Math Materials Pilot
Grades 6-8
May 19, 2015

Essential Questions

- Which instructional resources are aligned to our curriculum?
- What dynamic resources can be infused to support high-quality curriculum, teaching, and learning?
- How can we ensure that our materials and planning remain fluid in order to support our dynamic curriculum?

Pilot Teachers

Sixth Grade	Seventh/Eighth Grade
Shannon Anderson Kim Barbaro Marla Goldberg	Maria Karageorgis Teri Knaff Anna Ladik Naila Qureshi Kelli Walton

Winnetka Math Mission and Beliefs

- The mission of The Winnetka Public Schools mathematics program is to engage all students in a challenging curriculum of high quality mathematics.
  - An engaging math environment
  - High quality instruction
  - High quality curriculum
  - High quality assessment

Math Pilot Process

November	Vetted potential pilot materials with Avoca and Sunset Ridge. Distributed pilot teacher applications.
December	Scheduled math materials training with publishers for two selected programs.
January - April	Conducted 3-4 week pilot for each program. Visited Daniel Wright Middle School to observe pilot programs in action.
April	Reflected with Avoca and Sunset Ridge teachers on program strengths and challenges. Analyzed pilot data as a Winnetka pilot group to determine final selection.

Summary of Results: Grade 6

Connected Math Project 3 (CMP3)	CPM
Highest Scores	Highest Scores
▸ Problem-solving ▸ Discourse ▸ Connections across strategies	▸ Accessibility ▸ Technology integration
Lowest Score	Lowest Score
▸ Need for supplementation	▸ Challenge for high-readiness learners

Summary of Results: Grades 7/8

Connected Math Project 3 (CMP3)	CPM
Highest Scores	Highest Scores
▸ Problem-solving ▸ Discourse	▸ Accessibility ▸ Engaging technology
Lowest Score	Lowest Score
▸ Lesson design ▸ Readability	▸ Challenge for high-readiness learners

Recommendation

6th Grade	7th Grade	8th Grade
TEACHER RESOURCES		
Teacher Guide from CMP3: digital and print	CMP3 Teacher Guide (selected units): print	
Contexts for Learning Teaching Guide (selected units): print	Teacher Guide from McDougal Littell: print	
NCTM Teaching Mathematics in the Middle School: print (monthly journal)		
Mathalicious: digital		
Illustrative Math: digital		
Dan Meyer (and others) Three Act Tasks: digital		
Engage NY: digital		
STUDENT RESOURCES		
CMP3: print and digital	McDougal Littell: print	
	CMP3 (selected units): print and digital	

Learning Plan: Unit Design

Ratios and Ratio Reasoning Unit	Resources
Diagnostic: Pre-Assessment	Collaboratively created by teachers
Real-World Application (Introduction)	Context for Learning: Best Buys, Ratios, and Rates
Ratios and Ratio Language	Core resource: *Comparing Bits and Pieces*, Investigation 1 and 2, pgs.13-18
Ratio Reasoning	Core resource: *Comparing Bits and Pieces*, Investigation 3 and 4, pgs. 25-31
Rates and Unit	Core resource: *Comparing Bits and Pieces*, Investigation 5, pgs. 37-43
Real World Application (Mid-unit)	Mathalicious Task
Mid-Unit Assessment	Collaboratively created by teachers
Ratios in Geometric Context	Core resource: *Comparing Bits and Pieces*, Investigation 6 and 7, pgs.46-54
Real-World Application (Culminating activity)	Illustrative Math Task
End of Unit Assessment	Collaboratively created by teachers

Goals for Summer Work

- Complete learning plans
  - Review scope and sequences
  - Align new resources to the curriculum
- Purchase requested resources for Grades 6-8
- Provide professional development for tech integration for CMP3

Next Steps

- Gain School Board approval of the recommended materials at the June 9, 2015 meeting.
- Complete the scope and sequence alignment for Grade 6 with new materials.
- Order materials & subscriptions.
- Offer training for technology integration prior to the initiation of the 2015-2016 academic year.
- Develop detailed learning plans for all grades.

