A Goal Monitoring Conversation:

PPS 3rd Grade Mathematics





Dr. Wayne N. Walters & Leadership Team

January 14, 2025

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Goal – 3rd Grade Mathematics Proficiency

Why?

In 3rd grade, students use mathematical models and strategies to solve multi-step problems, and literacy and mathematics work together to build competence, confidence, and a positive math identity. This grade is crucial for applying mathematical concepts in real world settings. Despite recognizing existing racial and disability disparities in math outcomes, we find that proficiency is lower than in English Language Arts, indicating a need for focused improvement.

What?

By the end of the 24-25 school year, 33.3% of students in grade 3 will be proficient on the state's PSSA and PASA Mathematics assessment. At the end of the 20-21 school year, 21.2% of third-grade students were proficient, establishing the baseline for our 5-year goal of achieving 39.4% by 2027.

How?

PA Classroom Diagnostic Tool (CDT), 3 administrations

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What is Positive Math Identity?

Definition: A positive math identity refers to a student's belief in their ability to learn and do math, as well as their sense of belonging and value within the math community. Essentially, it's about feeling confident and capable in math, believing that math is accessible and relevant to them, and seeing themselves as a "math person". Building positive math identity is particularly important when dealing with historically marginalized groups.

Key Aspects

- **Belief**: "I can succeed in math."
- **Belonging**: Feeling valued in the math community.
- **Attitude**: Math is interesting and important.
- **Resilience**: Embracing mistakes as part of learning.

Why It Matters

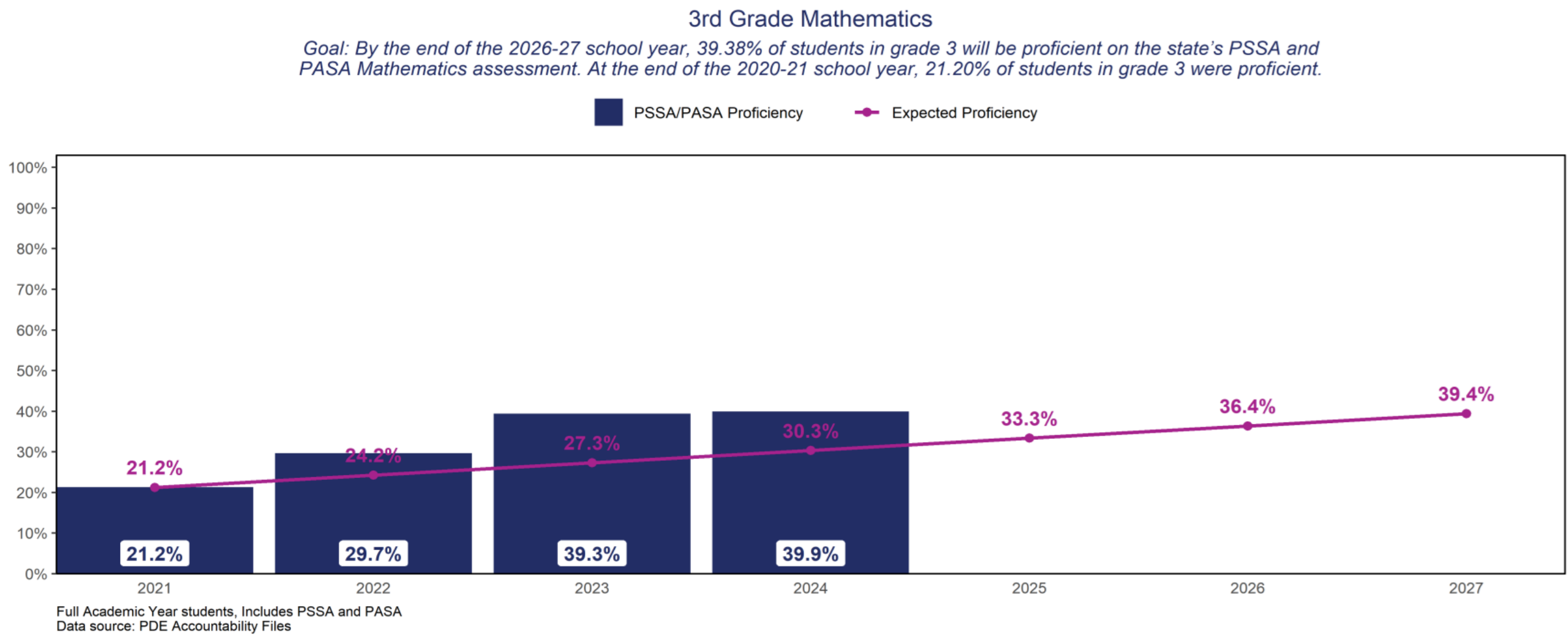
- Boosts achievement and engagement.
- Reduces math anxiety and promotes persistence.

