Illustrative Mathematics
LEARN MATH FOR LIFE

Equitable Instruction *Seeing Is Believing*

#LearnWithIM

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Welcome!

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Senior Director,
Impact Research

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Senior Director,
Implementation Portfolio

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Session Outcomes

- Use video to identify and develop teacher moves and practices that are explicitly connected to ambitious and equitable instruction
- Create a plan for building an equitable mathematics community of practice of educators, providing opportunities for them to observe, learn from, and reflect on classroom teaching of students in their schools specific to the needs of the teachers.

Our Why

"A world where all learners know, use, and enjoy mathematics"

Illustrative Mathematics' Vision

A Seamless, Coherent, and Aligned Mathematical Experience

IM® K–5 Math

IM® 6–8 Math

IM® 9–12 Math

A world where all learners know, use, and enjoy mathematics

"The body of research and data on the impact of high-quality instructional materials is clear: curriculum choices matter. But how teachers use curriculum matters even more."

EdReports, State of the Instructional Materials Market 2020

Problem-Based Teaching and Learning

1 Teacher invites students to the math and ensures students understand the question.

2 Students have quiet think time.

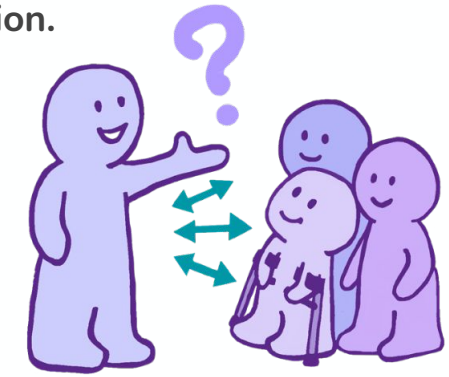
Teacher monitors, listens, and asks questions to understand student thinking.

4 Teacher provides opportunities for students to synthesize their learning of the lesson goals.

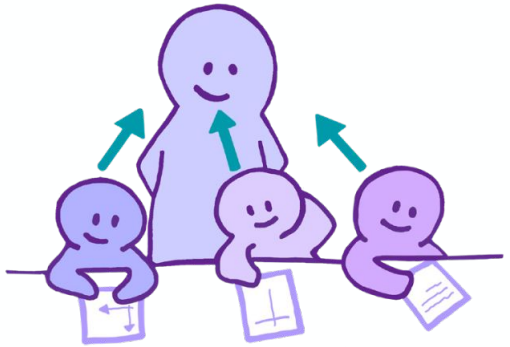
3 Students work with partners or in small groups.

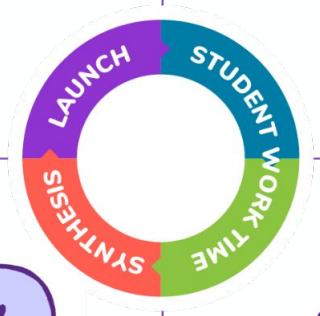
Problem-Based Teaching and Learning

1 Teacher invites students to the math and ensures students understand the question.

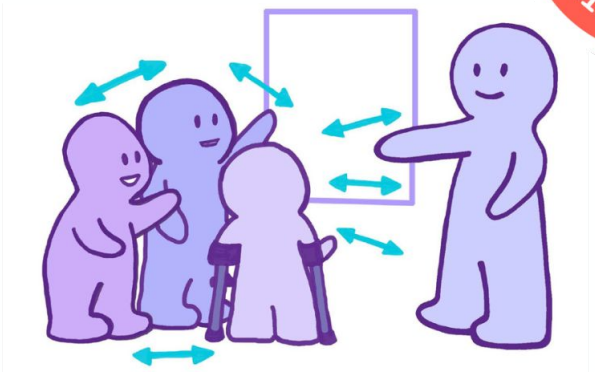


2 Students have quiet think time.

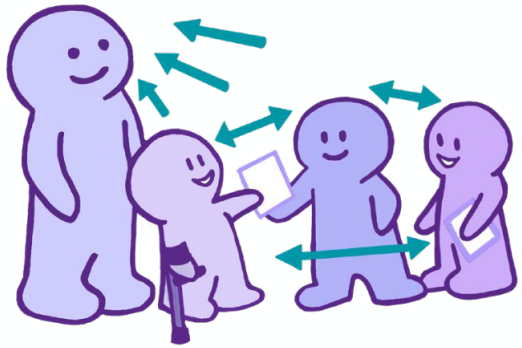




Teacher monitors, listens, and asks questions to understand student thinking.