How are we going to determine the effectiveness of our implementation?

- Our goal is to identify qualitative and quantitative outcomes and measures to answer this question in Fall 2015.

THE WINNETKA PUBLIC SCHOOLS
DISTRICT 36

Q&A

Partnership with Avoca and Sunset Ridge

- Reached consensus to pilot Connected Math Project 3 (CMP3) and College Preparatory Math (CPM)
- Visited Daniel Wright Middle School to observe CMP3 and CPM in action
- Discussed strengths and challenges of each program as a township pilot teacher team
- Determined no district is adopting one set of materials exclusively

THE WINNETKA PUBLIC SCHOOLS DISTRICT 36

A Community of Learners

6-8 Math Materials Selection

TO: School Board
Trisha Kocanda, *Superintendent*
FROM: Alison Hawley, *Director of Curriculum, Instruction & Assessment*

May 19, 2015

Executive Memo

Essential Questions

- Which instructional resources are aligned to our curriculum?
- What dynamic resources can be infused to support high-quality curriculum, teaching, and learning?
- How can we ensure that our materials and planning remain fluid in order to support our dynamic curriculum?

6-8 Math Materials Pilot Goals

1. Select foundational resources aligned to the Common Core State Standards-Math (CCSS-M) and *The Standards for Mathematical Practice* to support the 6-8 math curriculum
2. Maximize teacher collaboration and professional development across grade, building, and District
3. Provide vehicle for the development of meaningful common assessments
4. Provide technology components that connect teachers and students to dynamic online math resources
5. Implement selected resources in 6-8 classrooms beginning in 2015-2016

Background

In April of 2013, The School Board approved the newly revised K-8 mathematics curriculum aligned to the CCSS-M and *The Standards for Mathematical Practice*. This represented the first time Winnetka Public Schools adopted a completely aligned K-8 math curriculum that incorporated both K-8 overarching and unit based essential questions and essential understandings, and clearly defined what students are expected to **k**now, **u**nderstand, and **d**o (KUD). Click here to view a sample KUD.

The curriculum design process, guided by the Understanding by Design Framework,

facilitated the organization of the Common Core State Standards into units of study for each grade level and outlined the learning expectations for each unit as well as across the year. Once the curriculum design process is completed, materials are then targeted and selected to support the goals of the curriculum. Curriculum and materials work in tandem to achieve the established learning goals. Because of a lack of Common Core aligned 6-8 math materials available in the marketplace last year, the selection of materials to support the 6-8 curriculum was delayed. However, the enhanced development of online resources and revised print materials has increased availability, providing school districts with options to support CCSS-M instruction with aligned curriculum materials.

Traditionally, print materials have served as the foundational resource to support math curricula. The recent proliferation of online resources such as *Illustrative Math*, *Desmos*, and instructional blogs have started to play a larger role in supporting Common Core based math learning. In some cases, the online resources are dynamic - they are frequently updated with innovative, real-world based problems. In other cases, the online resource is a static document that resembles a traditional print resource, but is accessible only online. This resource does not change or get refreshed as frequently as the more dynamic online resources. The 6-8 math pilot involved the review of both print and online resources. This memo will serve as the Executive Summary for this process.

The Curriculum Office would like to thank the teachers who invested their time into piloting the materials. They invested a great deal of time in learning about, using, and evaluating each set of materials in their classrooms.

Grade 6: Shannon Anderson, Kim Barbaro, Marla Goldberg

Grade 7 and 8: Maria Karageorgis, Teri Knaff, Anna Ladik, Naila Qureshi, Kelli Walton

Additionally, Math Facilitators Eileen Goodspeed (District and Skokie School facilitator) and Sam Yusim (Washburne facilitator) spent hours researching revised programs, gathering feedback from experts in the field, and facilitating the collaboration with Avoca and Sunset Ridge schools.

