45-4:00	**Keynote:** Can You Use CGI to Help Students Learn More Complex Mathematical Topics? **Jae Baek** **Cafeteria** *Teachers face challenges in supporting students to learn more complex mathematical topics with understanding. In this talk, I will share my journey of learning how CGI supports students' understanding of more "basic" concepts of adding/subtracting whole numbers to more "complex" concepts of multiplying (and dividing) fractions and how student-constructed strategies and the importance of problems are the cornerstones of CGI in learning mathematics of both ends and between. The audience will be invited to observe, discuss, and analyze examples of student strategies for multiplying and dividing fractions and to explore why it is important to continue CGI in upper elementary grades and its challenges and benefits for students and teachers.*	

Thursday, June 20, 2024	
8:30-9:30	**Keynote:** Centering Students and their Mathematical Thinking in Challenging Times **Megan Franke** **Cafeteria** *The goal of this session is to collectively consider the core ideas of CGI and the importance of getting to know students and their mathematical ideas and then using what we know about them to make instructional decisions. And then to consider how hard it is to do this in our current environments. While people coming to the conference will be coming from quite different contexts it seems everyone is feeling pressures that take them away from a focus on students. Strongly enforced pacing plans, required class structures like using small groups, ever changing assessments, school reform in literacy or policies around "struggling" students – all of these can make focusing on students and their mathematical thinking more difficult. How do we navigate these pressures and tensions and leverage*

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<tr><td></td><td>what we know about our students and their thinking to help them continue to develop their mathematical understanding and see themselves as students who can do mathematics.

The session will start by bringing all of us in the room together in our understanding of CGI and what it means to get to know students. We will generate and discuss the different pressures to our continued and consistent focus on students and their mathematical ideas. Most importantly we will generate ways to push back on these structures and practices to center our students.</td></tr>
<tr><td>9:45-11:00</td><td>Breakout Sessions 3
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<tr><td>Purposeful Planning Lindsey Olivarri

I am a fairly new teacher and I would like to discuss the before and after of math planning and instruction after just one year of CGI. Before CGI, I just followed along with what the book told me to do, without any thought or questioning going into it. After just one year of CGI training, I now know the WHY behind what I am doing and how beneficial this is for myself and my students!</td><td>Room 501</td></tr>
<tr><td>The Story of Word Problems Kathy Minas

Every math story problem is also a reading comprehension task. Before mathematicians can solve for an answer, they must first understand the story of the problem. The Story of Word Problems will leverage student engagement in whole-class read alouds to bolster comprehension of math word problems.

Read aloud is a powerful part of literacy instruction. Read alouds transport readers to worlds where they meet new characters, explore settings and encounter obstacles. The Story of Word Problems will focus on designing grade-level story problems inspired by read alouds. We will harness student investment in stories, featuring familiar contexts and characters to promote comprehension and engagement. We will examine ways to differentiate problems to provide entry points for all learners in an effort to promote student agency and independence.

Participants will critically examine reading literature and math content standards, identifying where the overlap occurs. Then, we will examine ways to highlight this intersection for our students, emphasizing that once mathematicians understand the story of the problem they can solve for a solution.

The goal of this session is to encourage educators to be intentional about their instructional decision, designing meaningful, interdisciplinary learning experiences. Participants will walk away with word problems inspired by class read alouds that are based in familiar contexts and feature grade-level math concepts.</td><td>Room 503</td></tr>
<tr><td>Inspire Curiosity and Wonder in Mathematics with Argumentation Jody Guarino and Chepina Rumsey (repeated session)

