



River Forest
Public Schools

Administration Building

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MEMO

Date: 1/10/17

To: Dr. Ed Condon, *Superintendent*

From: Dr. Alison Hawley, *Director of Curriculum and Instruction*

RE: K-8 Math Materials Pilot Update

Background and Overview

In the Spring of 2016, the District established a Math Leadership Team (MLT) to conduct a full review of the K-8 mathematics curriculum and materials in order to achieve the following goals:

- Develop D90 shared vision for mathematics education
- Review horizontal and vertical alignment of curriculum
- Review and adopt K-5 and 6-8 math instructional materials aligned to the Illinois Learning Standards
- Provide ongoing professional development
- Communicate progress toward goals across all buildings

To date, the MLT has reviewed research and best practices instruction to inform the first draft of the D90 shared vision, and initiated the math pilot materials vetting process in November.

Vetting of K-5 and 6-8 Mathematics Materials

The initial vetting of the math materials was conducted by a sub-committee of the MLT, which was representative across grade levels and buildings. The goal was to narrow down the initial selections to two finalist programs to be piloted in classrooms at each grade level and school.

The sub-committee conducted three meetings where they reviewed goals and expectations, received training with the vetting process, and reviewed the rubric to be utilized to evaluate the materials. Nancy Mueller, math coach and MLT co-facilitator from University

of Illinois at Chicago's West Cook Math Initiative, guided the sub-committee through the initial vetting process.

The sub-committee utilized the *Common Core State Standards Mathematics Curriculum Analysis Project* rubric developed by The Council of Chief State School Officers (CCSSO) and Texas Instruments. The rubric evaluates alignment to content, the Standards for Mathematical Practice, and Overarching Considerations (equity, formative assessment, and technology). Using the research-based vetting tool was intended to remove as much subjectivity and bias as possible in the selection process.

The following instructional materials were initially vetted by a sub-committee of the Math Leadership Team with the finalists appearing in bold:

Grades K-5	Grades 6-8
<ul style="list-style-type: none"> • Investigations in Number, Data, and Space • Everyday Math 4 • Math Trailblazers • Math in Focus • Eureka Math 	<ul style="list-style-type: none"> • Connected Math Project 3 • Pearson System of Courses • Carnegie Math • Illustrative Mathematics

Publisher Overviews of Materials Selected for the Classroom Pilot

The information below has been quoted directly from the publisher websites including who developed the materials, the publisher, and a brief mission or philosophy statement:

Pilot Materials for Grades K-5

Title: Investigations in Number, Data, and Space, 3rd edition
Developer: Technical Education Research Center (TERC), based in part on work with the National Science Foundation Publisher: Pearson (2017)
<p>Description: <i>Investigations 3</i> is a focused, coherent, and rigorous K-5 mathematics curriculum. Fully aligned to the content and practice standards of the Common Core State Standards (CCSS), deep and careful attention is paid to mathematics content and to student thinking and understanding. Making sense of mathematics is the heart of the work for students and teachers. The underlying principals:</p> <ul style="list-style-type: none"> • Students have mathematical ideas. The curriculum supports all students in developing and expanding those ideas. • Teachers are engaged in ongoing learning about mathematics content, pedagogy, and student learning. The curriculum supports them in this learning.

- Teachers collaborate with the students and curriculum materials to create the curriculum as enacted in the classroom. The curriculum provides clear, focused, and coherent mathematical agendas and supports teachers in implementing in a way that accommodates the needs of particular students.

Digital and Print Materials: Both digital and print materials are available.

Title: Everyday Math 4

Developer: University of Chicago, School Mathematics Project

Publisher: McGraw-Hill (2015)

Description: *Everyday Math 4* is a comprehensive Pre-K through Grade 6 mathematics program engineered for the Common Core State Standards. Developed by the University of Chicago, School Mathematics Project, the *Everyday Mathematics* spiral curriculum continually reinforces abstract math concepts through concrete real-world applications. The spiral curriculum of *Everyday Mathematics* helps ensure students master key concepts by continually revisiting content in a variety of contexts over time. Teachers are empowered to help students succeed because they can clearly see how content develops across the lessons and easily pinpoint each student's mastery level for every standard at any point in the year.