New Trier Township Collaboration

Winnetka's 6-8 Math Materials Pilot process provided the opportunity to connect with other Districts in New Trier Township also engaging in a materials vetting and piloting process. Ultimately, Winnetka, Avoca, and Sunset Ridge Districts collaboratively reviewed resources and determined that each District would pilot a unit from Connected Math Project 3 (CMP3) and College Preparatory Math (CPM). The three Districts were not bound to select the same materials; however, the collaborative evaluation of the materials and professional conversations offered great value.

Once the piloting was complete, Winnetka, Avoca, and Sunset Ridge met to collectively debrief their experiences with the materials, and discuss the perceived strengths and weakness of each program. Winnetka then conducted its own quantitative and qualitative analysis of the pilot data to inform the final decision.

Other Township Districts participated in the materials training phase of the process, but did not proceed with the collaborative piloting of units. Wilmette District 39 completed its math materials process the previous year (2014-2015), adopting Connected Math Project 3 (CMP3) for Grade 6, and *Big Ideas* for Grades 7 & 8 as their core resources. Grades 6 7, and 8 all incorporated online resources such as *Illustrative Math* and Dan Meyer's blog.

One of Winnetka's major considerations in selecting materials at Grade 6 and Grades 7 & 8 was to identify materials that would bridge the instruction from middle school to New Trier High School. The Township articulation group meets quarterly to discuss expectations and instructional considerations, both of which were taken into account when reviewing and selecting materials.

Executive Summary

Purpose: The purpose of the 6-8 Math Materials Selection Process (or Pilot Process) was to select a primary resource or resources to be implemented in 6-8 classrooms during the 2015-2016 school year.

Key Understandings: The following details a set of understandings that should be considered ***essential*** in the selection of curriculum materials.

1. **Teachers guide student learning; materials support this process.**
   It is high-quality instruction that matters most for student learning. Teachers draw upon their expertise of effective instructional techniques to create meaningful experiences for students. These thoughtful experiences are designed to ensure deep conceptual understanding of math. Materials DO NOT teach students. It is the social aspect of learning, facilitated by teachers, which helps students make sense of mathematical concepts.

2. **There is no perfect math program (set of materials).**
All math programs have specific strengths and weaknesses. Publishers develop materials to meet the needs of school districts serving diverse learners, communities, and educational settings. As we enter into the piloting process, we are very aware that our selected program will demonstrate strengths to be capitalized on, and weaknesses to be addressed. For that reason, we have determined the key indicators of effective programs to inform our final recommendation. These key indicators are derived from the Winnetka Public Schools Math Mission & Beliefs and CCSS-M literature and research. It is our intent to address any identified weaknesses with supplemental materials.

3. **The math pilot process includes acknowledged limitations.**
The Curriculum Department recognizes that there are various ways to implement a pilot process. Given the number of initiatives and the recognition of limitations on staff time, it was determined that the potential materials would be piloted in classrooms 20-30 days (4-6 weeks). The goal of the pilot is to gather data that is focused, aligned, and informative, as well as tied to clear criteria to help inform the final decision.

4. **Professional development is critical for success of implementation.**
To support a major shift in the math curriculum, due to the CCSS-M and the implementation of a foundational resource, it is essential that professional development be supported with the necessary time and funding. In order to implement the lessons in a math program as intended by the authors, teachers must participate in high-quality training to understand the complexities of the program design and underlying research. Teachers must also be afforded common and collaborative planning time to support instruction, drawing on their own expertise. These professional learning experiences will afford teachers the opportunity to implement the curriculum and materials with greater confidence, common understanding, and integrity.

