



Oak Park Elementary School District 97

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To: District 97 Board of Education
Dr. Carol Kelley, Superintendent of Schools

From: Dr. Amy Warke, Chief Academic and Accountability Officer
Dr. Tawanda Lawrence, Senior Director of Curriculum, Instruction and Assessment
April Capuder, Gwendolyn Brooks Principal
Dr. Todd Fitzgerald, Percy L. Julian Principal

Re: Middle School Math Pilot Review and Findings

Date: March 12, 2019

Type of Report: Informational

Purpose of Report:

The purpose of this report is to provide the Board of Education with a review of the District 97 Middle School Math Pilot. The mathematics program that the teaching and learning department is recommending for district-wide adoption during the 2019-2020 school year will be provided to the Board of Education in a follow-up written report and presentation on April 9, 2019. The information in this report is divided into the following sections:

- Middle School Math Pilot Program Selection
- Overview of Math Pilot Programs
- Middle School Math Pilot Implementation
- Middle School Math Pilot Analysis and Findings
- 2019-2020 Vendor Quotes for Pilot Programs
- Math Department Next Steps

Introduction:

The District 97 vision is to create a positive learning environment for all District 97 students that is equitable, inclusive, and focused on the whole child. The work of the Math Department contributes to the district level priority of strengthening middle school instruction and helping all of our students experience or achieve the following goals:

- Known, nurtured, and celebrated LEARNER
- Empowered and passionate SCHOLAR
- Confident and persistent ACHIEVER
- Creative CRITICAL THINKER & GLOBAL CITIZEN

Middle School Math Pilot Program Selection:

D97 Math Mission Statement

The Math Department began the math pilot process with drafting a mission statement during the last trimester of SY18. The process for developing the D97 Math Mission statement included the following steps:

- The Math Department reviewed sample mission statements
- In pairs, teachers drafted ideas to include in the D97 Math Mission as it related to curriculum, instruction, values, and teacher actions
- Next, a teacher pair joined another pair to combine ideas on chart paper and identify common ideas and denote unique ideas
- In quads, teachers discussed the ideas on chart paper and identified the statements individuals were passionate about including in the mission statement
- During the first department meeting this fall, teams of five to six teachers drafted paragraphs combining the ideas generated in the spring
- The final D97 Math Mission statement is below:

The curricula focus will allow for common student experiences that include real world context that is focused on research based best practices. Students will develop reasoning and problem-solving skills while exploring engaging Common Core State Standards (CCSS also known as the IL Learning Standards) aligned materials. Technology infused instruction will allow students to develop inquiry skills and promote lifelong learning. A constructivist, student centered approach, will support risk-taking and support the development of a growth mindset. Classroom tasks will be differentiated while promoting collaboration and perseverance in our community of learners.

As a Math department we collectively set high expectations and equip students with learning strategies to conquer familiar and unfamiliar tasks. Our daily practices embrace and value a growth mindset and provide students with multiple opportunities to collaborate and persevere through productive struggle and active participation.

As educators, we will establish a safe environment that is focused on learning over grades where students feel comfortable and confident to take risks. Teachers will use multiple ways of assessment for students to demonstrate their level of understanding and mastery of the learning outcomes. These practices are an application of frequent, high quality, meaningful professional development that covers best practices.

Math Pilot Selection Process

During the summer of 2018, a team of 14 teachers reviewed the curricular resources listed below using the [Equip Rubric](#) to determine the three resources that were best aligned to Common Core and the D97 Math Mission. As a result of this process, Carnegie Learning Middle School Math Solution, Pearson enVisionmath2.0, and Pearson Connected Mathematics Project 3 were selected to pilot beginning in September during the 2018-2019 school year.

1. Carnegie Learning Middle School Math Solution
2. Math Innovations
3. Glencoe Math
4. GoMath
5. Haese Mathematics
6. Pearson Connected Mathematics Project 3
7. Pearson enVisionmath2.0

Overview of Math Pilot Programs:

The table below represents an overview of the three mathematics pilot programs for grades 6-8.