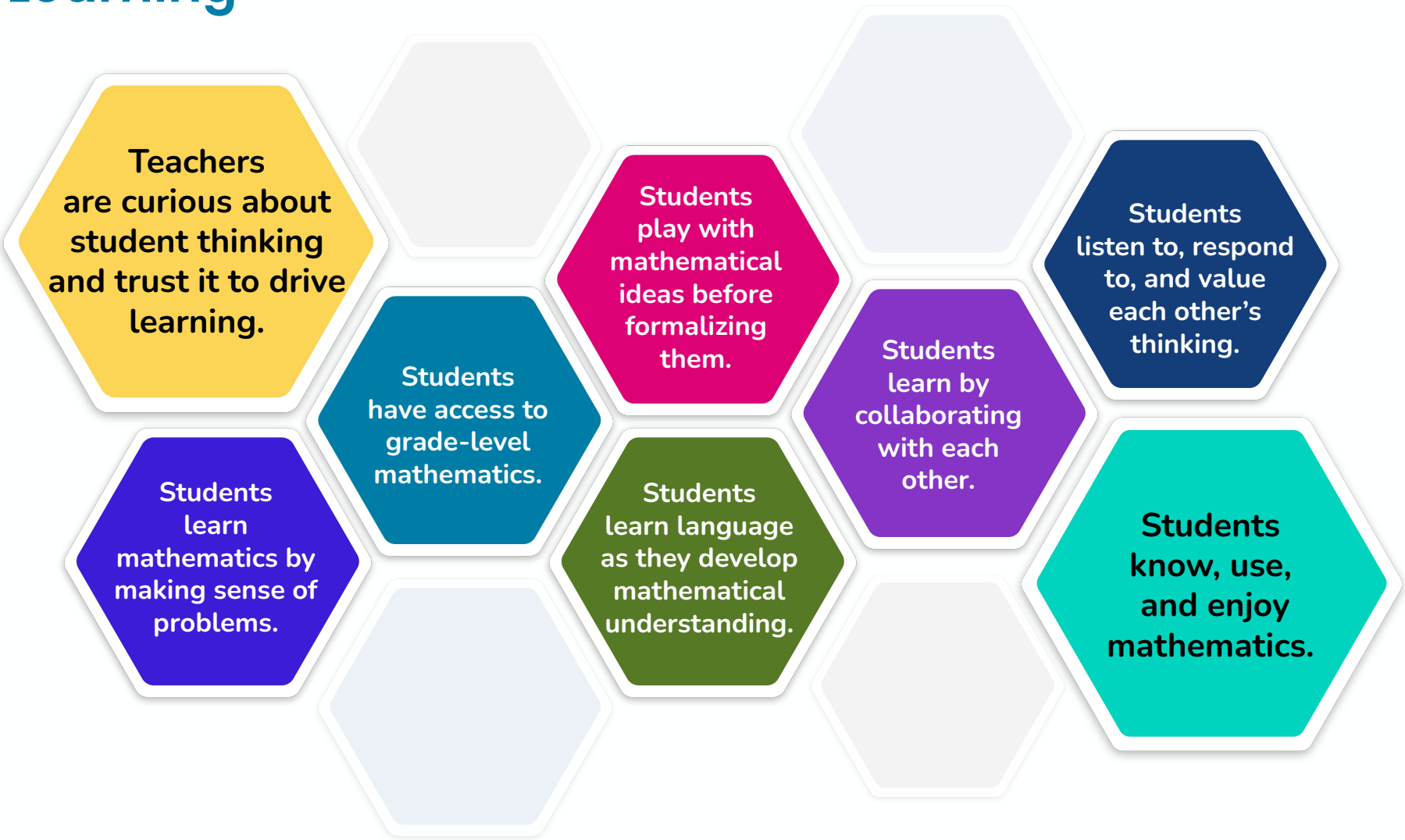


4 Teacher provides opportunities for students to synthesize their learning of the lesson goals.



3 Students work with partners or in small groups.

Elements of Problem-Based Teaching and Learning



The Challenge

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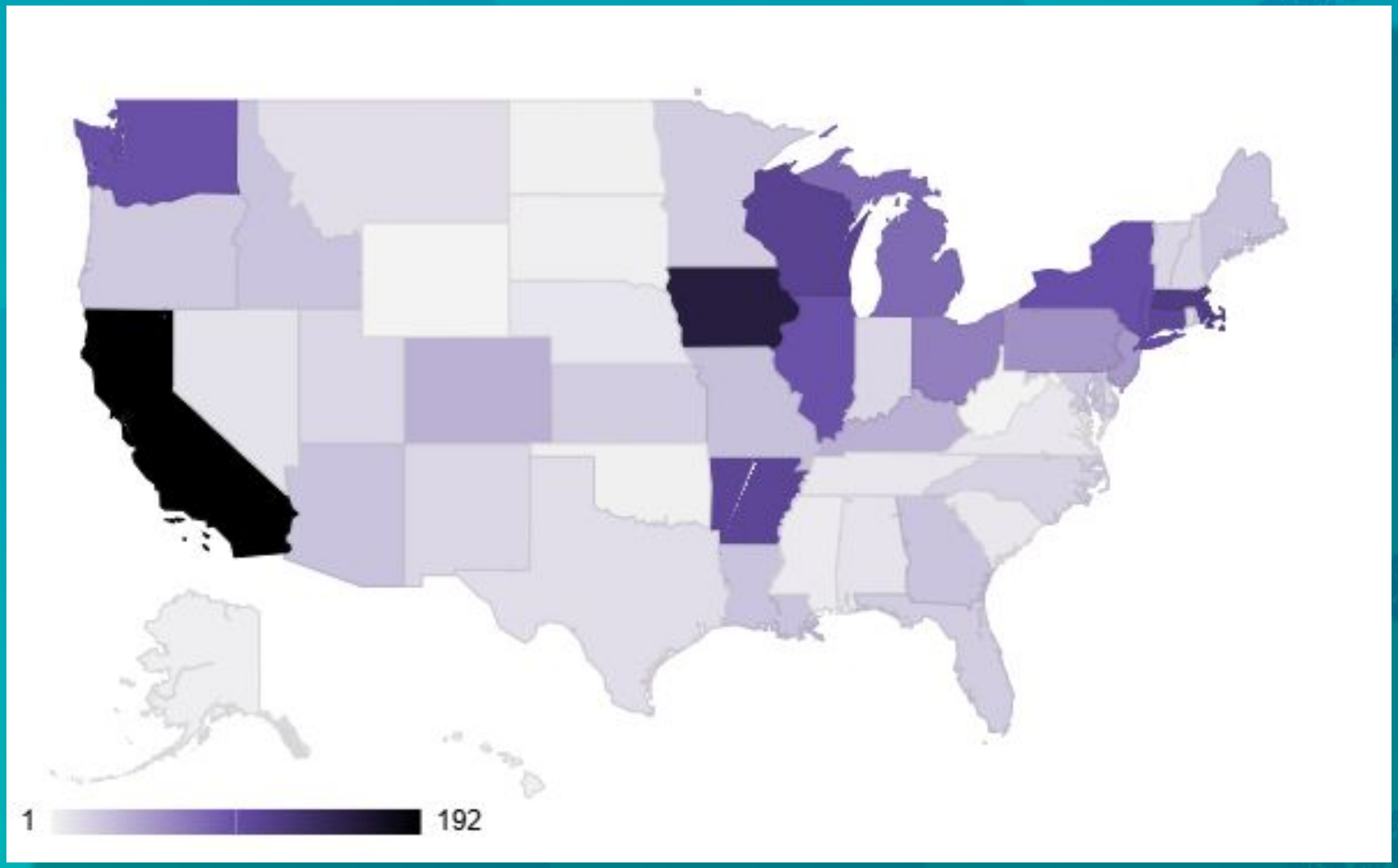
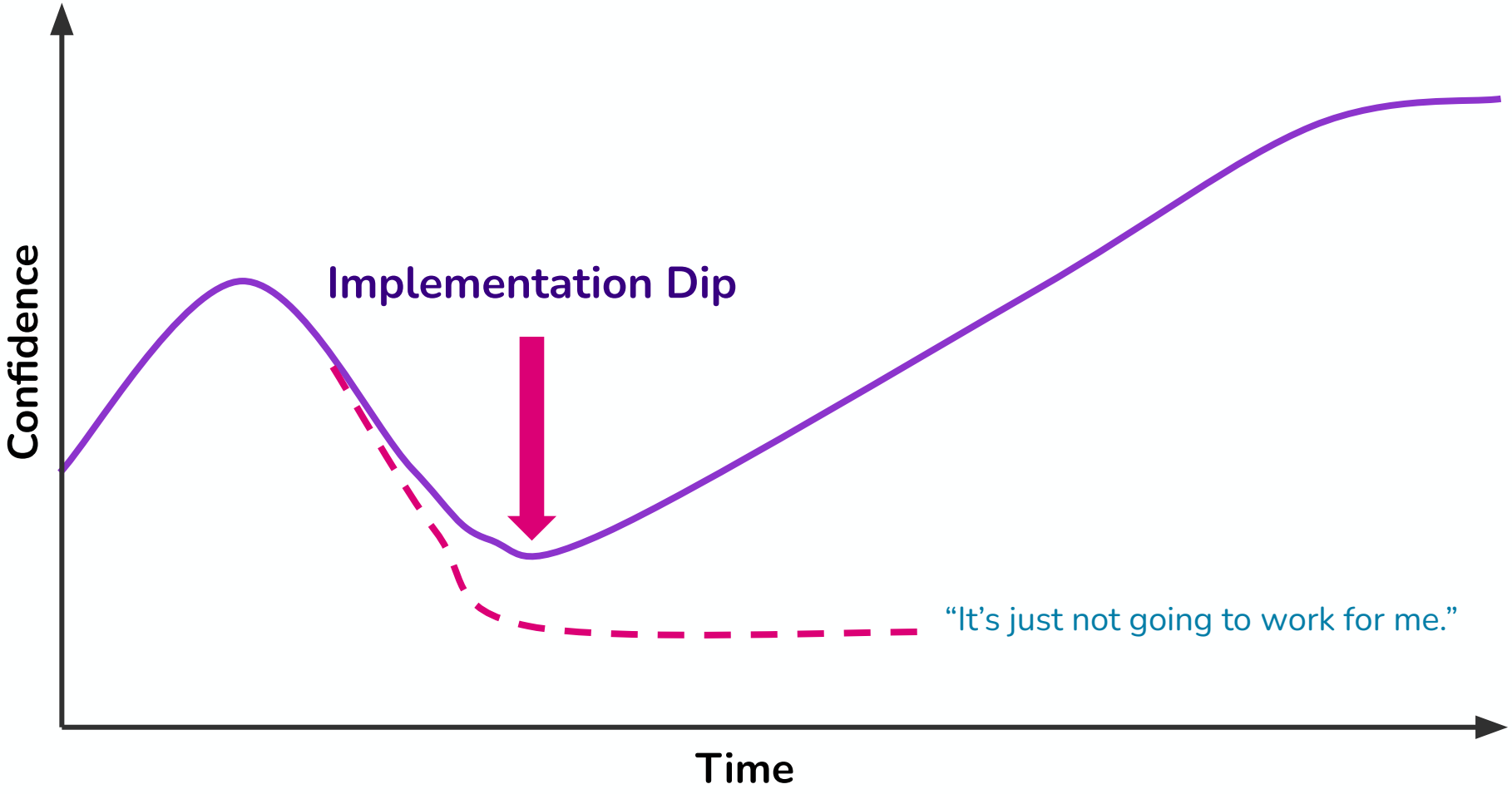


Implementation Journey



“A teacher’s views of their student’s math capabilities is a predictor of their student’s math performance.

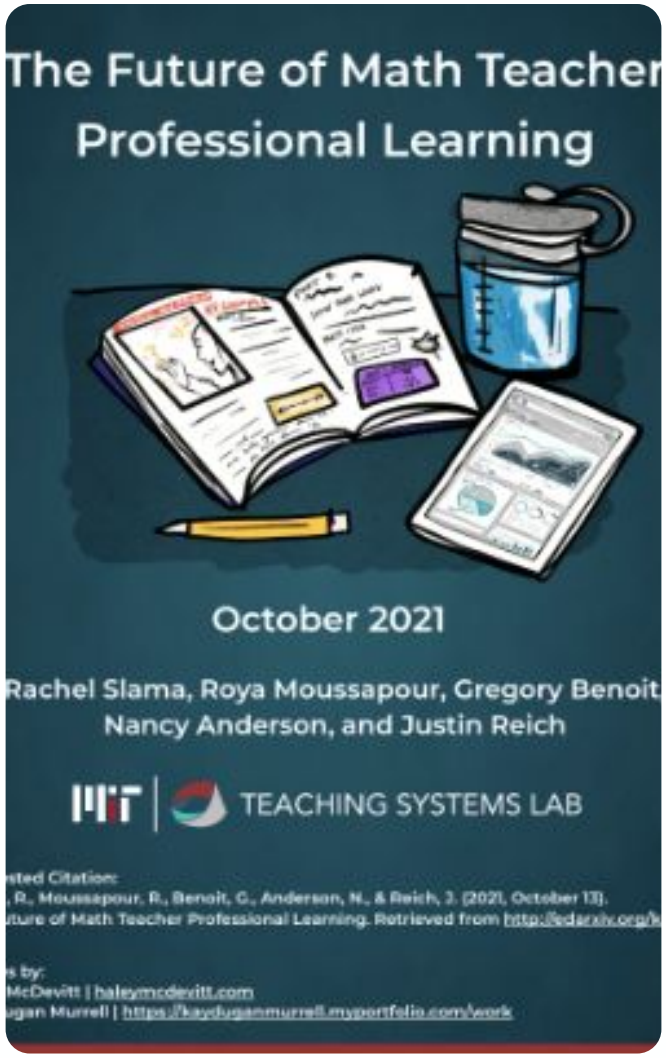
A critical first step to real change for learners underestimated by the system is to engage teachers to critically examine their beliefs and assumptions.”

Slama, R., Moussapour, R., Benoit, G., Anderson, N., & Reich, J. (2021, October 13). The Future of Math Teacher Professional Learning. Retrieved from http://edarxiv.org/knus2

A teacher's views of their student's math capabilities is a predictor of their student's math performance . . .

What *are* our beliefs and assumptions about our students? About our teachers?

What are the resulting challenges?



“[I]n many schools and classrooms, teachers “fundamentally believe rich problems are only good with the honors students” and that teachers don’t always think that students who are struggling have the capability to tackle deep mathematics. Incorporating rich mathematics opportunities for all students allows students to demonstrate their mathematics knowledge, participate in classroom discourse, and develop a sense of mathematical identity.”

Slama, R., Moussapour, R., Benoit, G., Anderson, N., & Reich, J. (2021, October 13). The Future of Math Teacher Professional Learning. Retrieved from http://edarxiv.org/kncs9

Common Challenges:

- alignment on how to use IM Math
- clarity on whether teachers were using teacher resources
- teacher understanding of facilitating a lesson where students are doing the sensemaking

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Our Response: IM MathLabs

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What is an IM MathLab?