This session will focus on nurturing wonder and curiosity with students as they explore mathematics through the lens of argumentation. Building upon the intuitive knowledge children bring to our classrooms and their sense-making, we will consider ways to leverage wonder and instructional routines (including choral counting and true/false open</td><td>Room 507</td></tr>
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	number sentences) that open opportunities for argumentation. Investigate the layers of argumentation; noticing and wondering, conjecturing, justifying, and extending. Participants will experience the layers of argumentation, see examples of tasks and routines along with vignettes of students engaged in argumentation so that they can continue to grow wonder in their own classrooms.	
	Learning to Represent Counting in Early Childhood **Nick Johnson** *In this session we will examine the development of children's representations of counting. We will consider how children's intuitive representations can support their emerging understandings of number. Join us as we trace the growth of counting and representing collections through preschool and beyond!*	**Room 300**
	The HOW: Practical Fluency Assessment **Holly Woodruff and Hannah Pigman** *This session includes a review of the why we assess for fluency with a focus on the how. We will dive into practical methods for assessing fluency, and actionable, productive strategies that can be readily implemented without losing precious instructional time.*	**Room 509**
	Using Notation to Move Students Between Strategies **Christi Schrauger** *This session will use student work to address student notation. We will discuss how to put more notation with strategies so that students will progress in their learning according to learning trajectories. The properties will also be addressed and how to notate the strategies based on the student's understanding.*	**Room 18**
	Make it Count! Imagine, Explore, and Discover Math in the TK-2 Classroom **McKenzi Hurick** *We know Number Sense is CAUGHT not TAUGHT. In this session, learn ways to leverage highly engaging activities with* *your students. Promote purposeful play and elevate student voice using choral counting, counting collections, and integrating children's literature. Come imagine, explore, and discover as we make early learning count!*	**Room 512**
	What Is CGI and How Do I Fit It Into My Lesson? **Remona Reitz (repeated session)** *Introduction to CGI: Understanding its Significance* *If you are a novice to CGI and find yourself questioning its importance, this workshop is tailor-made for you. This session aims to provide insightful knowledge about CGI, exploring its essence and shedding light on why educators incorporate it into their teaching practices.* *Exploring Problem Types and Difficulty Levels*	**Room 500**

	Discover the various types of problems and the range of difficulty levels that students encounter when engaging with CGI tasks. *Implementation in the Classroom* *Gain an understanding of how CGI can be effectively integrated into your classroom. Learn whether it requires additional efforts or seamlessly integrates with your existing lesson plans.*	
	Is Choral Counting Developmentally Appropriate in PreK? Yes! **Becky Holden** *The Choral Counting routine asks students to think about numbers and number relationships and share what they notice. In this session, beginning together with a kindergarten choral count, we will take a close look at my year long experience facilitating Choral Counting in one Pre-K class, through living choral counts, watching videos of Pre-K students counting, noticing both the mathematics and the support for equity, agency, and community, collaborating about how we might make students' thinking visible, planning a next steps arrangement, and considering how to respond in the moment to a number relationship a student noticed.*	**Room 513**
11:15-12:15	**Breakout Sessions 4**	
	Unlocking Mathematical Potential: Inclusive Strategies for Students with Diverse Abilities in Mathematics Education **Ashley Anderson (repeated session)** This presentation aims to address the critical need for inclusive mathematics education for students with disabilities. By exploring evidence-based strategies, practical resources, and successful case studies, we will demonstrate how educators can create an accessible and supportive learning environment that fosters mathematical understanding and success for all students. Attendees will leave with practical strategies, resources, and a deeper understanding of how to create an inclusive mathematics education environment that supports the diverse needs of students with disabilities.	**Room 504**
	Math Notebooks **Tricia Ingle** Math notebooks are essential in recording students' progress over the year using the strategies and tools within CGI. T[redacted] s[redacted] p[redacted] parents. Students need to celebrate their progress through setting goals in math and achieving them is a critical part of the process. Teachers will be given examples of how to set goals and record progress over time. This session will provide a wealth of materials and examples of activities that you can use during math instruction the very next day in a primary classroom.	**Room 500**

