



A Community of Learners

Information Memo: Math Program Evaluation

TO: School Board

FROM: Trisha Kocanda, *Superintendent*
Curriculum Department

DATE: January 26, 2016

Overview & Background

During the 2012-2013 school year, the District Math Committee completed writing the student learning outcomes (KUDs) specific to each grade level. The School Board approved the following components of the K-8 revised Mathematics curriculum in the Spring of 2013:

- K-8 curriculum KUDs aligned to the Common Core State Standards and the Standards for Mathematical Practice
- K-8 Overarching Essential Questions and Overarching Understandings
- Winnetka District 36 Mission & Beliefs for Mathematics
- [Common instructional materials for Grades K-5](#) (*Investigations in Number, Data, and Space*)

Implementation Year 1 - 2013-2014

The new math curriculum and materials were implemented in all classrooms K-5. The new math curriculum was also implemented in grades 6-8; however, materials did not change due to lack of quality alternatives. Grade K-5 teachers participated in a week long summer training to support the implementation of the revised curriculum and new instructional materials. Over the course of the school year, teachers provided feedback regarding the KUD essential questions, the rigor of the established understandings, and the alignment of the materials to the Common Core State Standards for each math unit. In the summer of 2014, teacher representatives from the Math Committee and each grade level revised the math curriculum KUDs based on this feedback and revised the grade level scope and sequences.

Implementation Year 2 - 2014-2015

The second year of the implementation involved selection of resources intended to supplement the core instructional materials and provide differentiation resources for grades K-5 (such as *Contexts for Learning*, *The Numerical Fluency Assessment*, and *ST Math*). Implementation of materials involved professional learning, modeling of materials, the use of demonstration classrooms, and review of student work. During the summer of 2015, members of the District Math Committee again reviewed the grade level scope and sequences to incorporate supplementary materials. More than 50% of the summer curriculum work time was dedicated to math.

Implementation Year 3 - 2015-2016

Having completed a two-year cycle of curriculum and scope and sequence revisions, the third year of implementation turns to examining student engagement and the impact on growth and achievement. Changes in the curriculum led to changes in the nature and structure of assessment. The next essential step in the curriculum review process is to select assessments and measures that monitor The Winnetka Public School District's Math Program Goals:

Student Outcome #1 (content focus)

Students will demonstrate mastery of and fluency with grade-level content that supports the following:

- *Conceptual Understanding and Mastery of Content*
- *Computational Fluency*
- *Application of Problem Solving and Critical Thinking Skills*

Student Outcome #2 (behavior focus)

Students will understand, apply, and demonstrate competency with the Standards for Mathematical Practice.

Student Outcome #3 (disposition focus)

Students will demonstrate a positive disposition toward mathematics.

2015-2016 Math Program Evaluation

After three years of implementing a revised curriculum and materials, the District will conduct a comprehensive math program evaluation to gain objective feedback on curriculum, instructional practices, materials, and professional learning. This evaluation will provide the staff, administration, and School Board with feedback regarding areas of strength, areas in need of improvement, and future recommendations.

District Requested Program Evaluation Framework

CURRICULUM & MATERIALS

- *Does the content build on itself appropriately over time with respect to mathematics concepts and skills?*
- *Do materials align with goals of Common Core including the Standards for Mathematical Practice?*
- *Do materials require students to engage in substantive mathematical thinking, problem solving, and communication (appropriate cognitive demand/rigor)?*
- *INSTRUCTION*
- *How demanding is the content of the lessons?*
- *To what extent do tasks maintain intended cognitive demand when implemented?*
- *What kind of attention is given to students' thinking?*
- *Can every student access the content? Is challenge and support evident in the classroom? (Differentiation)*
- *How do teachers foster classroom discourse communities?*
- *PROFESSIONAL LEARNING*
- *To what extent is there a focus on improving teacher skills and capacity to implement the articulated curriculum and support student learning?*

• **Recommended Evaluators**

- Accessing the national network of math professionals, four viable candidates for program evaluators were considered:
- Dr. Nanci Smith, consultant, University of Arizona, who worked with the District math committee and provided professional development during the course of the math review.
 - Determined that her involvement in the development process of our curriculum review would complicate objectivity.
- Mr. Erik Zahler, Math Department Head, The Spence School, NY, who worked with Francis Parker School
 - Determined that we would benefit from a researcher versus a practitioner.
- Dr. Akihiko Takahashi, DePaul University
 - A finalist, but determined that his availability would limit the scope of the evaluation.
- Dr. Miriam Sherin, Northwestern University and Mr. Jim Lynn, University of Illinois Chicago
 - RECOMMENDED

A program evaluation such as this is a rare undertaking for a school district. Dr. Sherin and Mr. Lynn's qualifications are outstanding, and they are leaders in the field of mathematics education. Much of their work involves helping mathematics teachers select and use high-level tasks with students and to promote substantive student thinking and discourse during instruction. As part of this work, they have both observed and provided feedback on hundreds of hours of mathematics instruction, across a variety of grade levels. Dr. Sherin has focused extensively on the role of classroom video as a resource for mathematics teachers, and as part of this work has used a variety of frameworks for evaluating mathematics instruction. Mr. Lynn has done similar work, and in addition, has recently been involved in curriculum development and curriculum alignment projects. Those experiences put them in the best position to successfully carry out D36's math program evaluation.