Vetting Documents and Tools

The following tools and documents served to anchor the 6-8 Math Pilot process:

Document	Source/Purpose
Winnetka Public Schools Mission and Belief Statement	Developed by the District Math Committee based on best practices understanding of high quality mathematics programs. High quality math learning provides focus, coherence, deep conceptual understanding, problem-solving, communication, and *The Standards for*

	Mathematical Practice.
Common Core State Standards Mathematics Curriculum Analysis Project (2011)	Funded by the Brookhill Foundation and Texas Instruments and supported by the Council of Chief State School Officers and the National Council of Supervisors of Mathematics. This study produced a series of tools (see below) to support school Districts in determining which published materials are truly aligned to the CCSS-M and which are not, despite any claims publishers may make. The provided tools establish rigorous criteria and allow for consistency in documentation across pilot users.
Tool 1: Mathematics Content Grades 6-8 Click here to view a sample page	This tool supports pilot teachers to analyze content **coverage** and gather evidence in terms of how the set of materials attends to the specific standards within a curricular unit and determine **balance** as it relates to mathematical (conceptual) understanding and procedural skills.
Tool 2: Mathematical Practices Click here to view a sample page	*The Standards for Mathematical Practice* are also considered standards and skills that carry equal weight to the grade level content standards. Traditionally, publishers have not incorporated these math behaviors or habits of mind into their materials. The practices are essential to support a well-rounded math education and for meeting the CCSS-M. This tool analyzes the materials ability to facilitate student engagement with these skills.
Tool 3: Overarching Considerations - Equity, Formative Assessment & Technology Click here to view a sample page	This tool is designed to analyze the extent to which the materials "reflect equitable practices, embed high quality and high cognitive formative assessments, and encourage the use of technology in rich and appropriate ways."

Major Steps of the Pilot Process:

1. Vetting of the recommended materials by a team of New Trier Township Teachers (Avoca, Sunset Ridge, Winnetka)

2. Distribute pilot teacher applications

3. Schedule math materials training for two selected programs

4. Finalize pilot classroom schedules and conduct 4-6 week pilot

5. Analyze pilot data to determine final materials selection

6. Gain Board approval of materials selection

Criteria for Evaluation and Decision-Making: While a series of rubrics were used throughout this process, the final recommendation relied heavily on the evidence gathered supporting the indicators identified as MOST integral to the math materials selection. The key indicators were derived from the *Winnetka Public Schools Math Mission and Beliefs* and tenets of the CCSS-M. These indicators were embedded in the tools, rubrics, and discussion framework.

- Focus
    - *Materials that narrow the scope of content in each grade so that students achieve at higher levels and understand more deeply that which remains.*
- Coherence
    - *Materials that support making sense of mathematics, enhance progressions across grades, and links major topics in each grade*
- Deep conceptual understanding
    - *Materials that emphasize the goal of focus by balancing procedural fluency and applications; designed to elicit conversation and multiple representations*
- Problem-Solving
    - *Materials that offer real-life contextual applications, requiring students to develop strategies, model, communicate, and persevere*
- Communication
    - *Materials requiring students to explain reasoning through classroom discussion and written work*
- Mathematical practices
    - *Materials that embed the habits of mind of mathematically proficient students. The 8 CCSS-M practice standards include:*

        1. Make sense of problems and persevere in solving them.
        2. Reasoning abstractly and quantitatively.
        3. Construct viable arguments and critique the reasoning of others.
        4. Model with mathematics.
        5. Use appropriate tools strategically.
        6. Attend to precision.
        7. Look for and make use of structure.
        8. Look for and express regularity in repeated reasoning.

OVERVIEW OF PILOT PROGRAMS

College Preparatory Math: Program Overview

"CPM (College Preparatory Mathematics) began as a grant-funded mathematics project in 1989 to write textbooks to help students understand mathematics and support teachers who use these materials. CPM is a non-profit educational consortium managed and staffed by middle school and high school teachers that offers a complete mathematics program from grades 6 through 12."

"CPM Educational Program strives to make middle school and high school mathematics accessible to all students. It does so by collaborating with classroom teachers to create problem-based textbooks and to provide the professional development support necessary to implement them successfully."

