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**To:** School Board

**From:** Cheryl Proctor, Deputy Superintendent Instruction & School Communities  
Meisha Plotze, Interim Senior Director Middle Grades Instruction  
Yeng Dhabolt, Director College & Career Readiness  
Kristin Moon, Program Administrator Middle Grades Math & Science  
Susan Holvek, Program Administrator High School Math & Science  
Mary Wiener, Manager, Instructional Resource Adoption

**Subject:** 6-12 Mathematics Instructional Materials Adoption

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## **BACKGROUND**

The previous 6-8 adoption was completed in 1999 with Connect Math Project. In 2009, PPS updated the adoption of Connected Math Project 2. As of the 2018-2019 school year, the SBAC three-year average for all middle grades mathematics student proficiency was 47.5%.

Our persistently underserved range from a proficiency level of 8% to 9%. The previous 9-12 adoption was completed in 2001. As of the 2018-2019 school year, the three-year average for all high school mathematics students' proficiency was 29%. Our persistently underserved range from a proficiency level of 5% to 6%. This is not to say that the lack of updated materials alone is the cause for such low proficiency, but the lack of alignment between the mathematics standards and the instructional materials creates conditions such that classroom educators are forced to create their own resources and adjust practice without necessarily being certain they are achieving the goal of alignment to grade-level standards. There were also challenges around ensuring the materials reflect cultural relevance that students and educators will benefit from.

## **RELATED POLICIES/BEST PRACTICES**

Best practices in mathematics instruction means that there is a common instructional scope and sequence where each grade is anchored in current standards. Teaching and learning needs to be supported by high-quality instructional resources that develop content knowledge and skills across multiple standards. Opportunities for student engagement need to build on student curiosity so they are encouraged to think, wonder, and participate in the mathematical practices. For learning to engage students, it needs to be relevant and authentic, culturally responsive, build on their cultural and linguistic strengths, and be meaningful to their lives. In a student-centered classroom, students are using mathematical practices such as problem solving, explaining their thinking, computational and mathematical thinking, constructing arguments, and making use of patterns and problem solving. Students are actively developing, testing and refining their thinking. In mathematics, best practices also means that every student has the materials they need to collaborate in engaging hands-on activities.

## **ANALYSIS OF SITUATION**

Centrally providing 6-12 mathematics instructional materials which are vertically and horizontally articulated to support all students based on evidence-based mathematical best practices. All 6-12 teachers are then able to focus on instruction and differentiation rather than spend time searching for instructional materials from various books and websites. Common mathematics instructional materials enables district-wide shared focus on implementing and sustaining culturally relevant teaching practices through ongoing professional development and using student work to reflect on effectiveness of instructional practice and equitable assessment practices for all students. Additionally, common 6-12 high quality mathematics instructional materials provide a baseline of instructional materials to ensure all students have access to rigorous, coherent, culturally relevant mathematics instructional materials. This reduces the detrimental effects of learning interruptions for students having to navigate housing or other insecurity, as a common scope and sequence and instructional materials will support familiarity with the district-wide mathematics program. Students will spend less time figuring out how to engage with the instructional materials during these types of transitions. No purchased set of instructional materials will ever provide the full range of supports that are needed for daily classroom instruction and differentiation. Current research tells us that it is the pedagogical practices and moves that teachers make that can have the greatest impact on student success (NCTM, 2019; NCTM 2014, Hattie, 2008). A common 6-12 high quality mathematics instructional resource allows for professional development with a strong focus on shifting instruction such that we see better outcomes for all students, especially those persistently underserved. Only improvements to our current best practices will support the closing of the perpetual achievement gap we continue to see in PPS.

## **FISCAL IMPACT**

This purchase is part of the Bond funded instructional resources See Attachment C - MidSchoolMath: Core Curriculum and McGraw-Hill Illustrative Math contracts for purchase details.

## **COMMUNITY ENGAGEMENT (IF APPLICABLE)**

The decision to fully adopt MidSchoolMath Core Curriculum for Middle School and McGraw-Hill Illustrative Math for high schools was a highly involved process including a cross-district 6-12 Mathematics Adoption of Instructional Resources (AIR) committee and a field test of 6-12 mathematics instructional resources. A deep analysis of the instructional resources was completed to evaluate instructional resource alignment with 6-12 mathematics standards, RESJ lens, student engagement, and integration of assessment and technology. A brief description of the 6-12 Mathematics AIR process and the Field Test are below.

- 6-12 Mathematics AIR committee - Four meetings of the AIR committee occurred between February 11, 2021 and April 30, 2021. Selected AIR committee participants convened for 2.5 hours virtually to learn about instructional materials evaluation, practice using the tools of such evaluation, and apply learned skills to reviewing suggested resources prior to selecting programs for vendor presentations. Using data from these opportunities, the AIR committee narrowed choices down to 4 vendor programs for middle school and 5 vendor programs for high school. Data analysis of the teacher responses from the evaluation tool indicated the two instructional resources for the field test. The middle school AIR committee members selected MidSchoolMath Core Curriculum and Carnegie Middle School Math Solutions 2022. The high school AIR Committee selected Carnegie High School Math Solutions 2022 and Illustrative Math.

Illustrative Math is an open-source curriculum, which means the planning team were required to select an approved vendor of the materials. The team selected Mc-Graw-Hill Illustrative Math.