Session Cancelled

Little Kids, Big Ideas: Grouping, Fair Sharing & Fractions in Early Childhood Education **Leah Wolverton** Multiplication, division and fractions in early childhood classrooms? It can be done! Come explore and engage as we leverage prior knowledge to support problem solving in mathematics typically considered appropriate for upper grades.	**Room 513**
Do You Need to Know the Counting Principles to Solve Problems? **Megan Franke** The goal of this session is to interrogate the extent to which students need to know the counting principles such as one-to-one correspondence and the cardinal principle to solve problems like Shivani had 8 balloons and 2 popped. How many does she have left? We will watch videos of students counting and solving problems to make sense of the counting principles and how they are used in solving problems. We will consider the implications of "mastering" the counting principles before solving problems and discuss how to support young students to participate in problem solving. As a part of the session participants will have an opportunity to deepen their understanding of the counting principles and how they develop in young people. They will have a chance to consider how to open up spaces for students to make progress in learning to solve problems while also developing their understanding of the counting principles.	**Room 300**
Supporting the Design of CGI PD for Early Childhood **Nick Johnson and Angela Chan Turrou** CGI and a focus on children's mathematical thinking is a powerful idea that bridges the preschool and early elementary worlds. As attention on early math has grown across the nation, we have been working hard to consider what it means to bring this CGI lens into early childhood. Which details of children's mathematical thinking are most critical to share with teachers of children ages 3-8? How do we leverage the strengths of preschool and early elementary to support teachers to become more skilled listeners of children's thinking and nurturers of their emerging mathematical ideas? How might we navigate the different structures of preschool vs. elementary to find connecting threads where children, their ideas, and their different ways of participating get to be the drivers of the learning? In our work across a variety of statewide projects, we support different communities of professional development facilitators and preservice teacher educators to learn and design CGI PD for early childhood spaces. We invite them to partner with teachers and classrooms to learn alongside young children. We support them to make their own PD design decisions to meet the needs of their specific contexts. We encourage them to reflect and to collectively create next steps. We will share our ongoing learning among these communities as well as free online resources that others might use in their own work designing CGI PD. While our session is targeted for those who support teachers, classroom teachers are welcome to attend as well.	**Room 18**
Responding to Learner Needs in Multidigit Addition **Cheryl Queen (repeated session)** *Multidigit addition is a complex idea combining base ten understanding and the properties of operations. In this session. We will use a vignette of videos of a 4th grade student solving various multidigit addition problems. Analyzing*	**Room 512**

	this student's thinking will allow us to make connections to the progression of the base ten computational standards. Using the Purposeful Pedagogy Model, we will strategically create a plan to support this student's thinking which will help us with future students who need support.	
	Imagine the Possibilities: Conjecture Justification **Leslie Whitaker and Jennifer Austin** How do students develop their own big ideas to explore? How can we design lessons led by student thinking? This session expands upon ideas presented in Thinking Mathematically (Carpenter et al.) and focuses on putting students in the "driver's seat" by utilizing low floor, high ceiling tasks to elicit patterns for students to develop big ideas, or conjectures, based on their mathematical discoveries. Participants will learn how to leverage student thinking by creating space for students to utilize their understanding of mathematics to craft a rationale about the patterns they find. Using the "if, then" structure, students create conjectures about mathematics to explore and test. Conjecture justification elicits sense making, productive struggle, and engages students through a variety of mathematical practices. Teachers launch tasks with exploration. Students then dive deeper into mathematical patterns (SMP7), discuss what students believe to be true based on these patterns (SMP8), explore mathematical proofs in teams, and craft a justification argument (SMP3). Ultimately students engage in rigorous mathematical conversations and develop and share models to prove their chains of reasoning. Once clarifying and revising their conjectures, students explore how to extend these ideas to help them as mathematicians on a broader scale. This process of analyzing patterns, defining conjectures, exploring validity, and extending application can be implemented at any grade level.	**Room 503**
	Launching with Literature & Landing in Mathematical Brilliance: Centering Young People's Lived Experiences, Thinking & Joy with Meaningful Math Experiences **Stefanie Mathewson** Educators are invited to consider & reflect on their pedagogical stance in relation to anti-racist pedagogies & white dominant pedagogies. They process and reflect on these ideas. Educators are invited to liberate themselves from oppressive aspects of curriculum & design rich learning experiences that integrate & honor the lived experiences & identities of young people through culturally relevant read alouds, thoughtful conversations & meaningful mathematical tasks. We will read a culturally relevant text, pausing at pre-selected moments to reflect on whether aspects of this text are mirrors, windows or sliding glass doors. Participants are invited to turn and talk at various moments in the story, extracting themes and making connections to their own lived experiences. Then participants engage in a mathematical problem-solving experience guided by Cognitively Guided Instruction and contextualized in the prior read aloud introduced through a carefully crafted unpacking sequence. A strategy share follows where participants' thinking drives the sequence of the share and the discussion. Then we will have a brief discussion of how and why pieces were selected. Next, educators are invited to notice nuanced details in student thinking from the same task; craft specific, responsive questions that clarify, support or extend students' thinking; and design subsequent learning experiences for students to grow their big ideas around grouping concepts, integrating culturally relevant literature as a source for meaningful contexts.	**Room 506**