- observe and debrief classroom instruction in real-time with colleagues and a skilled facilitator
- analyze and discuss student work from the observed class
- interview the local IM MathLab teacher and instructional coach for additional insight into the instruction
- apply what was observed during the IM MathLab class to their own practice

IM MathLab Formats

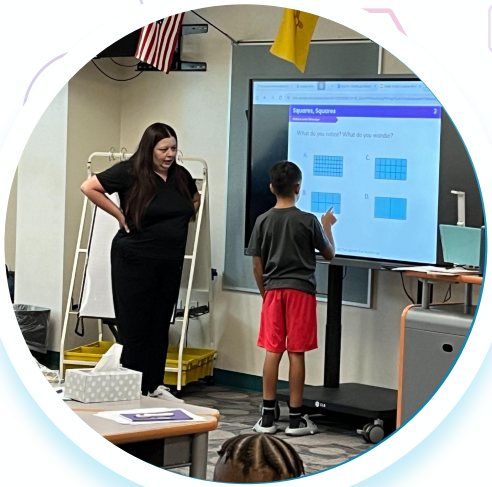
Summer Camp

- Students from surrounding area
- Collaborated with state organization
- Weeklong

Summer School

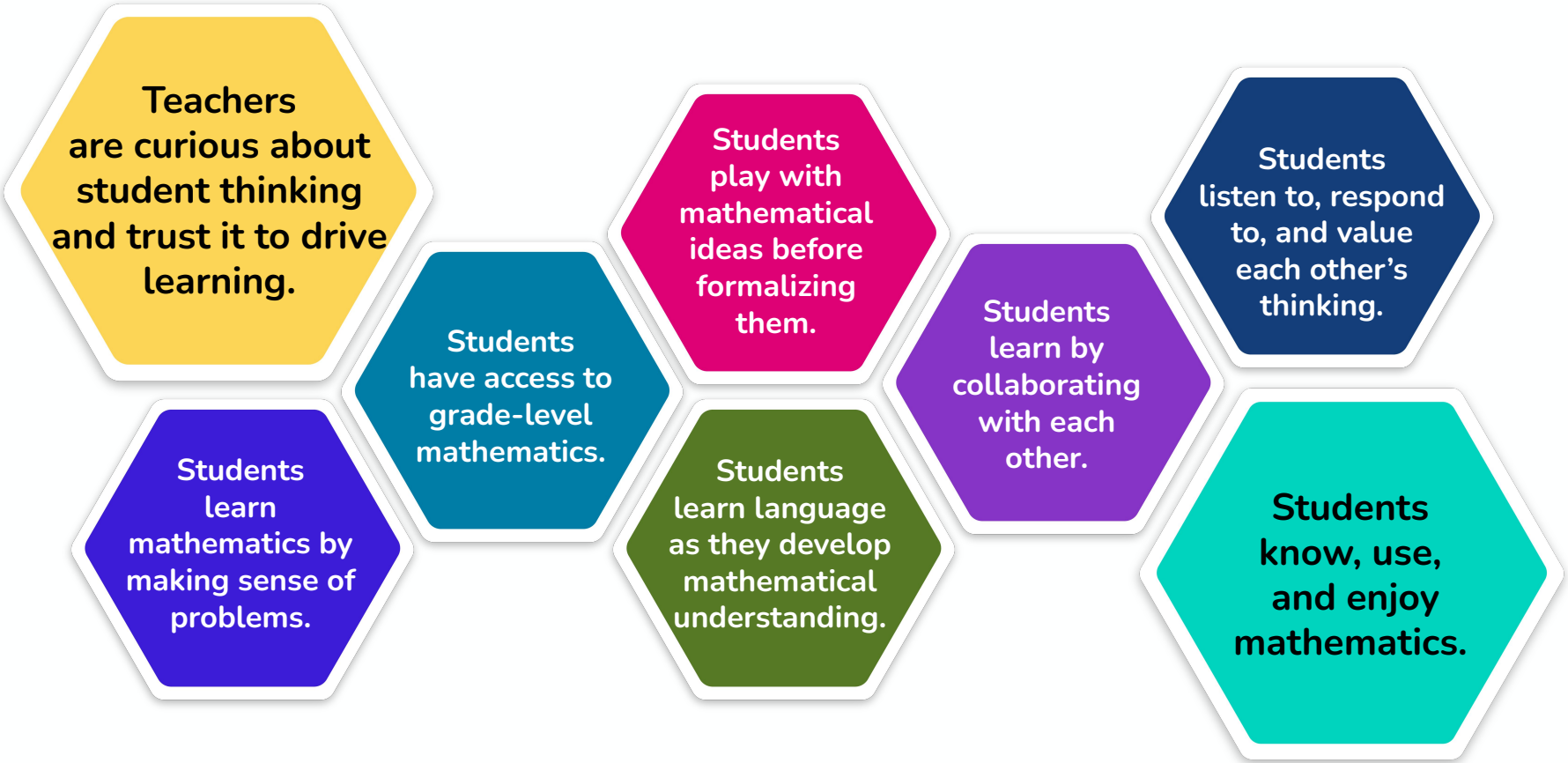
- Students in a district
- Collaborated with district
- Several days

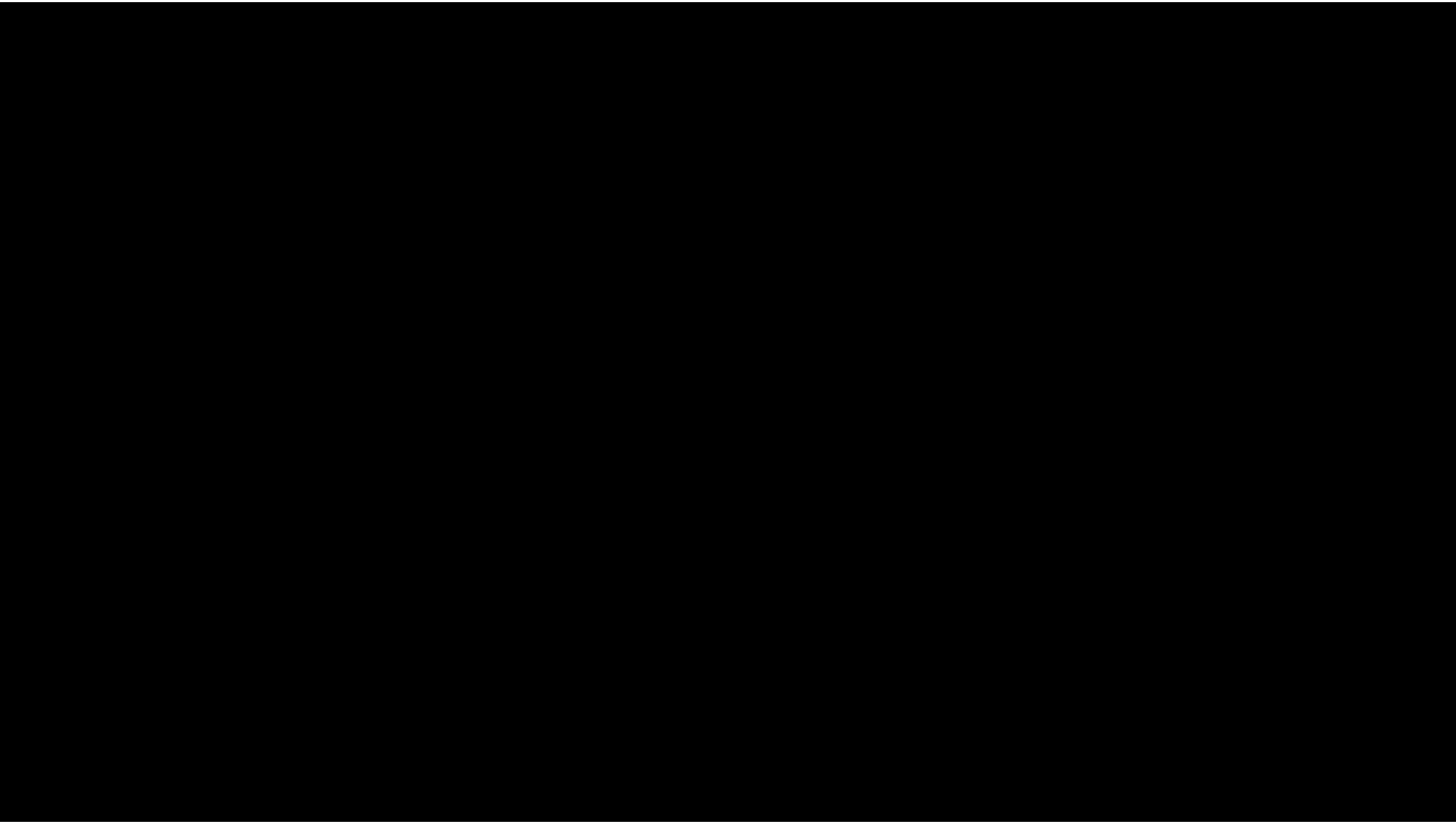
School Day



- Students in a school
- Collaborated with school
- Single day

What evidence of problem-based teaching and learning do you see or hear in the classroom video?

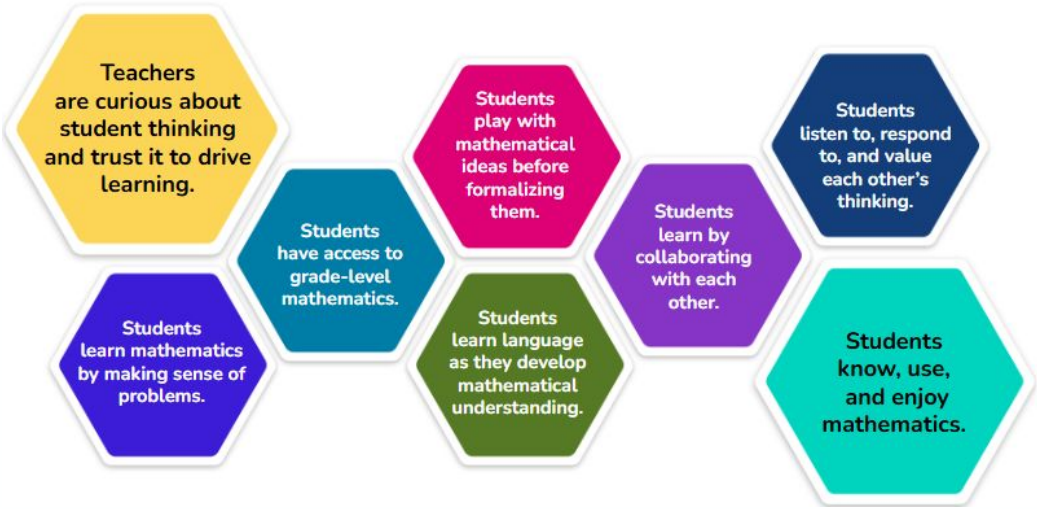




Grade 1 • Unit 1 • Lesson 3 • Warm-up

How Many Do You See: : Dot Cubes

What evidence of problem-based teaching and learning did you see or hear in the classroom video?