- 6-8 and 9-12 Mathematics Field Test - The Field test occurred from September 1, 2021 to March 18, 2022. All field test teachers are able to use the materials through the end of the school year to minimize the disruption to student learning.
  - Student Data Collection: Students data was collected through a pre and post math identity assessment and a student feedback survey.
  - Family and Community Data Collection: Families and the community were offered two opportunities to review the field test materials, ask questions of the vendors, and hear presentations from the vendors about each of the presentations. Families, community members, non-field test teachers, building and district administrators, and support staff were emailed via district communication about the two opportunities.
    - In-person Review - (February 10, 2022) Materials were available in the BESC foyer from 9 a.m. - 8 p.m. People who reviewed the materials were invited to complete a paper or electronic survey. Vendors were available from 12 p.m. to 8 p.m. to answer any questions. From 6:00 - 7:30 p.m. vendors provided 20 minute presentations about their materials in the boardroom.
    - Virtual Review - (February 17, 2022) People were able to join a zoom meeting from 6:00 - 8:00 p.m. During the zoom meeting each vendor provided a 20 minute presentation. After the presentations, each vendor was in a breakout room available for questions from any participant. All participants were invited to complete an electronic survey. The presentations were recorded and made available for public review on the PPS adoption website. The electronic survey was available on the adoption website until the end of February 2022.

## **TIMELINE FOR IMPLEMENTATION / EVALUATION**

The timeline for implementation begins with the purchase of the MidSchoolMath Core Curriculum and McGraw-Hill Illustrative Mathematics instructional materials. As part of the purchase, teachers will have full digital access to all 6th - Algebra 3-4 digital resources. The PPS Math department will be trained on the materials by the vendor at the beginning of June 2022. The PPS Math department will then revise the scope and sequence for each grade level to align with the horizontal and vertical articulation of priority standards present in MidSchoolMath Core Curriculum and McGraw-Hill Illustrative Mathematics instructional materials. Over the summer, 6-12 mathematics special education teachers, instructional specialists, and mentors will be able to attend at least 3 days of professional development focused on the mathematical practices and the new MidSchoolMath Core Curriculum and McGraw-Hill Illustrative Mathematics instructional materials in June, August or September. During the summer, building administrators and other district level support staff will also receive professional development on the MidSchoolMath Core Curriculum and McGraw-Hill Illustrative Mathematics instructional materials. All student books will be ready for student and teacher use by the end of August 2022.

This will be followed by a three year professional development plan with the vendor that will provide 120 6-hour sessions over three years for teachers, administrators, families, and community members to engage in professional learning experiences around MidSchoolMath Core Curriculum and McGraw-Hill Illustrative Mathematics instructional materials and best practices in secondary mathematics instruction. Part of the goal of this three year PD timeline is to build a teacher cadre of experts that will facilitate district PD in the future and support school-

based Professional Learning Communities focused on using student work to inform instructional decisions to improve student outcomes in mathematics. The PPS Math department will continue to monitor student performance through the SBAC mathematics assessment, MAP growth MAP assessments, teacher and student feedback through surveys and focus groups, and classroom walkthroughs focused on student mathematics learning.

### **BOARD OPTIONS WITH ANALYSIS**

Our recommendation is to approve this Bond purchase. Purchasing MidSchoolMath Core Curriculum and McGraw-Hill Illustrative Mathematics instructional materials means that we will be able to move very quickly in meeting GVC goals. If not approved, 6-12 mathematics will continue with the current model which means we would continue to support various resources that are not aligned to the current standards. If we were to restart any part of the instructional materials adoption cycle, this would take another 6 - 18 months to complete.

### **CONNECTION TO BOARD GOALS**

A strong and comprehensive 6-12 mathematics instructional materials supports Board Goal #3 - By the spring of 2022, Portland Public Schools 8th grade students will move from 44% meeting proficiency in both English Language Arts and Mathematics (2018-2019 baseline) to 51% meeting proficiency in both subjects as measured by Smarter Balanced Assessment Consortium (SBAC) and Board Goal #4 - By the spring of 2022, Portland Public Schools graduates, who are underserved students of color, will move from 50.3% (current 2018-2019 baseline) to 56% successfully completing one or more of the post-secondary indicators. Through mathematics learning, all students increase their innate mathematics ability and achievement at the highest levels in mathematics by providing opportunities to experience the beauty, joy and wonder of mathematics through engaging, culturally-sustaining instructional experiences and real-life contexts.

If we have a Transformative Curriculum and Pedagogy (Educational System Shift) then we can support all teachers to be Knowledgeable and Committed Lifelong Learners, Inclusive and Responsive to Diverse learners, and are Self-aware and Reflective (Educator Essentials) which will result in students becoming Inquisitive Critical Thinkers with Deep Core Knowledge and Inclusive and Collaborative Problem Solvers (Graduate Portrait).

### **STAFF RECOMMENDATION**

Approve purchase by the spring of 2022, Portland Public Schools graduates, who are underserved students of color, will move from 50.3% (current 2018-2019 baseline) to 56% successfully completing one or more of the post-secondary indicators.

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*As a member of the PPS Executive Leadership Team, I have reviewed this staff report.*

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### **References**

*Catalyzing change in early childhood and elementary mathematics: Initiating critical conversations.* (2019). Reston, VA: NCTM, National Council of Teachers of Mathematics

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning.* Routledge/Taylor

& Francis Group.

*Principles to actions: ensuring mathematical success for all.* (2014). Reston, VA: NCTM, National Council of Teachers of Mathematics.

ATTACHMENTS

- A. 6-12 Mathematics Adoption Decision
- B. Contract for MidSchoolMath Core Curriculum purchase.
- C. Contract for McGraw-Hill Illustrative Mathematics purchase