Digital and Print Materials: Both digital and print materials are available

Pilot Materials for Grades 6-8

Title: Connected Math Project 3 (CMP3)

Developer: Michigan State University, funded by the National Science Foundation

Publisher: Pearson (2014)

Description: All students should be able to reason and communicate proficiently in mathematics. They should have knowledge of and skill in the use of vocabulary, forms of representation, materials, tools, techniques, and intellectual methods of the discipline of mathematics, including the ability to define and solve problems with reason, insight, inventiveness, and technical proficiency. The overarching goal of CMP is to help students and teachers develop mathematical knowledge, understanding, and awareness of and appreciation for rich connections among mathematical strands and between mathematics and other disciplines.

Digital and Print Materials: Both digital and print materials are available

Title: Pearson System of Courses

Developer: Phil Daro, one of the lead writers of the Common Core State Standards Initiative for Mathematics guided the design, with oversight from an international advisory board.

Publisher: Pearson (2017)
<p>Description: The Pearson System of Courses is a vertically and horizontally aligned system that supports student learning, motivation, and engagement by integrating:</p> <ul style="list-style-type: none"> • A coherent curriculum in Mathematics K-11, with course objectives and outcomes that closely mirror the vertical progression of the Common Core State Standards. • Effective and engaging teaching, based on years of research on how people learn. This teaching happens within a classroom design that leverages social collaboration and pushes students to increasing take responsibility for their own learning. • A unique digital design created expressly to make use of digital tablets and the latest mobile and digital technologies that students use everyday. <p>Students benefit from a rich interactive experience. Teachers receive the learning materials and tools they need to unlock the potential of the Common Core State Standards.</p>
<p>Digital and Print Materials: Digital platform only, designed expressly to make use of digital tablets.</p>

Essential Understandings Regarding Curriculum Materials

In reviewing and selecting curriculum materials it is important to recognize the limitations and ongoing needs that are inherent in, or result from, the process:

1. **Teachers guide student learning; materials support this process:** high-quality instruction, based on teacher expertise is a key component in facilitating meaningful student learning
2. **There is no perfect math program or set of materials:** every set of materials will have its strengths and weaknesses. Materials often require additional supplementation, which will be identified and address during the first and second year of classroom implementation.
3. **The math pilot process includes acknowledged limitations:** time is the most precious commodity in schools. Our hope is that the time allotted to the pilot process allows teachers to gain the greatest amount of insight to make an informed decision, while being as focused and efficient as possible.
4. **Professional development is critical for success in implementation:** with any major shift in curriculum and new materials being used as a foundational resource, it is essential that professional development be provided.

Program Criticisms

Regardless of how stringent the materials development process was on the part of universities or institutions none were immune from criticism. With the exception of

Pearson System of Courses (because it is brand new and has not been widely distributed), criticism of each program are similar in theme and reflect the following concerns:

- Lack of procedural rigor and over-reliance on discovery methods
- Over-emphasis on everyday life problem-solving versus hard numbers
- Lack of basic skills instruction
- Over-reliance on parent support
- Confusion about spiraling nature of curriculum
- Heavy group nature of math curriculum versus teacher direct instruction and individual exploration

The above criticisms may reflect the changing expectations of mathematics instruction now required of students based on the Common Core State Standards for Mathematics. These criticisms also serve to underscore the importance of clear, ongoing communication during the implementation phase of the process to help build collective understanding around educational research and instructional best practices that result in high levels of math proficiency for all students.

Timeline for Math Pilot

Date	Description
January 11 th	Introductory meeting to review process, expectations, and select units
January 30 – February 24	Pilot window for Investigations and Connected Math Project 3
March 7 – April 7	Pilot window for Everyday Math 4 and Pearson System of Courses
April 18	Review of data and materials selection meeting
May 2	COW presentation
June	Board approval

Next Steps

The piloting teachers have been established, and approximately two teachers per grade level per building will participate in grades K-4, and one teacher each at grades 5, 6 & 8. Training will be conducted for each program prior to classroom implementation. The intention is for the pilot process to be completed no later than the first week of April.

Additionally, communications about the pilot process will be provided to parents of students in piloting classrooms in advance of the pilot implementation.