	Educators are invited to stay connected, collaborate & be offered relevant resources for future work.	
	Do Well-Known Statements about Relative Difficulty of Word Problems Withstand Empirical Inquiry? **Robert Schoen** *Description for Program* *Join us to discuss a recently published synthesis of research on the relative difficulty of story problems for first-grade students and validity of rules-of-thumb statements about relative problem difficulty. Using data from more than 4,000 students, we'll compare the performance of Common-Core-era first graders with that of their parents and grandparents.* *Session Description* *We will discuss whether our collective "rules of thumb" about the relative difficulty of various types of addition or subtraction word problems withstand the scrutiny of empirical analysis, whether these rules of thumb continue to hold in the Common Core era, and the extent to which relative problem difficulty is influenced by opportunities to learn afforded through mathematics curricula. I will briefly describe the history of research in this area and my motivation for conducting an investigation involving more than 4,600 first-grade students in nine school districts in Florida in the 2010s. I will share results of the study, including estimates of relative word problem difficulty of various types of word problems in the Common Core era compared with similar data collected prior to 1991.* *Session attendees will be engaged in anticipating results and questioning assumptions regarding relative word problem difficulty. They will learn about the results of a synthesis of historical data and how they compare to new results. Attendees will engage in discussion of related i*ssues, such as: "How might these new results inform our teaching about the relative difficulty of story problems?"	**Room 16**
	Counting Collections Beyond Place Value **Holly Woodruff and Hannah Pigman** *This session dives into utilizing counting collections to reach standards beyond counting and place value and is especially helpful for K-2 teachers needing to provide enrichment and for 3-5 teachers looking to teach from other domains. We will dive deeper into extending the task of the counting collection for fractions, measurement, multiplicative reasoning, and multi-digit operations.*	**Room 510**
12:15-1:00	Lunch Provided	
1:00: 2:30	Work Session TWO (1 ½ hours)	
	Multiplication: What Makes It Distinct From Addition? **James Brickwedde** *Multiplication is distinct from addition. It requires making units of units, monitoring and coordinating unit*	**Room 300**

	transformations, and thinking in scale. Using student work, we analyze the attributes of multiplication and explore instructional tasks that support students' progressions to think multiplicatively. *Participants will engage around mathematical tasks that provide glimpses into the cognitive processing that students in grade 3-5 pass through as they transition from initial additive to more multiplicative approaches.* *Participants will gain access to a working document that seeks to compile the research over the past 30 years. The open-source document grows out of conversations held at the 2022 Orlando CGI Conference discussing the need to pull together the research on multi digit multiplication and division into a single source. Drawing on Carpenter et al. (2015), my own work (Brickwedde, 2011), Ambrose, Baek, & Carpenter (2003) and from other national and international researchers the piece is being designed to serve as a book study for teachers.*	
	Recent Video Resources for Supporting Teacher Learning about Children's Fraction Thinking **Susan Empson, Vicki Jacobs, and Katie Collins** *Videos of individual children solving problems have played an important role in CGI professional development from the beginning. In this session, we will explore videos (and connected activities) from our most recent research and professional development project that focused on fraction teaching and learning. Videos will include a variety of fraction story problems, such as equal sharing, multiple groups multiplication and division, and addition and subtraction. Discussion during the session will focus on the selection and use of videos with teachers in professional development. We will consider not only the types of problems posed and the strategies used, but also a variety of other features that may be less obvious (e.g., clarity of children's strategy explanations). Videos with almost any feature can be useful in professional development, depending on how (and when) they are used, and we will share some big ideas that have helped us use videos more strategically. To support the audience in refining their own ideas about video use, we will collectively watch video and engage in sample professional development activities connected to the videos. Participants will leave the session with links to the videos viewed and additional videos that can be used for a variety of purposes in professional development.*	**Seminar Room**
	Growing Your Counting Collections Practice Alongside Growing Students **Angela Chan Turrou** *Many teachers invite students to count "collections" of objects to support a variety of social and mathematical learning – working with a partner, building understanding of one-to-one and the counting sequence, organizing and grouping items, keeping track and problem solving, creating written representations of physical quantities, etc.* *However, counting collections is not just an early grades activity. The activity of counting collections grows alongside students in their exploration of larger numbers, more complex ideas of equal grouping and groups of groups, decomposing and composing numbers in different ways, the mathematical properties, etc. As we invite students to count different kinds of collections – small collections in more than one way, large collections into the hundreds and beyond, collections that come in packages that we don't want to open, collections that have different features (like wheels on toy cars) – we support them to deepen their understanding of number relationships and structures in ways that are critical for the extensive mathematical reasoning expected of students in the later elementary years.*	**Room 18**