Connected Math Project 3: Program Overview

"The National Science Foundation funded the Connected Mathematics Project (CMP) at Michigan State University between 1991 and 1997. The result was Connected Mathematics, a complete mathematics curriculum for Grades 6, 7, and 8. CMP helps students develop an understanding of important concepts, skills, and ways of thinking and reasoning—in number, geometry, measurement, algebra, probability, and statistics. In 2000, the National Science Foundation funded a revision of the Connected Mathematics materials, CMP2, to take advantage of findings during six years of classroom use.

"In 2012, the same authorship team created the next generation of the Connected Mathematics Projects—CMP3. This new curriculum aligns the program's existing rigor and emphasis on constructing viable arguments to the Common Core Standards. CMP3 enhances its problem-based, interactive curriculum with digital instructional tools and content."

"The overarching goal of Connected Mathematics 3 is to help students develop mathematical knowledge, conceptual understanding, and procedural skills, along with an awareness of the rich connections between math topics—across grades and across content areas."

OVERVIEW OF EVIDENCE GATHERED TO INFORM DECISION

Internal Evidence Gathered: The Curriculum Department sought to gather information that would elicit a preponderance of evidence supporting one of the two programs. The overarching goal was to answer the central question, *"What materials best support students' learning of the curriculum?*

Summative Reflection Tool

Completed for each program by all pilot teachers, this tool consisted of 45 indicators organized into five strands (Alignment to the Rigor of the CCSS-M, Student Experiences, Instructional Support, Assessment, and Mathematical Tools). Each indicator was rated on

a scale of 0-3.

A score of 3 = evidence embedded, consistently present, and in-depth
A score of 2= evidence present, but not always embedded, consistent, or in-depth
A score of 1= evidence limited, but not embedded or consistently present.
A score of 0= no evidence.

There was also an opportunity for each teacher to note perceived strengths and weaknesses of each program. This data was analyzed and key results are illustrated on the following page.

Quantitative Analysis (by Strand)

Alignment to the Rigor of the CCSS-M	CMP3 SK	CPM SK	CMP3 CW	CPM CW	CMP3 Avg	CPM Avg
The curriculum is mathematically rich, develops skills and concepts in tandem, and applies concepts to real life contexts.	**2.43**	2.33	2.09	**2.12**	**2.21**	2.20

Student Experiences	CMP3 SK	CPM SK	CMP3 CW	CPM CW	CMP3 Avg	CPM Avg
Problem Solving: In order to become confident problem solvers, students need opportunities to engage in complex mathematical tasks that encourage flexible thinking.	**2.87**	2.47	2.44	**2.49**	**2.60**	2.48
Connections: Understanding is deeper and more enduring when students connect mathematical ideas.	**2.22**	2.11	**2.07**	1.80	**2.13**	1.92
Communication: Communication helps build meaning and permanence for ideas and makes them public.	**2.67**	**2.67**	2.33	**2.38**	2.46	**2.49**
Student Experiences Average	**2.59**	2.41	**2.28**	2.22	**2.39**	2.30

Instructional Support	CMP3 SK	CPM SK	CMP3 CW	CPM CW	CMP3 Avg	CPM Avg
Provides assistance to teachers in creating a classroom community that engages students and supports the development of positive mathematical dispositions.	**2.31**	2.26	1.74	**1.99**	1.95	**2.09**

Assessment	CMP3 SK	CPM SK	CMP3 CW	CPM CW	CMP3 Avg	CPM Avg
Assessment tasks are embedded, on-going, encompass a wide range of techniques, and provide feedback to inform student and teacher, resulting in the growth of all learners.	2.00	**2.10**	1.57	**1.99**	1.73	**2.03**

Mathematical Tools	CMP3 SK	CPM SK	CMP3 CW	CPM CW	CMP3 Avg	CPM Avg
Students use tools in meaningful ways to deepen their understanding of mathematical content and processes.	1.50	**2.17**	1.30	**2.20**	1.38	**2.19**

Quantitative Analysis (by "Super" Indicators)

The data from a subset of 15 of the original 45 indicators within the Summative Reflective tool were selected for a deeper analysis by grade level. These "super" indicators most closely aligned to our identified criteria for decision-making.