How to Foster It

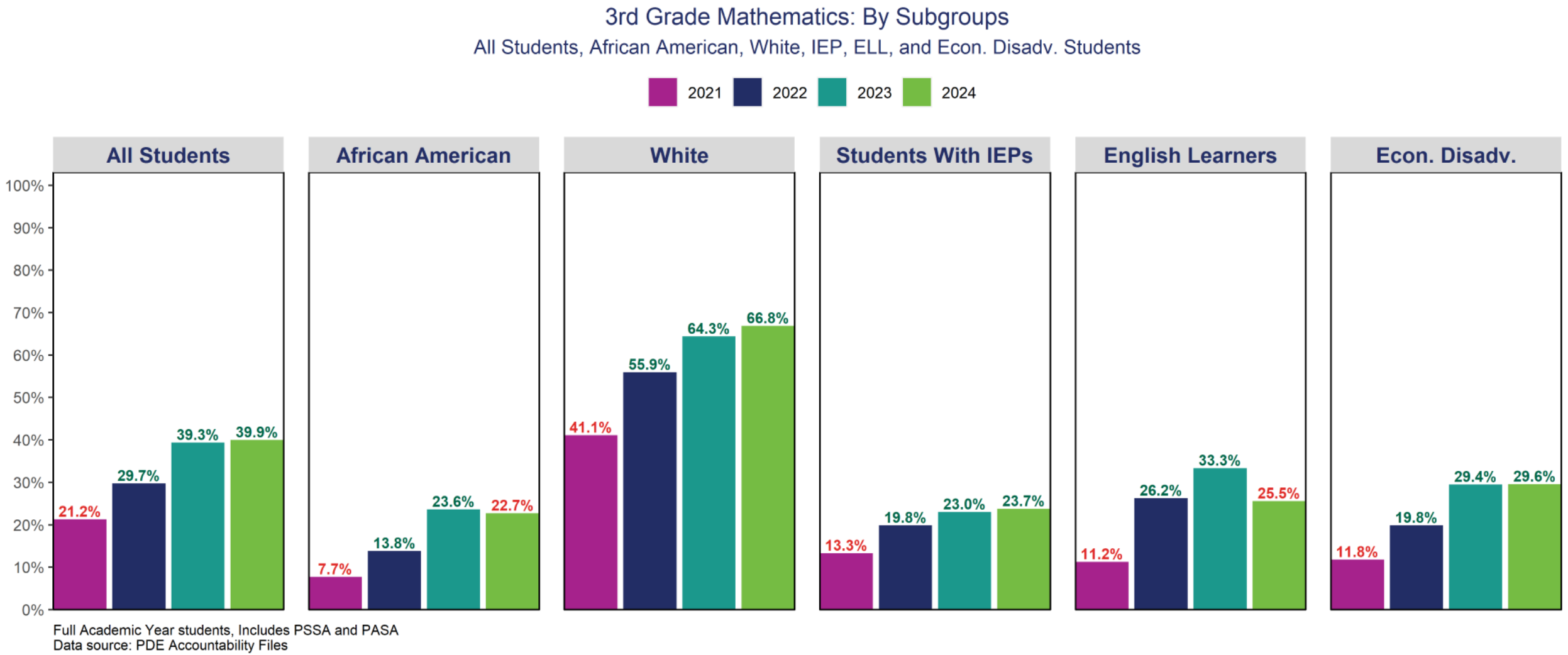
- Create an inclusive, supportive classroom.
- Promote a growth mindset.
- Focus on problem-solving and understanding over memorization.

