

## **Pittsburgh Public Schools Goal Monitoring Report: 3rd Grade Mathematics**

### **Introduction and Goal**

This report provides an update on Pittsburgh Public Schools' (PPS) progress toward improving 3rd-grade mathematics proficiency, a critical indicator of student success in foundational numeracy and long-term academic readiness. By the end of the 2024-2025 school year, PPS aims to achieve 33.3% proficiency among 3rd-grade students on the Pennsylvania System of School Assessment (PSSA) and Pennsylvania Alternate System of Assessment (PASA). This goal represents a targeted increase from the 21.2% baseline proficiency rate in 2020-2021. The analysis presented here reflects district-wide trends and subgroup performance based on recent PSSA results as well as the first and second administration of the Classroom Diagnostic Tool (CDT) for math in the 2024-2025 school year.

### **Why Focus on 3rd Grade Math?**

Third-grade mathematics is a critical phase in a student's academic journey. At this stage, students transition from learning foundational arithmetic to solving multi-step problems and applying mathematical reasoning to real-world scenarios. This phase is also essential for fostering confidence and building a strong mathematical identity, which research shows is a predictor of future academic success in STEM fields and beyond. Math identity refers to an individual's beliefs about their own abilities and potential as a math learner, how others perceive them in relation to math, and their perceptions of math itself and the nature of math abilities.

For PPS, this focus aligns with the district's broader commitment to equity and academic excellence. Proficiency in 3rd-grade math is not only foundational but also serves as an early indicator of a student's preparedness for the more rigorous mathematical concepts they will encounter in later grades. To support this effort, PPS employs both the PSSA and the CDT as critical tools for monitoring and guiding instructional practices. The PSSA provides a summative measure of student performance, while the CDT offers diagnostic insights throughout the year. These assessments work in tandem to give educators, school leaders, and administration a comprehensive view of student progress, enabling timely and data-driven instructional adjustments.

### **A New Curriculum: Illustrative Mathematics**

To support the district's commitment to improving 3rd-grade mathematics proficiency, Pittsburgh Public Schools adopted a new curriculum, Illustrative Mathematics. This decision reflects the need to equip students with the skills required to transition from foundational arithmetic to solving multi-step problems and applying mathematical reasoning in real-world contexts. Illustrative Mathematics was selected for its alignment with the district's goal of fostering a strong mathematical identity among students and ensuring instructional practices prepare them for future success.

The shift from the prior curriculum, Go Math, marks a significant change in teaching philosophy. While Go Math focused on direct instruction and practice-based activities, Illustrative Mathematics emphasizes conceptual understanding through open-ended, real-world problem solving. This approach mirrors the

expectations of professional mathematicians, encouraging students to think critically, collaborate, and connect mathematics to everyday scenarios. By adopting this curriculum, PPS seeks to provide students with deeper, more meaningful learning experiences that build both competence and confidence in mathematics.

However, implementing a new curriculum has presented challenges, particularly in ensuring that all teachers are adequately trained and prepared. Initial professional learning sessions for Illustrative Mathematics in August saw high participation rates, with 93% of 3rd-grade math teachers attending. By November, however, attendance had dropped significantly to 55%, raising concerns about sustaining teacher engagement and building consistent implementation practices. This data point offers additional perspective to inform a strategic response aimed at ensuring successful curriculum implementation.

### **Progress Monitoring Tool: CDT**

The Classroom Diagnostic Tool (CDT) is an essential component of Pittsburgh Public Schools' approach to monitoring and improving student outcomes in 3rd-grade mathematics. Administered three times annually, the CDT provides a real-time snapshot of student performance relative to Pennsylvania Assessment Anchors and Eligible Content. This computer-adaptive assessment provides detailed insights into each student's performance level at a particular point in time as well as areas needing improvement.

CDT data allows educators to evaluate how students are progressing toward grade-level standards and to anticipate their performance on the Pennsylvania System of School Assessment (PSSA). This adaptive assessment makes the CDT a valuable diagnostic tool, particularly at the start of the school year when foundational skill gaps must be addressed. By identifying these gaps early, teachers can adjust their instruction to target specific areas, such as problem-solving strategies or conceptual understanding, which are critical for math proficiency.