	This session will support teachers, especially those in the upper elementary grades, to reflect upon how counting collections might support student learning and deep conceptual understanding of topics like: place value and base ten, multiplication and division, the distributive property, writing equations that have more than one operation, and beyond?	
	When a Third Is a Half…Brilliance, Joy & Amazing Ideas! **Stefanie Mathewson** *Guided by the CGI philosophy, through thoughtful design of number sense & reasoning routines & problem tasks, teachers are invited to consider math tasks around fair sharing concepts that are supported by students' early intuitive understandings. Teachers consider how students make connections across tasks & sharing experiences to build emerging understandings. After engaging in fair sharing tasks as learners, teachers then examine student thinking during the same tasks. They are invited to notice nuanced details in student thinking; craft specific, responsive questions that clarify, support or extend students' thinking; & design subsequent learning experiences for students to grow their big ideas around fair sharing concepts.* *Opportunities for extending early ideas around fair sharing concepts by intentional unpacking, sharing experiences & careful crafting of subsequent task contexts & quantities will be shared. For example, when first grappling with sharing a whole three ways, if a student labels each piece of the image that is divided into three "equal" parts (taking into mind student approximations), a half, what brilliance can we celebrate here? Approaching the student work with a growth mindset and knowing we will find amazing ideas if we take the time to honor the work of the young people before us helps us as teachers to find joy as we celebrate their brilliance.*	**Room 16**
	Building Foundations: Intentional Planning for Classroom Success **Pamela Allen and Jennifer Wolford** *CGI emphasizes understanding how students naturally approach and solve mathematical problems based on their own cognitive development. It's about recognizing that children come to the classroom with rich mathematical knowledge and building upon that foundation.* *Getting to know students and their mathematical ideas is fundamental for effective teaching. By understanding their thinking processes, educators can tailor instruction to meet students where they are, fostering a deeper understanding of mathematical concepts.* *This session will highlight 2 teachers working together throughout the year in a kindergarten classroom. We will discuss the screeners we used, the instructional decisions we've made together, and most importantly, the success that the students have seen. Topics will include counting collections, the counting principles, purposeful planning, and the CGI framework.*	**Room 504**
2:45-4:00	**Keynote:** Scientific Evidence of the Effectiveness of CGI: Does It Work, for Whom, and Under What Conditions? **Rob Schoen** *Scientific research in education has been a popular—and not uncontroversial—topic throughout the 21st century. Several experimental trials have reported positive effects of CGI-based programs on teachers and student learning. Many CGI programs are*	**Cafeteria**

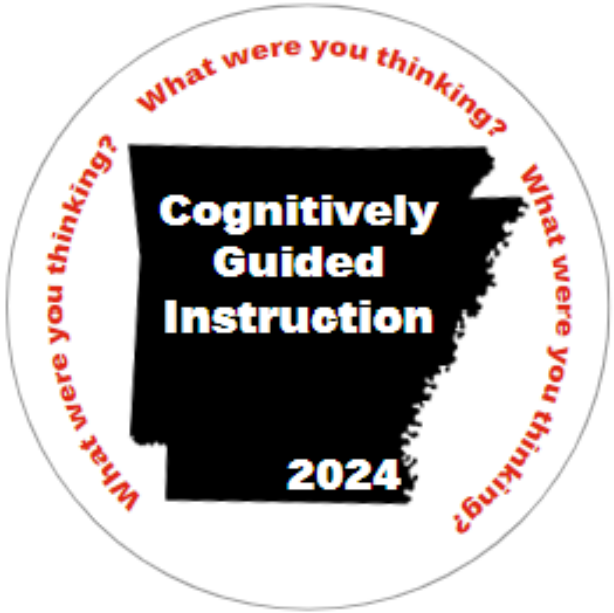
	non-prescriptive interventions, thereby presenting challenges in explaining how the programs impact students. This session will review evidence of effectiveness and consider a novel approach to identifying and measuring observable features of mathematics instruction that align with CGI principles.