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Teacher Reflections

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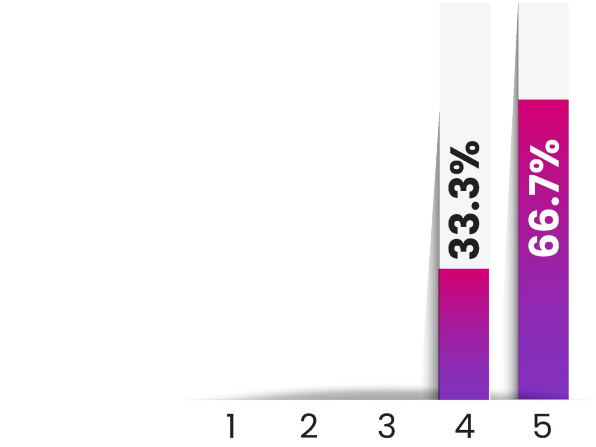
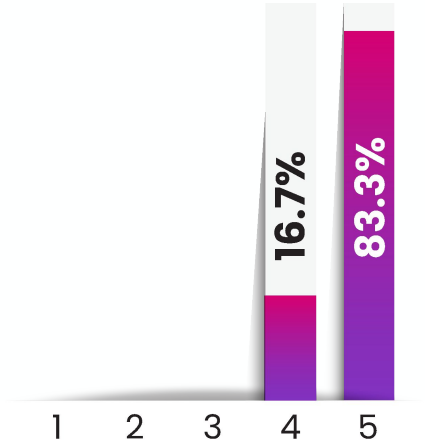
Educator Feedback

Likert Scale: 1 = Strongly Disagree to 5 = Strongly Agree

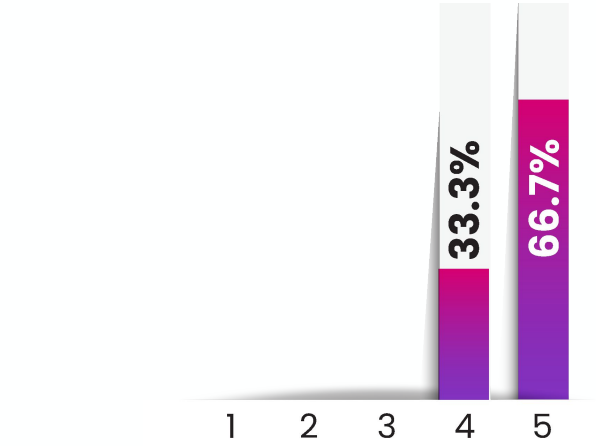
I have a better idea of what it looks like when students learn through sharing their ideas.



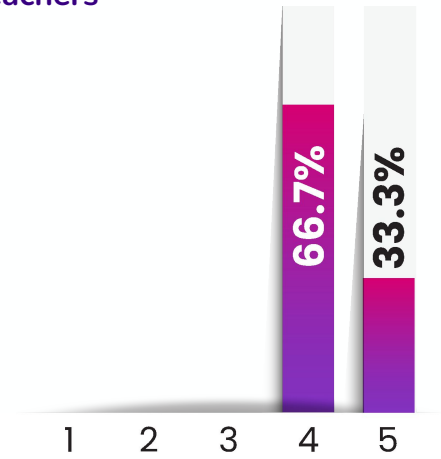
I can identify specific strategies for overcoming possible obstacles to implementing IM lessons.



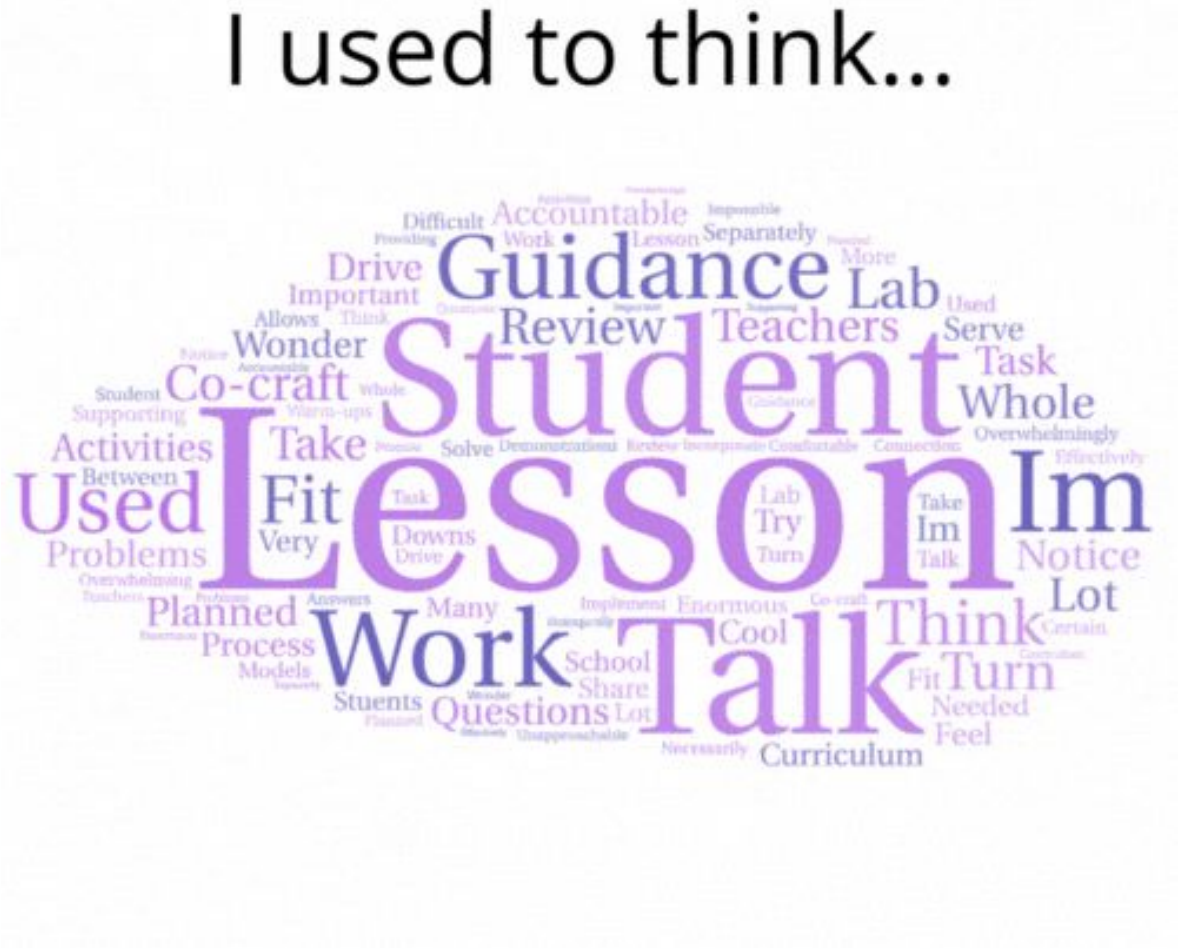
I believe that my students can learn through problem-based instruction.