Math Pilot Program	Overview
Carnegie Learning Middle School Math Solution	Carnegie Learning Middle School Math Solution is a mathematics program for grades 6-8. The instructional approach is centered around a scientific understanding of how people learn and a real world understanding of how to apply that science to conceptual math understanding and deeper learning skills. The instructional materials: 1) <u>Engage</u> - activate students' prior knowledge and experiences, present real-world examples, and facilitate collaborative classroom activities; 2) <u>Develop</u> - opportunities for group and independent learning; 3) <u>Demonstrate</u> - students are provided opportunities to show what they know.
Pearson enVisionmath2.0	enVisionmath2.0 is a mathematics program for grades K-8. It offers the flexibility of print, digital, or blended instruction. enVisionmath2.0 provides the focus, coherence, and rigor of the Common Core State Standards. The program offers project-based learning, visual learning strategies, and customization options for teachers and students. enVisionmath2.0 provides differentiation resources and strategies including tiered activities, learning centers, flexible grouping, and technology to accommodate learning styles and readiness.
Pearson Connected Mathematics Project 3	Connected Mathematics 3 (CMP3) is an inquiry-based mathematics program for grades 6-8. CMP3 assists students with math problem solving, reasoning and proof, communication, representation, and connections. These math practices require students to look deeper and connect problem solving to practical situations. CMP3 provides an inquiry model (Launch-Explore-Summarize) for learning mathematics and connects mathematical ideas to students' everyday world. The inquiry model guides the Investigations and supports active mathematical learning.

Middle School Math Pilot Implementation:

In preparation for the Middle School Math pilot, the teaching and learning department purchased resources for each pilot teacher and scheduled the following professional learning opportunities for teachers prior to conducting the pilot:

- Carnegie Learning Middle School Math Solution - One day PD on Friday, August 10th, 2018

- Pearson enVisionmath2.0 - .5 day PD on Wednesday, October 10th, 2018
- Pearson Connected Mathematics Project 3 - .5 day PD on Thursday, November 15th, 2018

The table below includes the units and associated topics piloted from each of the three resources by each teacher, across all grade levels at both middle schools.

Grade	Carnegie	Envision	CMP3
6th	Factors & Area ● Factors ● Multiples ● Prime and composite numbers ● Distributive property ● Order of Operations ● LCM/GCF ● Prime factorization ● Equivalent Expressions	Positive Rational Numbers & Decimals ● Identify and ordering rational numbers ● Multiplying and dividing fractions ● Fraction by fraction division ● Volume ● Volume composition and decomposition ● Surface area of rectangular prisms and pyramids ● Dividing with volume and surface area	Comparing Bits & Pieces ● Ratios ● Rates ● Equivalent Ratios ● Comparing Rates & Ratios ● Percents ● Converting Measurement Units w/multiplication and division
7th	Thinking Proportionately ● Circles & Ratios ● Fractional Rates ● Proportionality ● Proportional Relationships	Integers & Rational Numbers ● Relate integers and their opposites ● Understand rational numbers ● Add & Subtract integers ● Add & Subtract Rational Numbers ● Multiple & Divide integers ● Multiply & Divide Rational Numbers ● Solve problems with rational numbers	Moving Straight Ahead ● Linear Relationships
8th	Expanding Number Systems ● Number sort ● Rational and irrational numbers ● the real numbers ● The Pythagorean Theorem ● The Converse of the Pythagorean Theorem ● Distances in a	Analyzing and Solving Linear Equations ● Combine like terms to solve equations ● Solve equations with variables on both sides ● Solve multi-step equations ● Equations with no solutions or infinitely	Thinking with Math Models ● Represent data using graphs, tables, world description , and algebraic expressions' ● Investigate the nature of linear

	coordinate system • Side lengths in Two and Three dimensions	many solution • Mathematical modeling: powering down • Compare proportional relationships • Connect proportional relationships and slopes • Analyze linear equations $Y=MX$ • Understand the Y-intercept of a line • Analyze linear equations $Y=MX +B$	functions in context • Use mathematical models to answer questions about linear equations • Write linear functions from verbal, numerical or graphical information • Analyze and solve linear equations • Model situations with inequalities expressed as "at most" and "at least" situations • Investigate the nature of inverse variation in contexts • Use mathematical models to answer questions about inverse variation relationships • Compare inverse relationships with linear relationships
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The teaching and learning department is in the process of collecting feedback from various stakeholders on each pilot program. To gather input related to each resource, [teacher](#) and [student](#) surveys were developed. A Math Pilot Decision Matrix aligned to the D97 Middle School Math Mission has been drafted and will be used to determine the resource that will be recommended for adoption. Additionally, teachers are administering pre and post assessments for each of the resources.