Moreover, the CDT's data enable disaggregation by subgroups, allowing PPS to address disparities in performance. For example, subgroup projections from the CDT, such as those for Economically Disadvantaged students, African American students, English Language Learners (ELL), or students with Individualized Education Plans (IEPs), provide actionable information to design differentiated instructional approaches. The CDT also helps educators track the efficacy of interventions over time, ensuring that strategies are both responsive and data-driven.

By leveraging the CDT, PPS is better equipped to align classroom practices with student needs, ensuring that all students, regardless of background, are supported in meeting grade-level expectations. This iterative use of diagnostic data fosters a culture of continuous improvement, enabling the district to refine instructional approaches and allocate resources where they are most needed.

## **The Data**

### **District Proficiency Analysis**

District-wide, the most recent PSSA results of 2024 reveal that 39.9% of 3rd-grade students scored proficient in mathematics, a slight increase from the 39.3% reported the previous year. While this year's

goal is set at a 33.3% proficiency rate, we recognize that this target has already been surpassed in 2024. [See Attachment A](#)

### **Subgroup Performance**

While district-wide proficiency rates increased slightly from 39.3% in 2023 to 39.9% in 2024, a deeper analysis reveals significant and persistent disparities among student subgroups that require targeted interventions. White students, who achieved a proficiency rate of 66.8% in 2024, outperformed other subgroups by an average margin of 41.5 percentage points. This disparity highlights the outsized contribution of white students to the district's overall proficiency rates when evaluating all subgroups.

When assessing subgroup performance, African American students saw a decline in proficiency from 23.6% in 2023 to 22.7% in 2024, while English Language Learners (ELL) experienced a sharper decrease, dropping from 33.3% to 25.5% over the same period. These decreases suggest ongoing challenges for these groups in meeting proficiency benchmarks. Conversely, students with Individualized Education Plans (IEPs) showed a modest increase from 23% to 23.7%, and economically disadvantaged students saw a slight rise from 29.4% to 29.6%.

The consistent improvement in proficiency among white students, increasing from 64.3% in 2023 to 66.8% in 2024, contrasts sharply with the declines or marginal gains observed in other subgroups. [See Attachment B](#)

### **CDT Data - Administration 1&2 of 3**

The Classroom Diagnostic Tool (CDT) has been administered twice this school year for 3rd-grade students in Pittsburgh Public Schools, first in the fall and most recently in the winter. The results from the second administration highlight an encouraging trend of improved performance across all subgroups. Between the fall and winter administrations, African American students saw a 2.6% increase in the percentage of students likely performing at or above grade level. White students demonstrated a more significant increase of 12.4%. Students with Individualized Education Plans (IEPs) improved by 2.1%, while English Language Learners (ELL) saw a 6.5% increase. Economically disadvantaged students experienced a 3.9% increase. On average, 3rd graders across the district improved by 5.9%, reflecting an upward trajectory in performance. [See Attachment C](#)

Looking ahead, the district anticipates even greater improvements following the implementation of strategic interventions. As preparations begin to align teaching strategies with the insights gained from the CDT data, the expectation is that the next administration (3 of 3) will reflect a substantial increase in the percentage of students performing at or above grade level. This iterative approach, supported by data-driven strategies, aims to further accelerate student progress and close achievement gaps across all subgroups.

### **The Interpretation**

The data underscores both progress and challenges in achieving 3rd-grade mathematics proficiency across Pittsburgh Public Schools. District-wide, a slight increase in PSSA proficiency rates from 39.3% in

2023 to 39.9% in 2024 reflects ongoing improvements. However, the persistent disparities among subgroups reveal the need for targeted strategies to achieve equitable outcomes.

The CDT data provides an additional layer of insight, demonstrating an encouraging upward trajectory in performance between fall and winter administrations. The 5.9% average increase district-wide in students performing at or above grade level underscores the impact of teacher instruction and the early adoption of the district's new problem-based curriculum. While white students exhibited the largest gains at 12.4%, the modest increases seen among African American (2.6%), ELL (6.5%), IEP (2.1%), and economically disadvantaged (3.9%) students indicate progress but also reaffirm the need for equity-focused strategies to accelerate growth across all subgroups.