#	Indicator
3	The program emphasizes **deep conceptual understanding** of key concepts, rather than breadth of coverage.
6	The program **balances** conceptual knowledge, procedural fluency, and meaningful applications equally.
8	Students develop perseverance by exploring contextual mathematical tasks in-depth.
9	Students find more than one solution/approach to open-ended problems.
10	Students use a variety of strategies and approaches to solve problems.
11	Students are expected to construct their own understanding of mathematics.
12	Students develop understanding through the use of different modalities (manipulatives, pictures and models, oral and written language, real world situations, written symbols)
16	Students use both written and oral language to describe and discuss their mathematical thinking and understanding.
22	Provide suggestions for engaging students through relevant, thought-provoking questions, problems, and tasks that stimulate interest and elicit mathematical thinking.
23	Embed tasks with multiple entry-points that can be solved using a variety of solution strategies or representations.
25	Endorse multiple methods for students to demonstrate understanding through the use of different modalities (manipulatives, pictures and models, oral and written language, real world situations, written symbols)
28	Provide strategies for meeting the needs of a range of learners.
36	Provide strategies for teachers to identify common student errors and misconceptions.
41	Integrate formative and summative assessment options.
42	Students strategically choose from a variety of tools and appropriate technology as a natural part of their everyday work.

A calculation was performed to average the ratings of each of the "super" indicators per grade, per material. This allowed for an easy calculation and comparison as to which program received a stronger response per grade level.

Grade Level	CMP3 - # of favorable questions by average	CPM - # of favorable questions by average	No favor identified (Tie)	Calculated Composite Preference
6	8	2	5	*CMP3*
7/8	3	9	3	*CPM*

Pilot Teacher Group Critique

In Grade 6, teachers ranked Connected Math Project 3 (CMP3) as the stronger program for their students. This ranking was based on the strength of the program's problem-solving, promotion of mathematical dialog between students, and its ability to support making connections across strategies.

While the Grade 7/8 teachers found value in the problem-solving nature of the problems in CMP3, the program scored lower on language and readability. Also, their scores for

CCSS-M alignment were low, and indicated the team would need to devote significant time to appropriately align the materials to the Grade 7/8 curriculum. While Grade 6 teachers concurred with some of these challenges, they did feel that the overall strengths outweighed the weaknesses. In addition, Grade 6 teachers have already devoted an extensive amount of time aligning CMP3 with the CCSS-M, as CMP has been the core materials for years.

The Grade 7/8 teachers ranked the College Preparatory Math (CPM) program higher due to its strength of engaging technology and accessibility for students. However, Grade 7/8 teachers still noted drawbacks with this program, including the level of challenge and the assessment philosophy embedded within the program. Grade 6 teachers agreed that the CPM program incorporated engaging technology, but it lacked tasks for high-readiness students.

Summary of Strengths

Connect Math Project 3 (CMP3)	College Preparatory Math (CPM)
• Promotes problem-solving • Open-ended questions • Real world context • Embeds Mathematical Practices • Encourages students to use multiple strategies • Encourages student dialog • Connections can be made across strategies • Range of options for homework/practice problems • Easy to supplement • Most recommended by leaders in the field	• Highly scaffolded • Problems were engaging • Accessible to students • Engaging technology • More procedural balance • Encourages communication • Incorporated student roles and groups (was also a negative for some) • Includes answers to HW • Spirals concepts coherently • All on the iPad “one stop shop” • Easy planning

Summary of Areas Needing Improvement

Connect Math Project 3 (CMP3)	College Preparatory Math (CPM)
• Need to align content with the CCSS • Some tasks would need to be changed • Assessments need development • Need to supplement with other math tasks for launches • Wording of problems for students • Requires significant support for teachers during training • The tech is more difficult to navigate • Not enough repetition in the homework	• Need to align content with the CCSS • Assessments need development • Assessment philosophy • Need to supplement/change some tasks and find more engaging launches • Need to add more open-ended questions • Differentiated material for high readiness students • Questions about how spiraling nature of program would work year-to-year • Improve use of grouping strategies