I feel more ready to share my instructional practice with my fellow teachers



Teacher Reflection

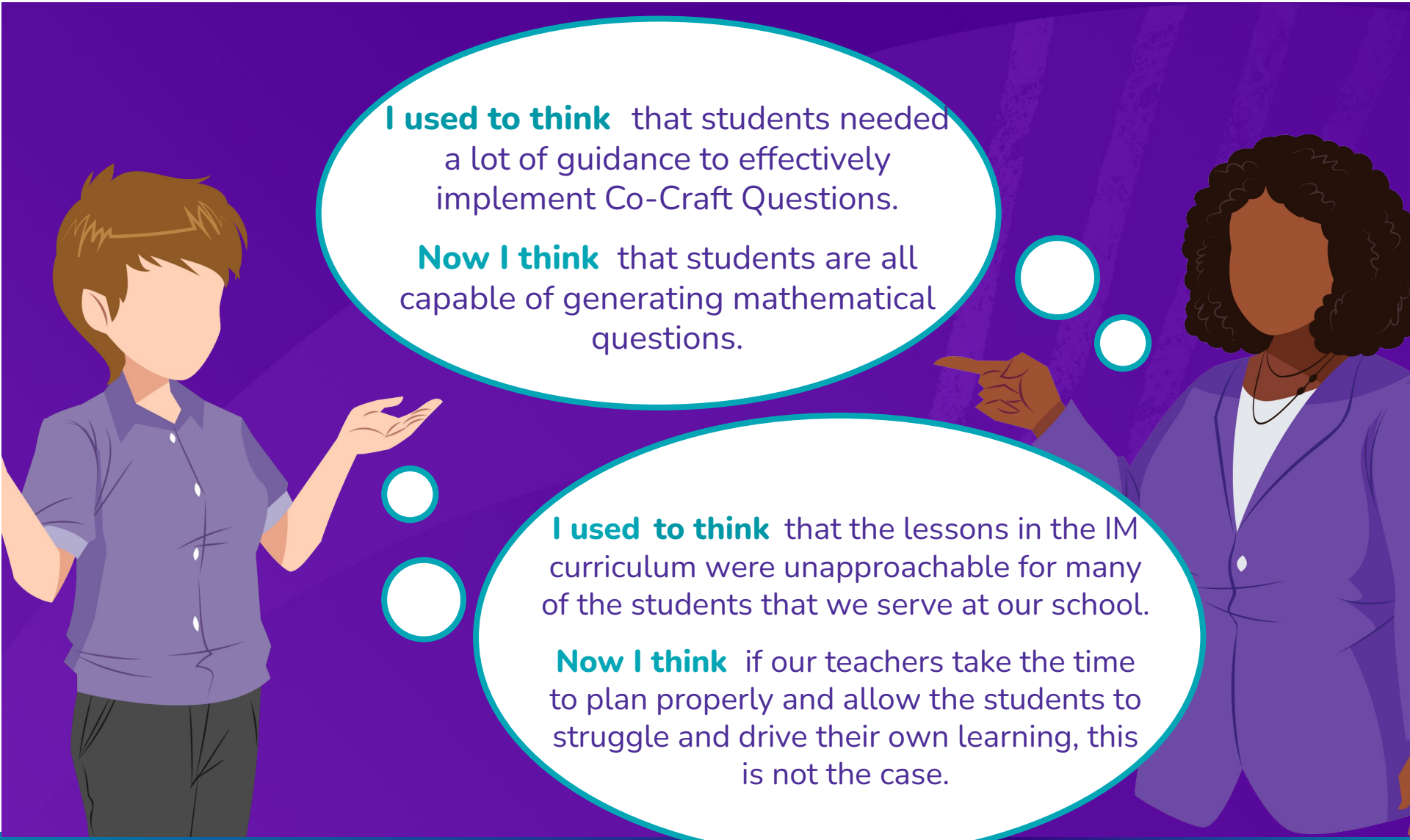


Reflections from IM MathLab

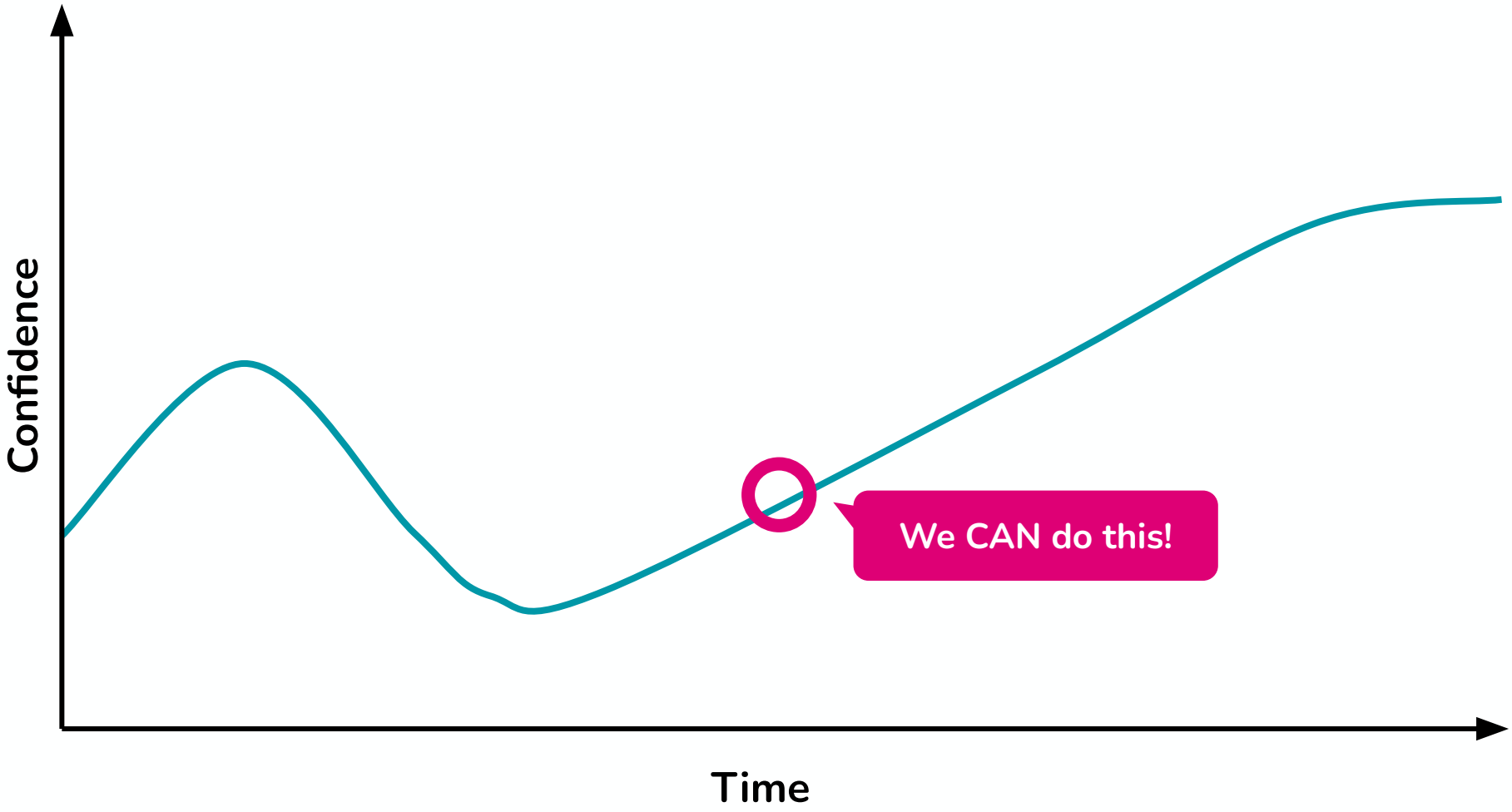
Taylor Wiggins
6th Grade Mathematics Teacher
Syracuse City School District

What was the most valuable experience you gained from the MathLab?

Teacher Reflection



Guiding Implementation



Adapted from: Leading in a Culture of Change. Fullan, M. (2001).

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Student Reflections

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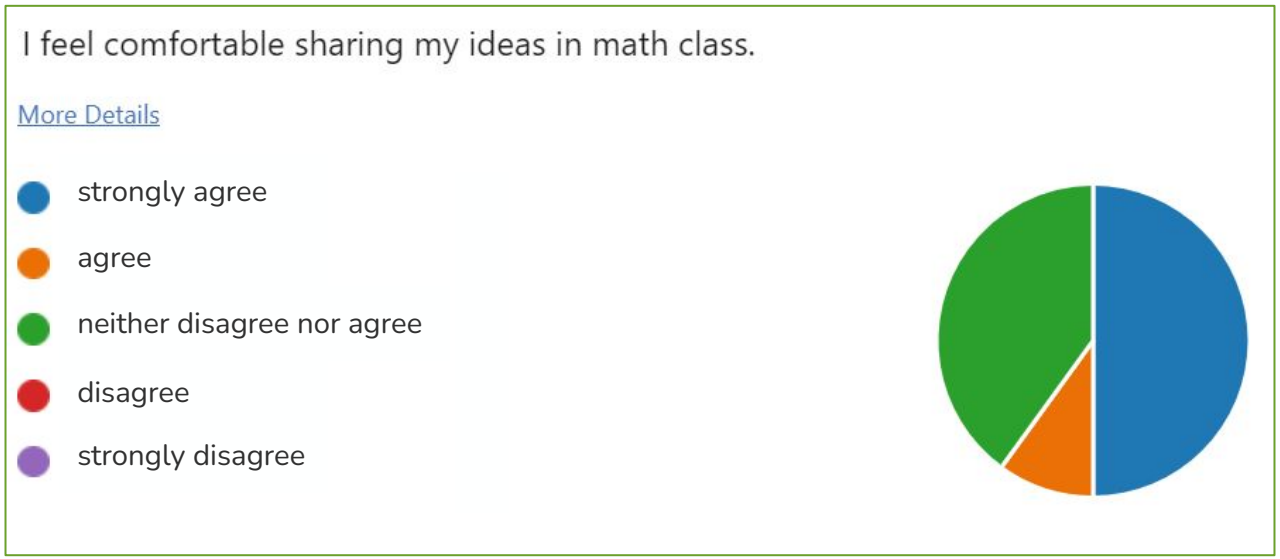
Student Feedback: November 2023

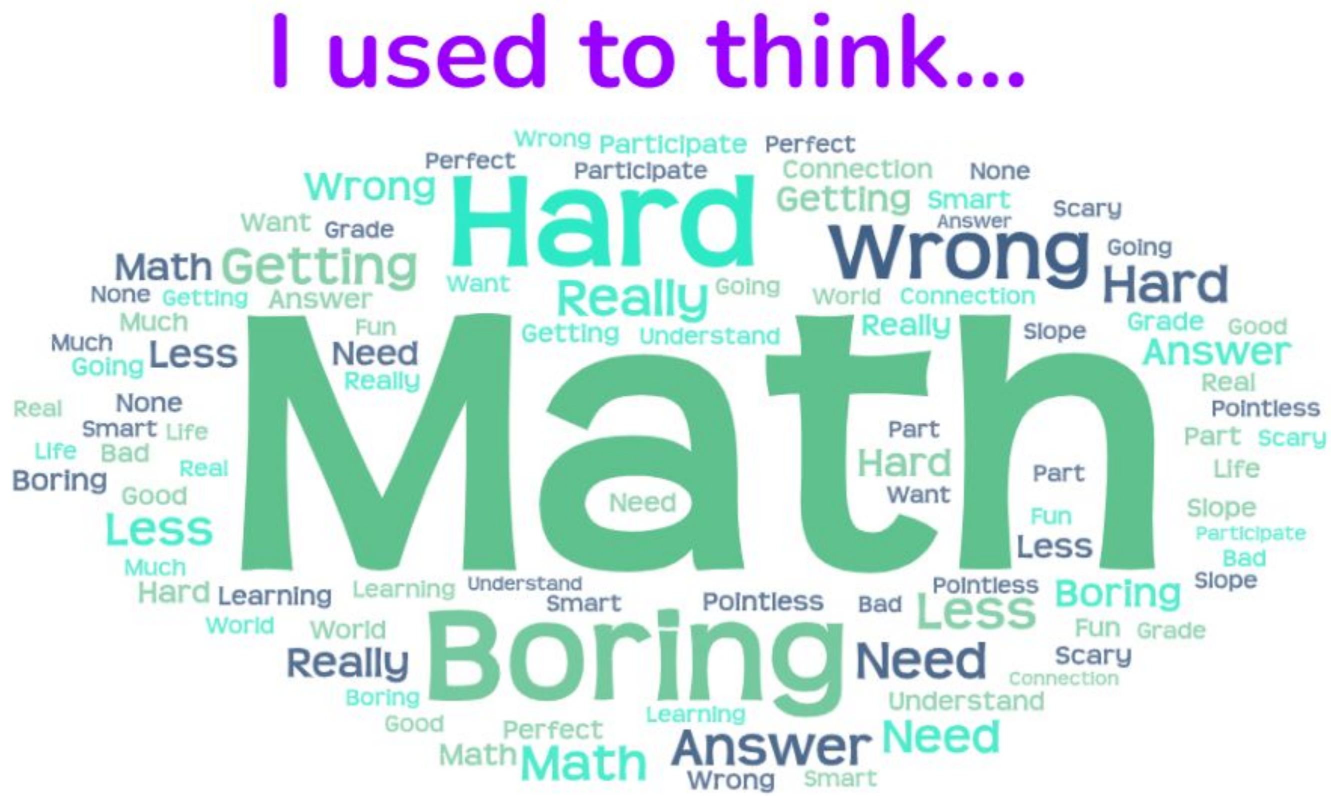
Were you comfortable sharing your thinking with the whole class today?