Friday, June 21, 2024		
8:30-9:30	**Keynote:** Unlocking Student Thinking through Media and Storytelling **Graham Fletcher**	**Cafeteria**
	As we focus on how children naturally develop mathematical ideas through their own thinking, let's explore how integrating media can unlock students' potential. Contextualized understanding is at the heart of a CGI classroom, but what would it look like if we changed the storytelling medium from print to media? Join us for a thoughtful discussion on balancing traditional text-based methods with media to enhance math instruction and invite all students into the CGI sandbox.	
9:45-11:00	Breakout Sessions 5	
	Analyzing Student Strategies for Fraction Multiplication **Stacy Dustman, Kim Meyer, Pam Keith, and Linda Jaslow** *This session will focus on multiple groups multiplication problems. We will analyze different levels of strategies, the standards that are embedded in each of the strategies and the multiplication relationships the students engaged with. Participants will engage with mathematical notation and how to support students to mathematically notate direct modeling and counting strategies to represent the mathematical relationships embedded in them.*	**Room 18**
	CGI as a Tool for Equitable and Responsive Curriculum Adaptation **Corey Drake and Mike Wallus (repeated session)** *For decades, elementary mathematics curriculum materials have been viewed as constraints on responsive and equitable teaching, particularly for teachers who have deep knowledge of the development of children's mathematical thinking and want to be responsive to the strengths and needs of the students in their classroom. In this session, we instead view curriculum materials as an opportunity or an invitation - an invitation to take a series of well-developed tasks that follow a coherent mathematical storyline and use them to support the specific children in your classroom.* *We will explore how teachers can use their deep knowledge of children's mathematical thinking - and of equitable teaching practices - to support responsive, inclusive, and equitable learning opportunities for all students. We will then discuss and rehearse how to identify opportunities within curriculum materials for eliciting and building on children's mathematical thinking and their multiple ways of thinking about and solving problems. We will also share examples, including videos and planning documents, of equitable and responsive curriculum use in action and explore how teachers' decisions and moves leverage the opportunities provided in curriculum materials. Finally, we will share ideas for getting to know students' interests, strengths, and needs in ways that support adapting curriculum materials to build on children's existing understandings and strategies.*	**Room 500**

	You Don't Need to Finish to Share Your Strategy! **Angela Chan Turrou** *Inviting students to share their strategies with the whole class is a powerful way to support explaining and extending ideas, engaging with the ideas of others, and building connections across a variety of ways of thinking. While it's students and their ideas driving the mathematical conversations, there is an art to the work that teachers do to facilitate strategy shares that go beyond "show and tell" to involve both the strategy author and the rest of the class in meaningful ways.* *In this session, we will dive into the pedagogy of facilitating strategy shares, reflecting upon the different pre-planned and in-the-moment decisions that shape students' experiences during strategy shares. How much talking is done by the strategy author vs. other students? What are different ways children's tools and representations are made public? Is the strategy finished or still in progress? How much of the story context is referred to during the share? How and why are these decisions being made, and toward what goals?* *This session draws upon classroom research documenting a wide variety of ways teachers have structured strategy shares as well as the personal experiences of CGI teachers across elementary school classrooms. We will share a tool designed to support teachers to reflect upon their own decision-making during strategy shares that may also be of use to administrators, coaches, and professional learning facilitators.*	**Room 300**
	To Fluency and Beyond!! Connecting Addition Basic Fact Fluency to Addition of Multi-Digit Whole Numbers, Fractions, and Decimals **Erin McCain (repeated session)** *"We know that too many of our students leave our schools with a vision of mathematics as a set of unconnected and independent facts with no clear sense of how the ideas fit together…" Henry Kemper (Former NCTM President). Together we will explore mathematical connections that have the power to transform not only our students' understanding of mathematics, but also our own understanding of how mathematics works together. Connections will be made from addition fact fluency to multi-digit whole number addition as well as fraction and decimal operations.*	**Room 513**
	Creating Equitable Access in Math to Impact All Students **Enrique Pilleux, MA** *The real work in building a love of math is envisioning learning in ways that reach all students, including English language learners. Explore an innovative approach to math instruction that can empower all students. Encouraging students to have new experiences is integral to deeper learning and sets the stage for equitable impact. We can create a learning environment that transcends language barriers by leveraging the brain's innate spatial-temporal reasoning ability.*	**Room 501**
	It's a Marathon, Not a Sprint! Navigating a Decade-Long Journey with Cognitively Guided Instruction **Kaitlyn Swan-O'Shea, Pedro Galindo, and Heidi Ragan** (**repeated session)** *Embark on our district's decade-long journey with Cognitively Guided Instruction (CGI), recognizing that equitable mathematics instruction is a marathon, not a sprint. Serving over 7,000 students and 300 teachers in Los Angeles*	**Room 503**