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Goal – 3rd Grade Math Proficiency (By Year)



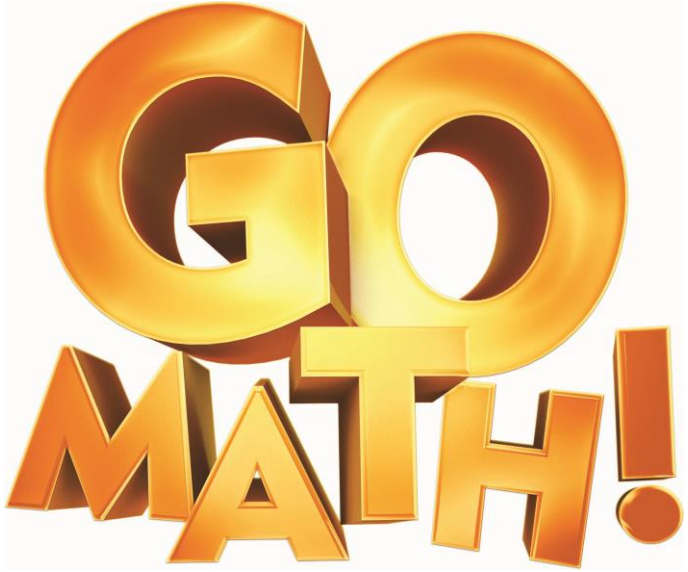
Goal – 3rd Grade Math Proficiency (By Subgroups)



Full Academic Year students, Includes PSSA and PASA
Data source: PDE Accountability Files

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A New Curriculum Shift: GoMath to Illustrative Mathematics



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Illustrative Mathematics®
LEARN MATH FOR LIFE

	GoMath	Illustrative Mathematics
Focus & Coherence	**Partially Meets Expectations in 2/9 grade levels (K-8)**	**Perfect Rating for all grade levels (K-8)**
Rigor & Mathematical Practices	**Partially Meets Expectations for all grade levels (K-8)**	**Perfect Rating for all grade levels (K-8)**

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3rd Grade Math CDT Results – Fall & Winter