Yes 44%	No 56%

Student Feedback: MathLab Day 3



Student Reflection



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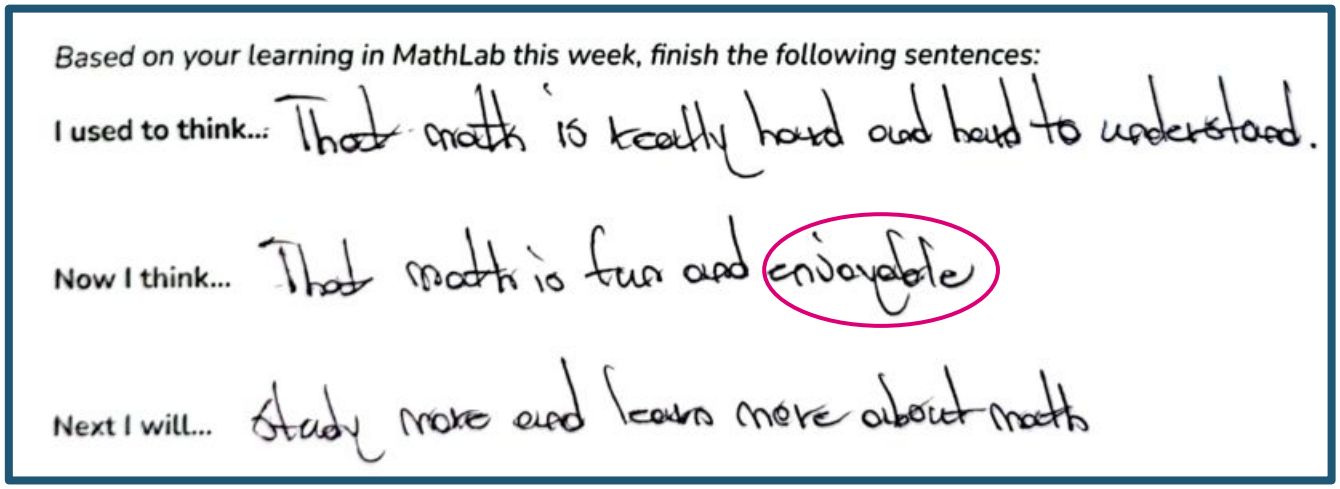
Student Reflection

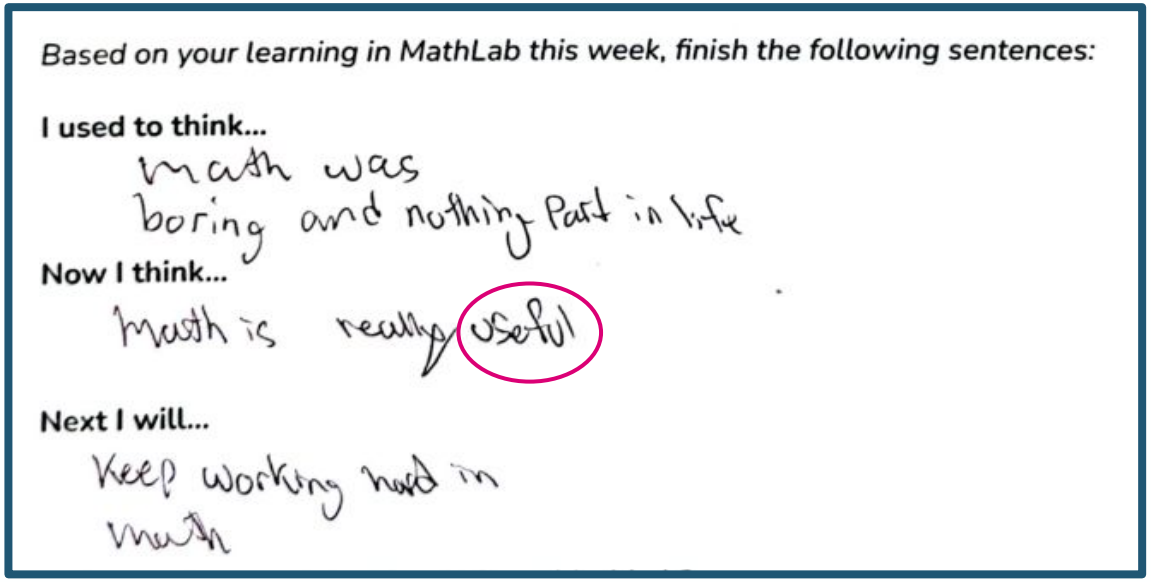


Based on your learning in MathLab this week, finish the following sentences:

I used to think... That math is really hard and hard to understand.

Now I think... That math is fun and enjoyable

Next I will... Study more and learn more about math



Based on your learning in MathLab this week, finish the following sentences:

I used to think...

math was boring and nothing Part in life

Now I think...

math is really useful

Next I will...

keep working hard in math

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Turning Reflection Into Action

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"Watching the student lab helped me look at the Math Language Routines, especially Co-Craft Questions and Info Gap. I'd tried them in my classroom, but seeing them practiced was amazing. I learned things that I hadn't really thought about."

Vivian Quintana

MLR4: Information Gap

Mathematical Language Routine

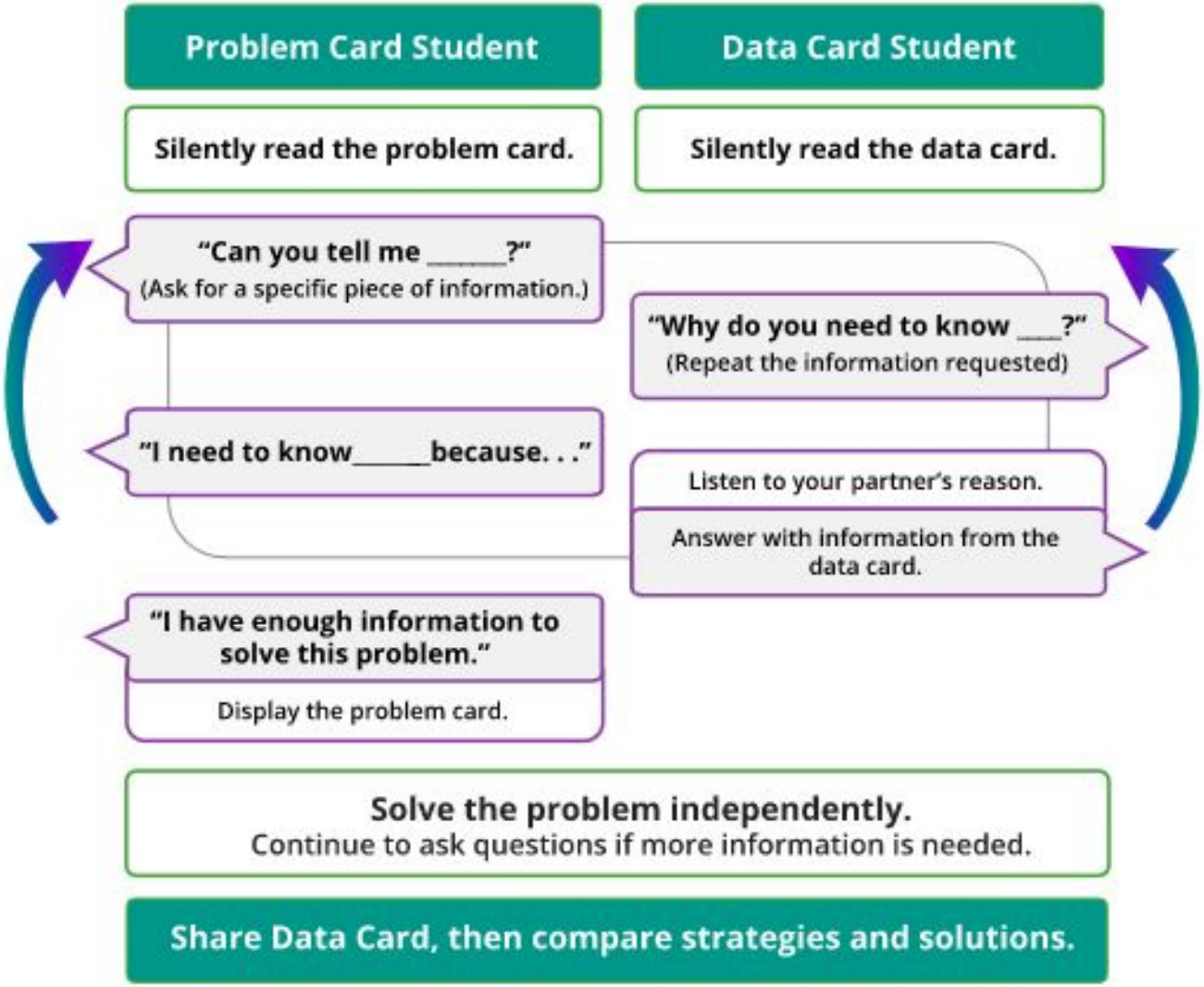
Purpose:

Create a need for students to communicate (Gibbons, 2002). This routine allows teachers to facilitate meaningful interactions by positioning some students as holders of information that is needed by other students.