Middle School Math Pilot Analysis of Findings:

Currently, all teachers have implemented Carnegie Learning Middle School Math Solution and Pearson enVisionmath2.0. Several teachers have implemented the third pilot program, Pearson Connected Mathematics Project 3, while some teachers are in the process of teaching this program. In order to adequately evaluate all three programs, additional time is needed for teachers to finish implementation of Connected Mathematics Project 3.

The math pilot has been extended to Friday, March 22 to accommodate teachers who are currently implementing Connected Mathematics Project 3. Immediately following the close of the pilot on March 22, the teaching and learning department will compile student performance, teacher survey,

and student survey data for the Math Department to review. The Math Department will meet on Tuesday, April 2 to select the mathematics program to recommend for adoption.

The teaching and learning department would like to thank the Math Department Chairs and the Math Department for their hard work and dedication during this process. We would also like to acknowledge the flaws we identified during the course of this pilot that had an impact on the process and may result in some inconsistencies in the data analysis and findings that will be provided to the Board of Education on April 9.

- Although the pilot expectations and deadlines were clearly communicated to staff, the math pilot was extended twice, which delayed the process of selecting a mathematics program to recommend to the Board of Education for adoption. We believe the teachers' request for two extensions is attributed to the demands of implementing three different programs with fidelity within a short period of time (September - February).
- Throughout the pilot, the Math Department struggled with gaining shared ownership of the pilot programs. Despite coming to a consensus around a mission statement for the math pilot, there was some discourse between teachers regarding one program that was selected to pilot. This issue could be the result of miscommunication within the Math Department as some teachers were unable to participate in the meeting that was held during the summer where Carnegie Learning Middle School Math Solution, Pearson enVisionmath2.0, and Pearson Connected Mathematics Project 3 were selected to pilot.
- Each math program included assessments for the unit that was piloted. However, there were some inconsistencies regarding the pre and post assessments that were administered to students at each grade level and across both schools. To ensure we are comparing pre and post assessments that are fundamentally the same, the student performance data that will be included in the analysis of programs will only consist of the classrooms at each grade level that administered common pre and post assessments.

2019-2020 Vendor Quotes for Pilot Programs:

The table below represents a projected budget outlining the anticipated cost for resources and consultant fee for professional learning for each pilot program. The information provided include initial proposals from vendors. The teaching and learning department will continue to negotiate with vendors to attempt to secure a lower cost for these resources.

2019-2020 Middle School Math Adoption Projected Budget				
Mathematics Program	Subscription	Student & Teacher Resources	Professional Learning Consultant Fee	Total
Carnegie Learning Middle School Math Solution	5-year contract	Year 1 - \$64,736 Year 2 - \$62,000 Year 3 - \$62,000 Year 4 - \$62,000 Year 5 - \$62,000	Year 1 - \$46,000 Year 2 - \$23,000 Year 3 - \$10,000	5-year Total \$391,736

Pearson enVisionmath2.0	6-year contract	Julian - \$111,446 Brooks - \$98,696	Year 1 - \$6,300	6-year Total \$216,442
Pearson Connected Mathematics Project 3	6-year contract	Julian - \$147,657 Brooks - \$130,960	Year 1 - \$6,300	6-year Total \$284,917

Math Department Next Steps:

The math pilot will conclude on Friday, March 22. A Math Department meeting will be held on Tuesday, April 2 to revisit the math mission statement and review student performance, teacher survey and student survey data of the three pilot programs. During this meeting, the Math Department will utilize a Math Pilot Decision Matrix that is aligned to the D97 Math Mission statement to select a math program to recommend for adoption during the 2019-2020 school year for grades 6-8.

A follow-up written report and presentation will be provided to the Board of Education on Tuesday, April 9 and will include the following items:

- Middle School Math Pilot Analysis and Findings
 - An analysis of student performance data and teacher and student survey data for each pilot program
- Middle School Math Program Recommendation for Adoption
- 2019-2020 Projected Budget and Resource Requirements for Recommended Program
- Math Department Next Steps