RECOMMENDATION

While Grade 6, 7, and 8 teachers agreed that both Connected Math Project 3 (CMP3) and College Preparatory Math (CPM) had great overall strengths relative to their weaknesses, Grades 7 and 8 did not believe that a single program would be able to support the current Common Core math instructional needs. Instead, Grades 7 and 8 think it is essential to seek out a range of resources to support the curriculum.

Though a greater number of revised instructional materials have come to market in the last year, Grade 7 and 8 teachers, in particular, continue to agree that aligning the materials that are currently available to the revised curriculum poses significant challenges. They believe their students are better served by supporting the curriculum with a range of resources not limited to a single program. Grade 7/8 teachers will continue to use McDougal Littell as their primary resource, with the agreement that it will be phased out as new materials are developed and incorporated in the instructional plans.

The alignment of curriculum and materials posed a significant issue for Grade 7 and 8, however, this was not a significant issue for Grade 6. Because Connected Math Project 3 (CMP3) has been the foundational set of materials for ten years, a large portion of the

alignment work had been completed. Grade 6 recommends the continued use of CMP3 as its core resource. Acknowledging that no one set of materials can support all learning needs, supplementing the program with additional resources will remain a priority. Given that Grade 7/8 teachers will not be using the CMP3 materials as their core resource, Grade 6 teachers will likely select CMP3 books from Grade 7 to best support the learning content for some of their units of study. Grade 6 has also incorporated Contexts for Learning as a supplementary resource, as well as online sites such as Illustrative Math and Mathalicious.

The Common Core math landscape continues to evolve. A larger portion of engaging and challenging math tasks are being generated online via dynamic websites and instructional blogs managed by leaders in the broader math community. Identifying and accessing those resources in addition to print materials, continues to be a focus for grades 6-8 going forward. Websites such as *Mathalicious*, *Illustrative Mathematics*, and *Dan Meyer Three Act Tasks* are examples of online resources that frequently add new content, and will be used as supplementary resources in addition to print materials.

Grade 6-8 Learning Plans

This report concludes the materials selection process for grades 6-8. Work will continue this summer for Grade 6, 7, and 8 teachers to further refine their curricular units. Each grade level will develop learning plans to support the supplementation of the curriculum and consult the latest best practices research utilizing The National Council for Teachers of Mathematics (NCTM) Great Tasks, and NCTM Teaching Mathematics in the Middle School. During the 2015-2016 school year, teachers will extend the work initiated in the summer by meeting on a weekly basis to collaboratively modify learning plans, review instructional pedagogy, and create common unit assessments.

One result of Winnetka's articulation with Avoca and Sunset Ridge was the mutual interest in reviewing the revised *Engage New York* program (also known as *Eureka* math) expected in the Fall. *Engage New York* was identified as a high-quality resource for unit supplementation, as were two units from the Connected Math Project 3 (CMP3) by Avoca, Winnetka, and Sunset Ridge. Grades 7 and 8 will conduct further articulation with Avoca and Sunset Ridge regarding their experiences with *Engage New York* and the two CMP3 units post-implementation.

The table below offers a summary of the recommended grades 6-8 math materials to be implemented in 2015-2016 academic school year.