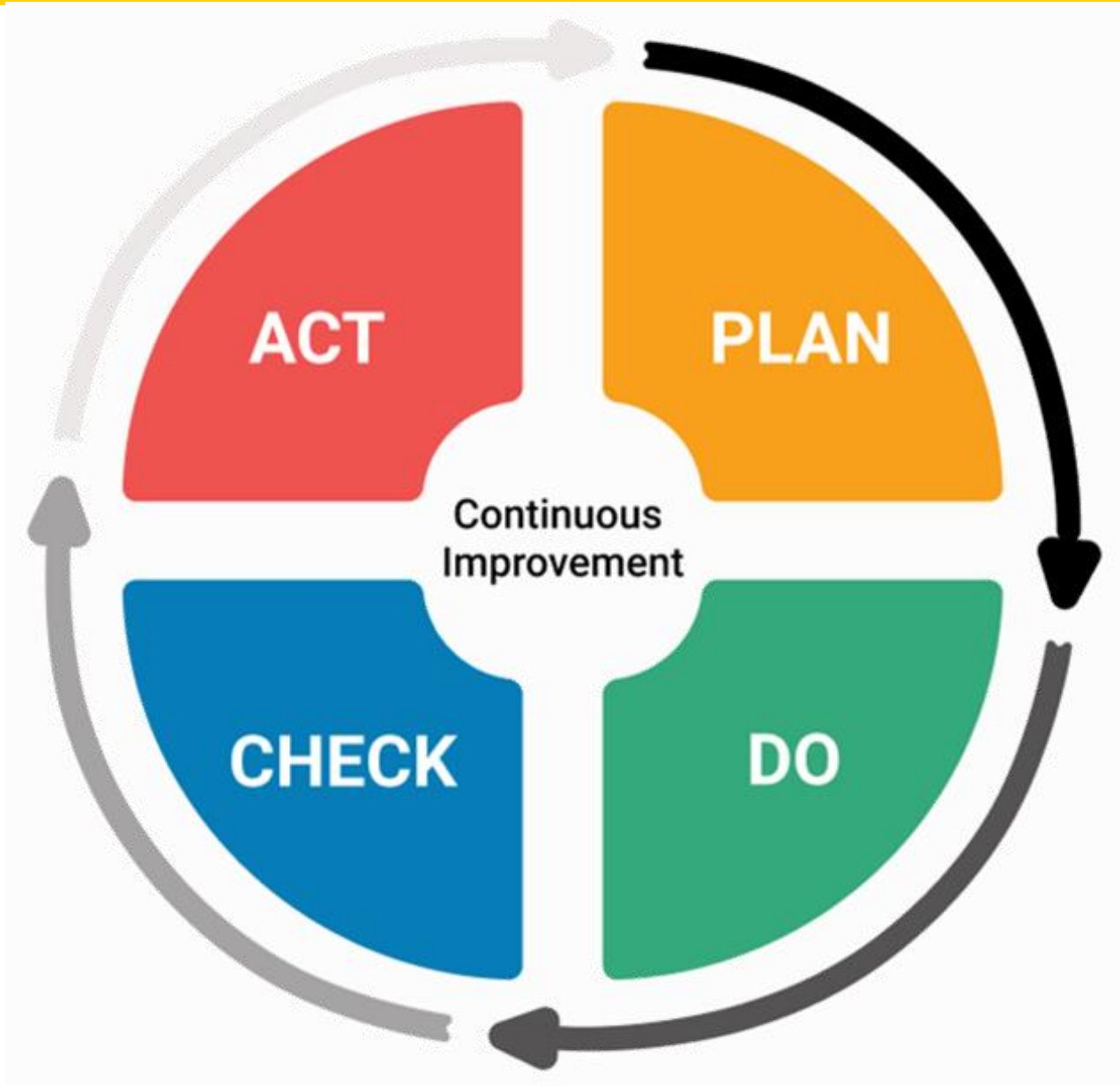
CDT Results by Grade										
Assessment	Assessment Window	Assessment Completion			Red Range	Green (Below Midpoint)	Green (Above Midpoint)	Blue Range	Likely Proficient or Advanced	Increase/Decrease in % of Students Performing At/Above Grade Level
		Completed	Required	Rate						
Grade 3 Mathematics	Fall	1333	1381	96.5%	93.5%	4.6%	1.1%	0.8%	2.0%	
	Winter	1371	1413	97.0%	87.6%	8.2%	2.8%	1.4%	4.2%	5.9%

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3rd Grade Math CDT Subgroup Results – Fall & Winter

CDT Results by Subgroup											
Assessment	Sub Group	Assessment Window	Assessment Completion			Red Range	Green (Below Midpoint)	Green (Above Midpoint)	Blue Range	Likely Proficient or Advanced	Increase/Decrease in % of Students Performing At/Above Grade Level
			Completed	Required	Rate						
Grade 3 Mathematics	Black	Fall	642	666	96.4%	98.4%	1.1%	0.5%	0.0%	0.5%	
	Black	Winter	657	678	96.9%	95.9%	3.2%	0.9%	0.0%	0.9%	2.6%
	White	Fall	400	406	98.5%	84.5%	10.8%	2.3%	2.5%	4.8%	
	White	Winter	408	416	98.1%	72.1%	17.4%	6.6%	3.9%	10.5%	12.4%
	IEP	Fall	321	339	94.7%	97.8%	1.6%	0.3%	0.3%	0.6%	
	IEP	Winter	329	346	95.1%	95.7%	3.0%	0.6%	0.6%	1.2%	2.1%
	ELL	Fall	166	182	91.2%	98.8%	1.2%	0.0%	0.0%	0.0%	
	ELL	Winter	181	192	94.3%	92.3%	7.2%	0.6%	0.0%	0.6%	6.5%
	Econ Dis	Fall	873	905	96.5%	98.5%	1.3%	0.2%	0.0%	0.2%	
	Econ Dis	Winter	896	929	96.4%	94.6%	4.6%	0.7%	0.1%	0.8%	3.9%

Strategy and Plan



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Strategy and Plan – **Building Positive Math Identity**

By building a strong math identity, we can empower African American students to reach their full potential in math and beyond.