	County, El Monte City School District embraces linguistic and ethnic diversity, with 80% Hispanic/Latino, 17% Asian, and 34% multilingual learners. Attendees will explore how El Monte's marathon journey with CGI has unfolded, with each step contributing to equitable mathematics instruction. Participants will gain insights into our robust CGI implementation model, which includes redesigning the math classroom and supporting teachers and administrators with comprehensive workshops, abundant resources, lab days, and coaching sessions. *During the session, participants will delve into:* *Designing school and district mathematics plans with CGI as the cornerstone.* *Organizing professional learning through coaching, lab days, and student work analysis.* *Engaging families in workshops and events centered on CGI to bridge classroom and home environments.* *Participants will depart equipped with actionable strategies and a deeper understanding of designing systems to support CGI. Remember, in the journey of achieving equitable mathematics instruction, it's a marathon, not a sprint. We invite you to join us as we continue to build momentum, pacing ourselves, staying focused, and moving forward steadily. With endurance and perseverance, we will reach the finish line of mathematical success for all!*	
	When to Elicit, When to Tell: What is the balance in CGI Classrooms? **James Brickwedde** *CGI practices and developmental frameworks have allowed students to expand their mathematical knowledge in ways that have surprised many previously held notions. Deciding when to elicit and when to tell students in the learning cycle is not always clear. But it is important to be able to communicate to those outside of the classroom when those points of instructional decision-making are productive to the learning. Communicating to the public what 'productive struggle' is and its power is essential and difficult. A clear message needs to be articulated.* *Participants in the session will first read two articles that appeared in the press. The first will be an NPR piece from 2012 describing Jim Siegler's experience watching a student struggle at the board. The second is a 2023 piece which specifically describes CGI practices in a kindergarten classroom in Los Angeles. The intent of this session is to have an open discussion about how each individual would answer if a parent or a journalist asked you the question , "Why don't you just tell/show them how to do it?"? An inarticulate answer can set back a professional development effort that is just gaining momentum.*	**Room 16**
	Understanding Fractions in the CGI Classroom: A Progression of Strategies from Direct Modeling to Derived Facts **Ryan Flessner and Brendan Scribner (repeated session)** *This session will examine a progression of strategies related to computation with fractions. Strategies will range from direct modeling to derived facts. Hands-on materials such as pattern blocks will be used to create strong visual models based on concrete experiences. Games will be played to model addition and subtraction of fractions and to provide participants with ideas they can take back to their classrooms and schools for immediate use. The concrete materials, the use of games, and the strong visual images created will then allow those in attendance to engage in discussions related to direct modeling strategies tied to multiplication and division of fractions. Using these concrete materials will create a foundation upon which one can build as we move beyond direct modeling into counting strategies and derived facts.* *Tools and strategies such as number lines, arrow language, ratio tables, area models, partial sums/differences/products/quotients, and others will be used to facilitate the transfer of knowledge from the concrete*	**Room 504**

	to the abstract. We will end the session with an examination of the traditional U. S. algorithms common in schools across the country. Throughout our examination of this progression, we will tie the "steps" within each algorithm to number sense and properties of operations (commutativity, distributivity, identity, etc.). We'll ensure that the ideas we explore allow both children and adults to teach and learn with understanding.	
	Question With a Purpose: Changing the Story with Focused Inquiry **Tara Sanders and Wendy Green (repeated session)** *In CGI, one of the most important skills we can hone is our ability to question. But using these good questions with purpose is vital. In this session, we will work on being purposeful with our questioning while keeping our learning goal and the needs of our students in mind.*	**Room 506**
11:00-12:30	Closing/Lunch Provided (Cafeteria)	



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Safe Travels. We will see you in 2026.