[Dr. Meriam Sherin - Curriculum Vitae](#)

[Mr. Jim Lynn - Curriculum Vitae](#)

Timeline & Cost of Evaluation

The timeline for the evaluation would be to conduct the materials evaluation from Feb 1- 29, the classroom observations from Feb 15 – March 30, and the focus groups, interviews, and professional development observations in March and April. They will provide a written report by June 1, 2016, and present to the Board no later than September 2016. The total charge to the district for this work will be \$40,000. Dr. Sherin charges \$1500 per day and Mr. Lynn \$1000 per day.

Proposal (Methodology & Time) from Dr. Sherin & Mr. Lynn

To: Trisha Kocanda, Superintendent, Winnetka Public Schools

Eileen Goodspeed, District Mathematics Facilitator

From: Miriam Sherin, James Lynn

Re: Mathematics Program Evaluation in Winnetka

Our proposal for evaluating the district's grade 1-8 mathematics program consists of four main parts, each of which is outlined below.

a) **Curriculum Materials** — Examine district mathematics standards and curriculum materials within and across grades 1-8.

- Broadly assess alignment of materials to each other.

Does the content build on itself appropriately over time with respect to mathematics concepts and skills?

- Broadly assess alignment of materials to Common Core.

Do materials align with goals of Common Core including with respect to the Standards for Mathematical Practice?

- Examine materials for level of cognitive demand and opportunities for student learning.

Do materials require students to engage in substantive mathematical thinking, problem solving, and communication?

- District will provide materials to review.
- Miriam and Jim will have an initial 2-hour orienting meeting with the mathematics facilitators to discuss the ongoing work around the mathematics curriculum over the past three years.

b) Classroom Observations — Conduct selected classroom observations across schools and grade levels

- 20 observations total:
 - 1 per school/per grade for Grades 1-4 = 12
 - 2 per grade for Grades 5-8 = 8
- Observe complete math lessons (approximately 60 minutes per classroom)
- Conduct brief 10 minute pre- and post-lesson interviews with each teacher observed
- Observations will focus on key aspects of mathematics instruction including: content of lessons, extent to which tasks maintain intended cognitive demand when implemented, kind of attention given to students' thinking, degree to which there is equitable access to content, and ways in which teachers foster classroom discourse communities.

c) Focus Groups and Interviews (Teachers, Principals, & Parents)

- We plan to conduct five focus groups with teachers, one per school, for approximately 90 minutes each, as well as individual 45 minute interviews with each of the five school principals (or administrative teams at each school).
- Our goal would be to discuss with the teachers and administrators their beliefs about and goals for mathematics instruction, their ideas about strengths and weaknesses of the

current program, and their typical approach to planning for and implementing instruction for the teachers, and for observing and assessing mathematics instruction for the administrators,

- One **teacher** focus group will be conducted jointly by Miriam and Jim. The remaining four teacher focus groups will be conducted independently. We anticipate 4-8 teachers participating in each focus group.
- One **administrator** interview will be conducted jointly by Miriam and Jim. The remaining four interviews will be conducted either by Miriam or Jim.
- We will also conduct three **parent** focus groups, with approximately eight parents in each group. The 90 minute discussions will explore parents' understanding of the district's mathematics program and their perceptions of the strength and weaknesses of the program. Miriam and Jim would conduct parent focus groups together, one with parents of students in grades 1-3, one with parents of students in grades 4-5, and one with parents of students in grades 6-8 (OR by Grades 1-4, 5-6, 7-8)

d) **Professional Development Observations**

- We anticipate that we will have time to observe only 1 or 2 professional development activities. We anticipate that it would be productive to observe 1-2 grade level meetings around mathematics instruction led by a mathematics facilitator.

Next Steps

- Board approves Math Program Evaluation (grades 1-8).
- Eileen Goodspeed serves as point of contact to coordinate dates and times with building principals for observations, focus groups, and professional learning activities. All work conducted between February 1 - April 1, 2016.
- Written report submitted to Superintendent and School Board by June 1, 2016.
- Administration and staff develop plans and responses to recommendations.
- Dr. Sherin and Mr. Lynn present to the School Board in August or September 2016.