New K-8 Math Curriculum Imagine Learning Illustrative Mathematics



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Overview

During tonight's presentation I will highlight these questions:

- Why did we choose Imagine Learning Illustrative Mathematics and why was it needed?
- *What* is Imagine Learning Illustrative Mathematics and what are the high leverage and evidence-based strategies emphasized in Imagine Learning Illustrative Mathematics?
- *How* will we ensure successful implementation and improved student outcomes?





Why?





PSSA Data

- In the 2018-19 school year, 31.5% of PPS students districtwide were proficient and advanced on the PSSA.
- In the 2020-2021 school year, 17.8% of PPS students districtwide were proficient and advanced on the PSSA.
- As of the 2022-2023 school year, 26.0% of PPS students districtwide were proficient and advanced on the PSSA.







Research – Positive Student Outcomes

In a 2023 study from Johns Hopkins School of Education, <u>Impact Evaluation of Imagine</u> <u>Learning Illustrative Mathematics in Fort Zumwalt School District</u>, the conclusions state:

"In all, the results of this evaluation showed generally positive findings regarding both student achievement impacts and teacher program perceptions relating to IL Illustrative Math.

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NCTM's Principles and Standards for Developing Conceptual Understanding in Mathematics

<u>Stanford University Graduate School of Education – "Principles for the Design of Mathematics</u> <u>Curricula: Promoting Language and Content Development"</u>

> Imagine IM builds Mathematical Language Routines to most lessons throughout each unit.



Every Student Succeeds Act (ESSA) Evidence

In 2015, the Every Student Succeeds Act (ESSA), replaced No Child Left Behind.

The ESSA tiers of evidence provide districts and schools with a framework for determining which programs, practices, strategies, and interventions work in which contexts and for which students.

Tier	Strength of Evidence	Type of Evidence
1	Strong	Supported by one or more well-designed and well-implemented experimental studies
2	Moderate	Supported by one or more well-designed and well-implemented quasi-experimental studies
3	Promising	Supported by one or more well-designed and well-implemented correlational studies (with statistical controls for selection bias)
4	Demonstrates a Rationale	Based on high-quality research findings or positive evaluation that the activity, strategy, or intervention is likely to improve student outcomes or other relevant outcomes

In December 2023, Imagine Learning Illustrative Mathematics received a Tier

2 ESSA Evidence Rating.





EdReports – GoMath vs. Imagine IM

EdReports is an independent nonprofit designed to improve K-12 education that increases the capacity of teachers, administrators, and leaders to seek, identify, and demand the highest quality instructional materials.

2014-2015 Go Math	REMOVE	REMOVE
PUBLISHER Houghton Mifflin Harcourt	PUBLISHER Imagine Learning f/k/a LearnZillion	PUBLISHER Imagine Learning f/k/a LearnZillion
SUBJECTGRADESREPORT RELEASEMathK-82/15/2015	SUBJECTGRADESREPORT RELEASEMathK-54/7/2022	SUBJECTGRADESREPORT RELEASEMath6-82/27/2020
ALIGNMENT USABILITY VISABILITY Not Eligible	ALIGNMENT USABILITY Meets Meets	ALIGNMENT USABILITY Meets Meets

GoMath vs Imagine IM

- In the "Focus and Coherence" alignment to standards, GoMath partially meets expectations in 2/9 grade levels (K-8). Imagine IM has a perfect rating for "Focus and Coherence" for all grade levels (K-8).
- In the "Rigor and Mathematical Practices" alignment, GoMath only partially meets expectations for all grade levels (K-8). Imagine IM has a perfect rating for all grade levels (K-8).

Instructional Materials Review Committee Feedback

- "Great support for teachers on the lessons and units"
- "Access to lessons and resources that provides support to build more foundation and advancement"
- "Relevant topics showing relation to everyday use"
- "Introduction provides opportunity to communicate with peers as well as practice problems for individual work"
- "So glad to be part of this! This is the curriculum I will be retiring with... so happy!"









Approach to Math

Go Math	Imagine IM		
More traditional, lecture-based approach with explicit instruction and practice problems.	Highly aligned with national and state standards, research and evidence-based including the 8 Mathematical Practices for Teaching and Learning. This ensures students develop a deep understanding of key concepts and essential skills.		
Promotes practices that contributes to widening the opportunity gap for historically marginalized groups.	Promotes practices that contributes to closing the opportunity gap for historically marginalized groups.		
 For example: Focusing on getting the "right" answer. Procedural fluency over conceptual understanding. Independent practice is valued over collaboration and teamwork. Gradual release of responsibility is the primary format of the class. 	 For example: Focus on understanding concepts and reasoning over just getting the "right" answer. Value collaboration and student discourse. Mistakes are valuable and are opportunities to learn. Conceptual understanding leads to procedural fluency. Students see themselves as doers of mathematics through meaningful feedback and elevating student voices and ideas 		

A Pathway to Equitable Math Instruction

• Strategies are woven across all grade levels.

- Examples (not an exhaustive list):
 - Mathematical Language Routines
 - "What do you know about ?"
 - Number Talks
 - Notice and Wonder
 - How many do you see?





Blending Math and Language

MATH

Extending discourse Discussing complex problems Giving explanations Constructing arguments Making conjectures **Reading complex sentences** Stating assumptions Using vocabulary in context

LANGUAGE

Understanding Language

Stanford EDUCATION





Math Language Routine Example: Three Read Strategy



Problem-Based Curriculum

"Problem-Based Curriculum"

Cultivate Attitudes and Beliefs About Mathematics
 Active Learning Through Collaboration

"Students learn mathematics as a result of solving problems. Mathematical ideas are the outcomes of the problem-solving experience rather than the elements that must be taught before problem solving."



Imagine IM





- 1. Teacher ensures students understand the question
- 2. Students work individually Teacher monitors, listens, questions



3. Students work in groups Teacher monitors, listens, and asks questions to understand students' thinking

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4. Teacher helps students synthesize their learning

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- Teachers should build on what students know.
- Good instruction starts with explicit learning goals.
- Each and every student should have access to the mathematical work.



Professional Learning

Spring 2024 – Summer 2024 (Preparing for the Rollout)

- Professional learning opportunities for building principals, district leaders, teachers and Office of Curriculum and Instruction staff.
 - High-level overview of Imagine IM and its components.
 - Understanding the overarching concept of problem-based instruction and tools to provide instruction support for teachers.
 - Exploring digital and print materials to grasp unit and lesson structures and learn how to prepare for student-centered teaching.

Fall 2024 – Spring 2025

- Unpacking each unit of instruction to deepen teachers' planning and facilitation of studentcentered learning, with a focus on using student thinking and formative assessments to guide instructional decisions.
 - This will be continuous learning throughout the school year.
- Math Academic Coaches (MAC) are designated to focus support on specific grade bands (K-5, 6-8, 9-12). Teaching focus will be targeted and consistent.



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