With an *information gap*, students need to orally (or visually) share ideas and information in order to bridge a gap and accomplish something that they could not have done alone.

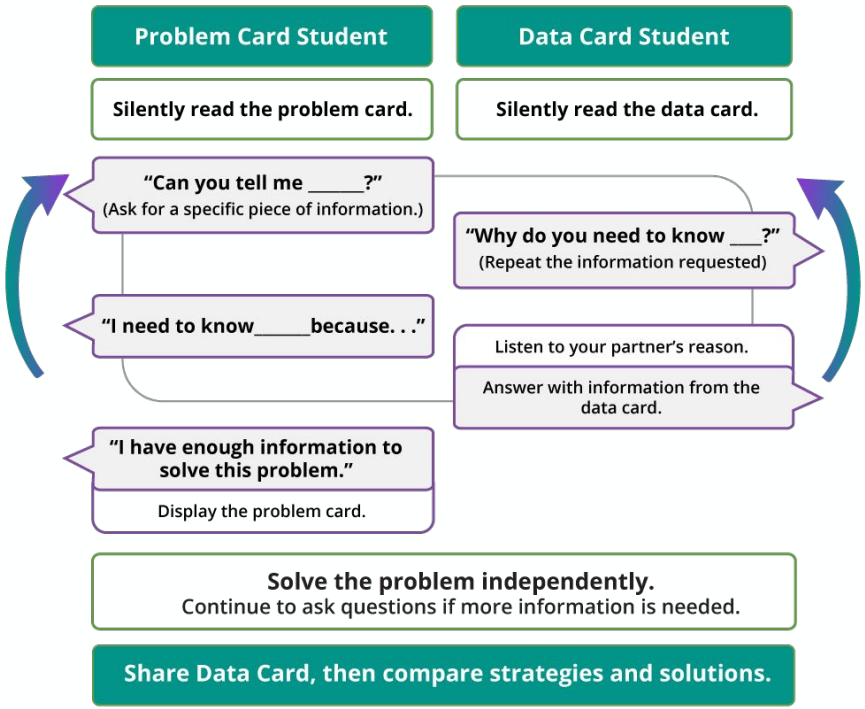
MLR4: Information Gap

Mathematical Language Routine



Info Gap: Points on the Number Line
Problem Card 0

The points P, Q, and R are located on the number line. What is the location of point Q?



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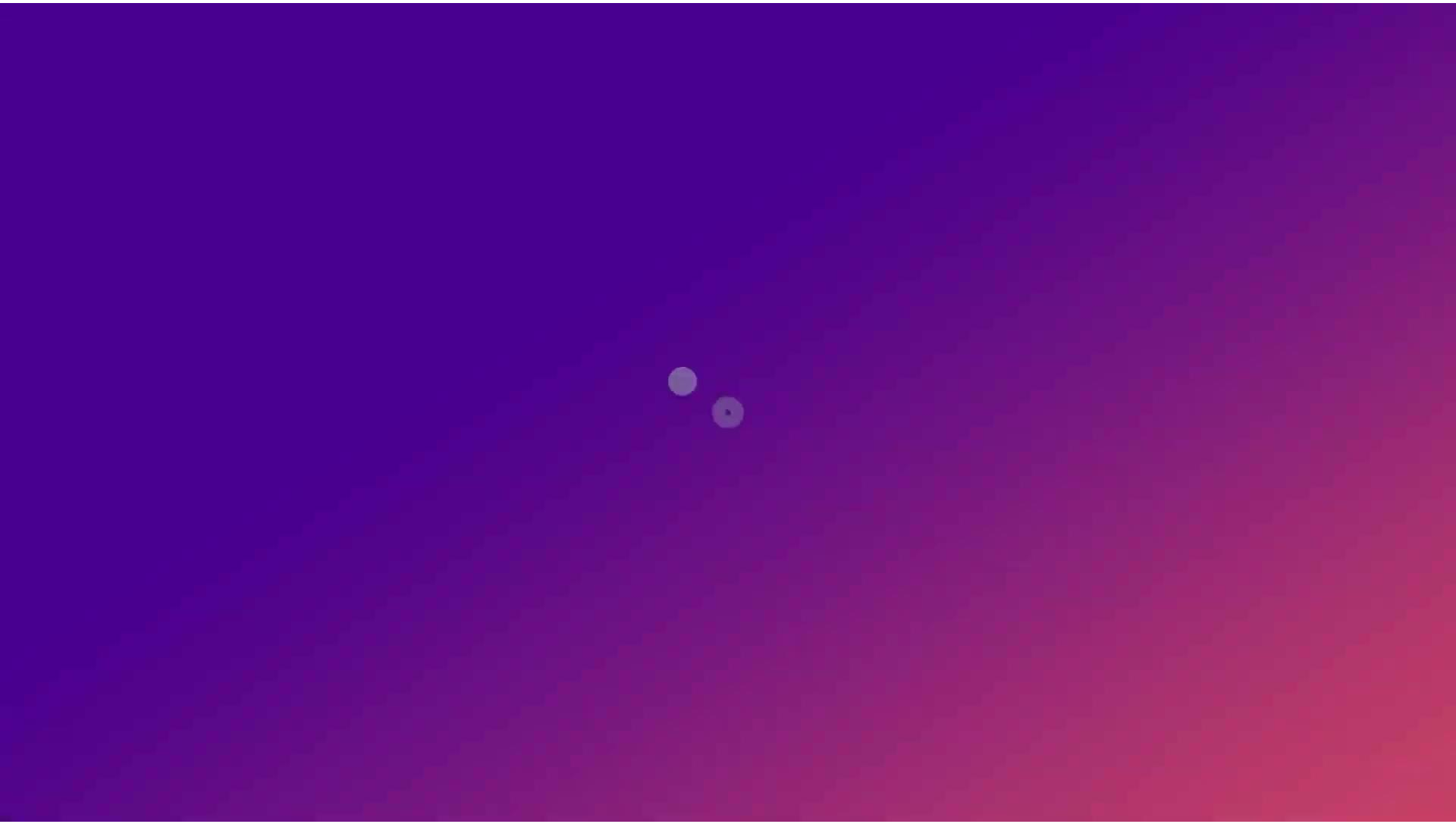

Grade 6 • Unit 7 • Lesson 7 • Activity 2

Info Gap: Points on the Number Line

Info Gap: Points on the Number Line
Problem Card 0

The points P, Q, and R are located on the number line. What is the location of point Q?

Info Gap: Points on the Number Line
Data Card 0

- P and R have the same absolute value.
- P and R have different signs.
- The distance between P and R is 6.
- Q is less than R.
- The distance between Q and R is 2.
- The absolute value of P is 3.
- Point R is located at 3.

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". . . things that had failed in my classroom, now I feel renewed to go back and try again with some new strategies and really get all of my kids engaged and excited."

Vivian Quintana

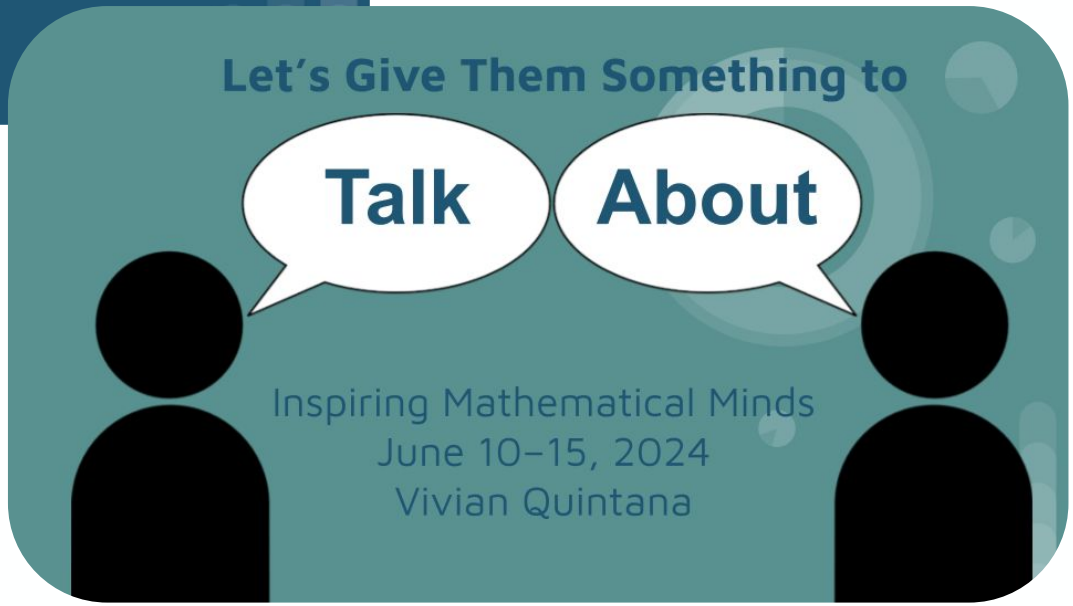
Teachers Sharing Their Practice

What? Students Will Talk About Math?