6th Grade	7th Grade	8th Grade
TEACHER RESOURCES		
Teacher Guide from	CMP3 Teacher Guide (selected units): print	

CMP3: digital and print	
Contexts for Learning Teaching Guide (selected units): print http://www.contextsforlearning.com/grades4_6/sequenceInstruction.asp	Teacher Guide from McDougal Littell: print
NCTM Teaching Mathematics in the Middle School: print (monthly journal) http://www.nctm.org/publications/mathematics-teaching-in-the-middle-school/	
Mathalicious: digital http://www.mathalicious.com/about	
Illustrative Math: digital https://www.illustrativemathematics.org/about-us	
Dan Meyer (and others) Three Act Tasks: digital http://blog.mrmeyer.com/2011/the-three-acts-of-a-mathematical-story/	
Engage NY: digital https://www.engageny.org/about	
STUDENT RESOURCES	
CMP3: print and digital	McDougal Littell: print
	CMP3 (selected units): print and digital

Once the recommended materials gain School Board approval, the 6-8 teaching teams will review curriculum and materials alignment. Additionally, the grade level math teams with create the structure for how the selected resources will be incorporated into each math unit. Below is sample template for how the range of resources will be embedded into the learning plan for each curricular unit.

Ratios and Ratio Reasoning Unit	Resources
Diagnostic: Pre-Assessment	Collaboratively created by teachers
Real-World Application (Introduction)	Context for Learning: Best Buys, Ratios, and Rates
Ratios and Ratio Language	Core resource: *Comparing Bits and Pieces*, Investigation 1 and 2, pgs.13-18
Ratio Reasoning	Core resource: *Comparing Bits and Pieces*, Investigation 3 and 4, pgs. 25-31
Rates and Unit	Core resource: *Comparing Bits and Pieces*, Investigation 5, pgs. 37-43
Real World Application (Mid-unit)	Mathalicious Task
Mid-Unit Assessment	Collaboratively created by teachers
Ratios in Geometric Context	Core resource: *Comparing Bits and Pieces*, Investigation 6 and 7, pgs.46-54
Real-World Application (Culminating activity)	Illustrative Math Task
End of Unit Assessment	Collaboratively created by teachers

The initial construction of each unit learning plan will be followed up with weekly meetings during the school year to discuss implementation, alignment, and the development of common unit assessments.

Proposed Cost of Implementation:

Item/Activity	Description	Estimated Cost
Purchase of CMP3 materials for Grade 6 classrooms	Includes student materials (one set of classroom books per teacher), teacher materials, manipulatives kit, and technology access for all 6th grade materials and three 7th grade units	~$26,600
Purchase of CMP3 materials for Grade 7	Includes student materials (one set of classroom books per teacher), teacher materials, and	~$6,500-$8,915*

	technology access for two Grade 7 units	
Purchase of CMP3 materials for Grade 8	Includes student materials (one set of classroom books per teacher), teacher materials, and technology access for one Grade 8 unit	~$4,250-$5,750*
CMP3 training for 6-8 Grade Teachers	Includes 2 days of training focused on CMP3 technology components and differentiation within the program	~$14,500*
Mathalicious online subscription	Includes 1 year subscription for 12 teachers	~$2,220
TOTAL		**~$54,070-$57,985**

* These totals will depend upon the outcome of Washburne Scheduling and participation of Township schools in the training.

Next Steps: As previously cited in the *Key Understandings* section of this memo, it is critical that teachers engage in professional learning with the Connect Math Project 3 (CMP3) materials. While Grade 6 is familiar with the structure and content of the CMP3 materials, the technology components have been revised extensively. Grade 6 teachers will require implementation training for the new technology components. In addition, a series of steps need to be put into place in order to meet the needs of teachers and maximize professional learning. They are as follows:

1. Gain School Board approval of the recommended materials at the June 9, 2015 meeting.
2. Complete the scope and sequence alignment of the math curriculum for Grade 6 with the Connected Math Project 3 materials.
3. Order materials to ensure teachers have access to all components of the program for Grade 6, and selected Connected Math Project 3 units for Grades 7 & 8.
4. Offer training for all Grade 6, 7 & 8 math teachers on technology integration prior to the initiation of the 2015-2016 academic year.
5. Develop learning plans for Grades 6, 7, & 8.
6. Identify qualitative and quantitative measures and outcomes to determine effectiveness of 6-8 implementation.

Click here to view the presentation prepared for the School Board meeting.