### **The Evidence and Plan**

Pittsburgh Public Schools (PPS) has developed a robust and targeted strategy to address the disparities and challenges highlighted in the 3rd-grade mathematics data. This plan focuses on three key areas: building positive math identities, enhancing curriculum-based professional learning, and integrating Math Language Routines (MLRs). Each strategy is grounded in specific, actionable components designed to close achievement gaps and foster equitable student success.

### **Strategy #1: Building Positive Math Identity**

The district recognizes that fostering a strong math identity is critical, particularly for African American students, who represent the lowest-performing subgroup. A positive math identity empowers students to see themselves as capable mathematicians, which is essential for building confidence and promoting long-term engagement.

#### **Key components of this strategy include:**

- **Universal Math Norms:** PPS will implement universal math norms in all classrooms to create an inclusive and supportive environment.
- **Targeted Mini-Lessons:** Teachers will deliver mini-lessons that align with the universal norms, emphasizing the development of confidence and a growth mindset in math.
- **Identity-Building Modeling:** Educators will receive training during Unit Unpacking sessions to intentionally model strategies that support the development of students' math identities.
- **Student Surveys:** PPS will track student perceptions of their math identities through surveys, enabling teachers to refine their instructional practices based on feedback.

This strategy aims to challenge stereotypes, encourage persistence, increase engagement, and promote critical thinking. By focusing on these components, PPS intends to address both the academic and social-emotional barriers that have historically limited student success in mathematics.

## **Strategy #2: Curriculum-Based Professional Learning**

Effective implementation of the district’s new problem-based curriculum requires ongoing support and professional development for educators. PPS is committed to equipping teachers and leaders with the tools and knowledge needed to deliver high-quality, equity-driven instruction.

### **Key components of this strategy include:**

- **Grade-Level Mastery:** Professional learning sessions will focus on deepening teachers’ understanding of grade-level standards and the progression of student learning over time.
- **Instructional Strategies:** Teachers will be trained in evidence-based strategies embedded within the curriculum to engage students effectively.
- **Data-Driven Decision-Making:** Educators will learn to use curriculum-embedded assessments to monitor student progress and adjust instruction accordingly.
- **Collaborative Practices:** Teachers will collaborate in Professional Learning Communities (PLCs) to share best practices and address instructional challenges.
- **Math Coaching Support:** Math coaches will provide individualized coaching cycles to support teachers in implementing the new curriculum and addressing specific instructional needs.
- **Train-the-Trainer Sessions:** Building-based math leaders, including instructional team leaders (ITLs), school administrators, and math team leads, will participate in train-the-trainer sessions on topics such as Math Language Routines, unit assessment protocols, and acceleration-focused strategies.

The district will deliver these supports through a cohesive, ongoing system of professional learning and individualized coaching to ensure consistent, high-quality instruction in all 3rd-grade classrooms.

## **Strategy #3: Math Language Routines (MLRs)**

Recognizing that mathematical language is a barrier for many students, particularly English Language Learners (ELL), PPS is implementing Math Language Routines (MLRs) to enhance students’ ability to communicate their mathematical thinking. MLRs are designed to support both language development and mathematical reasoning, benefiting all learners while addressing the specific needs of ELL students.

### **Key components of this strategy include:**

- **Visual Models:** PPS will create and share accessible visual models outlining the eight Math Language Routines. These will be displayed in all 3rd-grade classrooms as a guide for both teachers and students.
- **Professional Learning and Support:** Teachers will participate in curriculum-based professional learning to build confidence in facilitating MLRs. These routines will be modeled during Unit Unpacking sessions, coaching cycles, and train-the-trainer workshops.
- **Family Support:** Schools will engage families through events such as Family Math Nights and provide resources to help parents use the Three Reads Math Language Routine to support problem-solving at home.

These routines will help students articulate their reasoning, engage with peers' ideas, and connect mathematical concepts to real-world applications. By integrating MLRs, PPS aims to make math more accessible and engaging for all students, particularly those navigating linguistic and cognitive challenges.

### **Conclusion**

Pittsburgh Public Schools has made incremental progress in improving 3rd-grade mathematics proficiency, but the persistent achievement gaps among subgroups underscore the need for targeted interventions. The district's use of tools like the PSSA and CDT provides valuable insights into student performance, while the new problem-based curriculum offers a promising framework for instructional improvement. Moving forward, PPS must prioritize equity-driven, data-informed strategies that address foundational gaps and support all students in building the mathematical skills necessary for academic and lifelong success.