APS Middle School Math PD

Strategies for Encouraging Math Discourse and Student Engagement

November 7, 2023
Vivian Quintana



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From IM MathLab Participant to IM MathLab Facilitator

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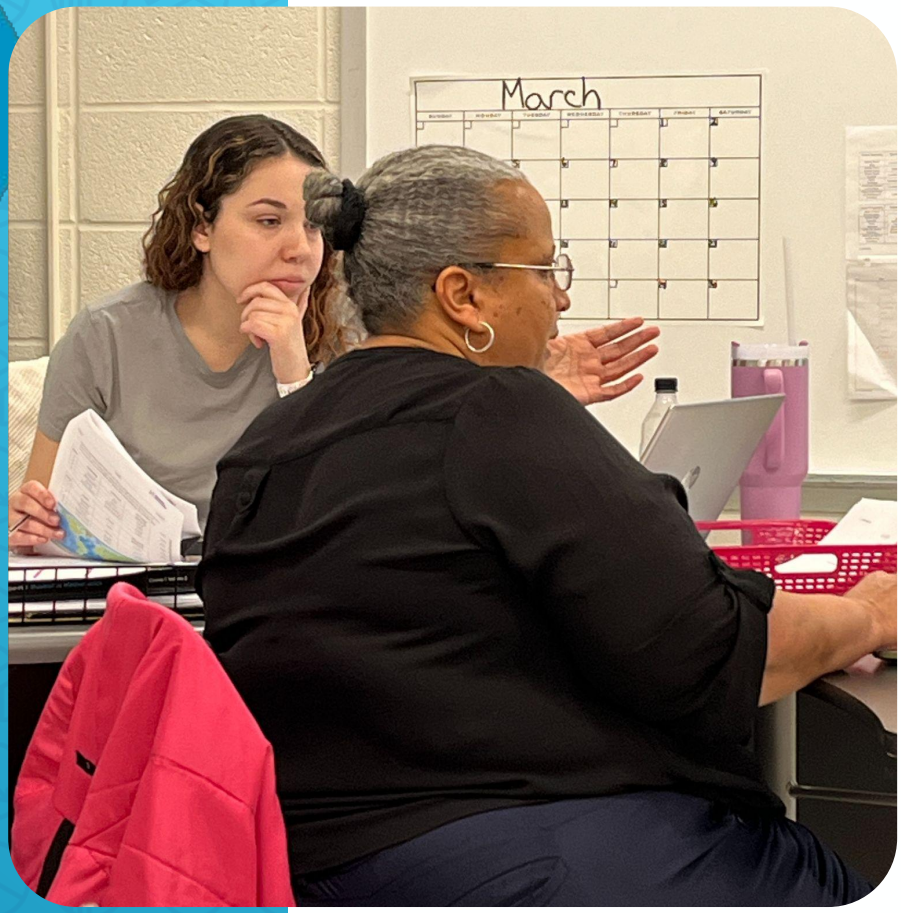
Planning an IM MathLab



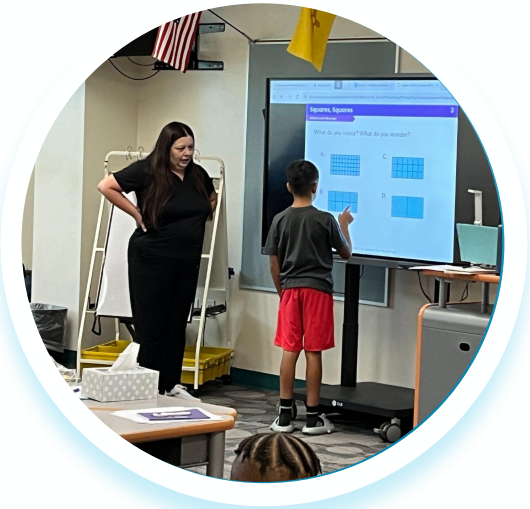
What's Your Why?

- IM's instructional model
- Instructional routines
- Math language routines
- Building classroom community
- Discourse structures

What's Your How?

Summer Camp

Summer School

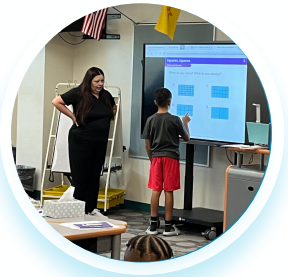


One Day

What's Your How?

Summer Camp

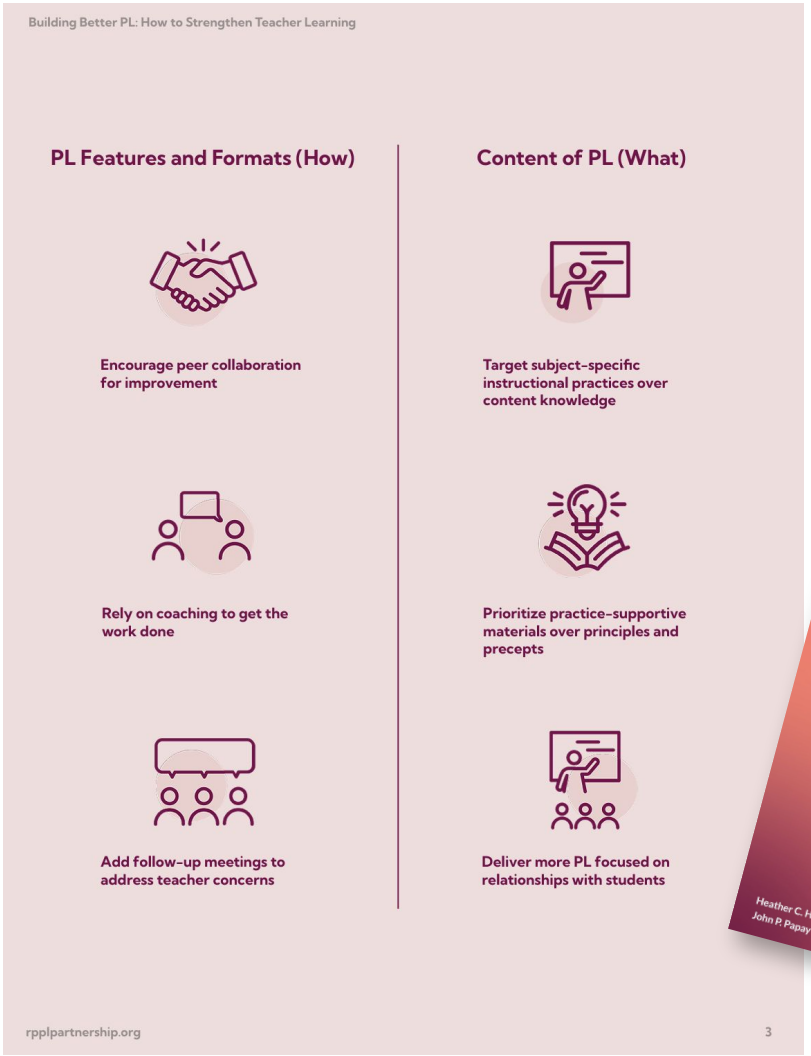
Summer School

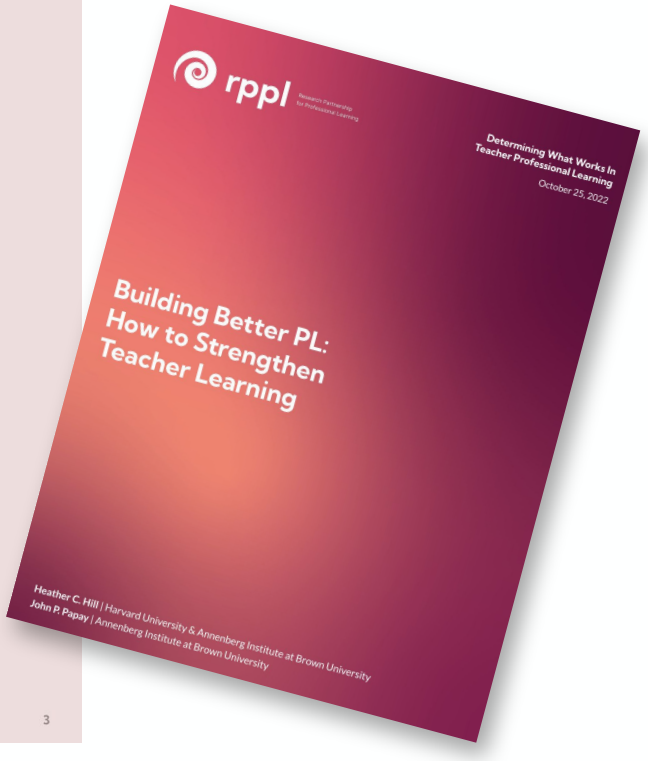


One Day

imk12.org/MathLab

Building Better PL: How to Strengthen Teacher Learning

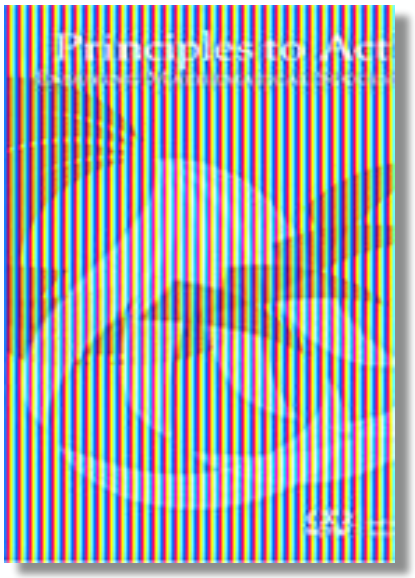




What comes next for Syracuse?

- Focus on Think Pair Share
- Teacher Survey to measure teachers' comfort with enacting the routine
- Coaches observe Think Pair Share and share reflections with teachers

"The question is not whether all students can succeed in mathematics, but whether the adults organizing mathematics learning opportunities can alter traditional beliefs and practices to promote success for all."



National Council of Teachers of Mathematics. (2014). *Principles to actions: Ensuring mathematical success for all*. National Council of Teachers of Mathematics.

IM MathLab Shifts Beliefs

Teachers

- “This was amazing and I'm excited to apply everything.”
- “Now I think that students are all capable of generating mathematical questions.”

Coaches

- “This could be so beneficial for building teachers' practice and confidence.”
- “. . . with the help of these guides, I can walk with teachers through this thinking to help them better support their students.”

Students

- “I feel like we didn’t really do math. But it was fun!”
- “I feel great you let people get their shine. . .”
- “Good because there was no drama and we learned a lot.”

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Q&A

Have questions?
Enter your question into the Q&A field.

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Thank You

Visit us at

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to Learn More about IM

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