Key Components of This Strategy:

Creating and implementing universal math norms in all PPS classrooms to establish a positive and inclusive learning environment.
Developing and delivering targeted mini-lessons that align with these norms, helping students build confidence and a growth mindset.
Intentionally modeling identity-building strategies during Unit Unpacking professional learning sessions to equip educators with the tools to support students' mathematical journeys.
Utilize Student Survey data to track student perceptions of themselves as math learners over time so that teachers can reflect on instructional practices and work to create a positive and inclusive learning environment that fosters the development of strong math identities

Rationale: Currently our African American subgroup is our lowest performing subgroup. Building a positive math identity is crucial for the academic success of all students, including African American students. It can support their achievement in the following ways: Challenging Stereotypes, Encouraging Persistence, Increasing Engagement, Promoting Critical Thinking, and Developing Future Pathways.

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Math Norms

EVERYONE
can learn
and be successful
with math

REASONING and SENSE-MAKING help us to solve complex problems

Math is about the **LEARNING PROCESS**

COLLABORATION is key to deepening everyone's understanding

MISTAKES
are valuable tools for learning

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Strategy and Plan – **Curriculum-Based Professional Learning**

Curriculum-based professional learning will strengthen our core Tier 1 mathematics instruction. This strategy will equip teachers and school leaders with the knowledge and skills to:

- Deepen their understanding of the grade level standards and how students progress over time through the problem-based curriculum.
- Master a variety of evidence-based instructional strategies embedded within the curriculum to engage students.
- Utilize data-driven decision-making to monitor student progress and adjust instruction accordingly through the curriculum-embedded assessments.
- Collaborate with colleagues to share best practices and problem-solve challenges.

Key Components of this Strategy:

Create an ongoing, cohesive series system of professional learning and support for school leaders through collaboration with the Assistant Superintendents to be delivered through monthly LLI meetings, and individualized support.

Implement an ongoing, cohesive series system of curriculum-based professional learning and support for teachers that expands opportunities for curriculum-based professional learning in the form of unit unpacking sessions.

Provide train-the trainer sessions to building-based math leaders. The sessions will be conducted in PLCs, or on building-based half days.

Deploy math coaches to support teachers with implementation of the new problem-based curriculum through professional learning, focused coaching cycles, and individualized flexible support.

Rationale: We are currently in our first year of implementing a new problem-based math curriculum. Implementing a new curriculum requires sustained, collaborative support to master the specific standards, routines, and tasks of each grade level. Data from math walks and from teacher feedback indicates a need for support in implementation of the new problem-based approach.

Strategy and Plan – **Math Language Routines**

Math Language Routines (MLRs) were specifically developed with English Language Learners in mind but are beneficial to all students. MLRs develop mathematical language and reasoning skills, alongside English language proficiency. MLRs provide opportunities for students to communicate their thinking clearly and concisely, listen actively to others' ideas and build on them, use precise mathematical language to describe concepts and procedures, connect mathematical ideas to real-world contexts, and reason critically about mathematical problems and solutions.

Key Components of the Strategy:

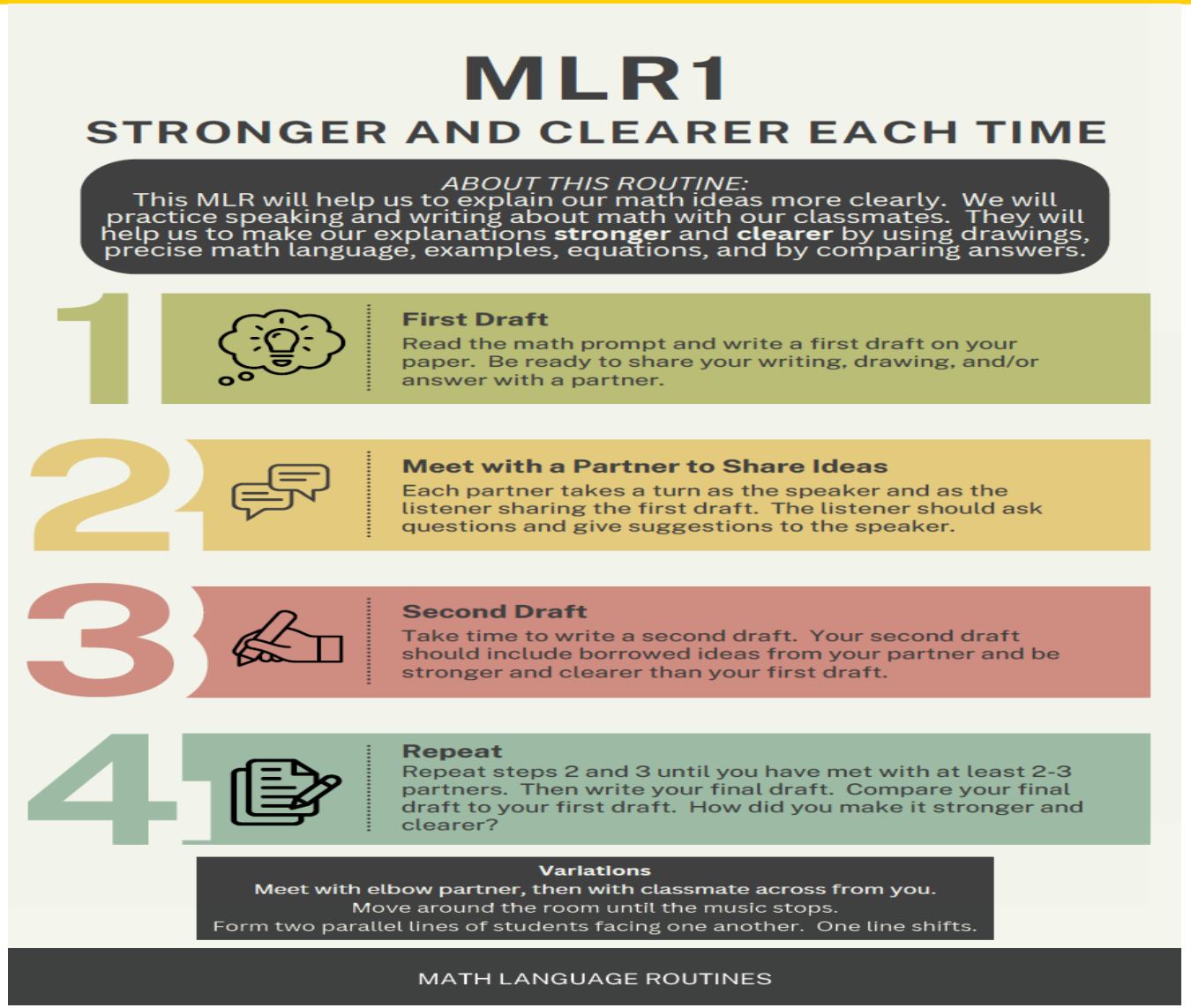
Design and Share Visual Models: Create clear, accessible visual models outlining the 8 Math Language Routines. These models will be posted in every third-grade classroom, serving as a guide for teachers and students.

Professional Learning and Support: Curriculum-based professional learning will be provided to teachers so that they feel confident with facilitating Math Language Routines. The routines will be modeled, one at a time, in Unit Unpacking sessions, through coaching cycles, and in the School-based Math Leader train-the-trainer sessions.

Family Support: Schools will teach families how to use the *Three Reads Math Language Routine* to support their student with making sense of and solving word problems.

Rationale: Third-grade math often challenges students with language-based tasks like understanding real-world problems and explaining their solutions. Math Language Routines can help students navigate these language-based hurdles and make math more accessible and engaging. These routines will support the district's growing English Learner population.

Math Language Routines



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LET'S
HAVE
A
Conversation