

High School (core) Mathematics Curriculum Review

Lake Orion Community Schools



2

Meet our Pilot Team!

(all volunteered for this challenging work!)

- ♦ **Algebra 1**
 - ← Jason Wise
- ♦ **Geometry and Honors Geometry**
 - ← Maria Vintilescu
 - ← Jennifer Ries
- ♦ **Algebra 2 and Honors Advanced Algebra**
 - ← Steve Bodiya
 - ← Jake Creeden
 - ← Corey Bell
- ♦ **Algebra 3**
 - ← Mick Kolinski
 - ← Alex Schall
- ♦ **Pilot Teacher Support Team**
 - ← Drew Towlerton
 - ← Anthony Kiner
 - ← Brent Cubitt
 - ← Steve Bodiya
 - ← Emilie Schiff



WHY?



- Does our curriculum support students working through real world problems to formalize mathematical ideas?
- Does our curriculum encourage students working collaboratively with visual thinking?
- Does our curriculum promote a student's understanding of mathematics, or mimicking the mathematics?

WHY?



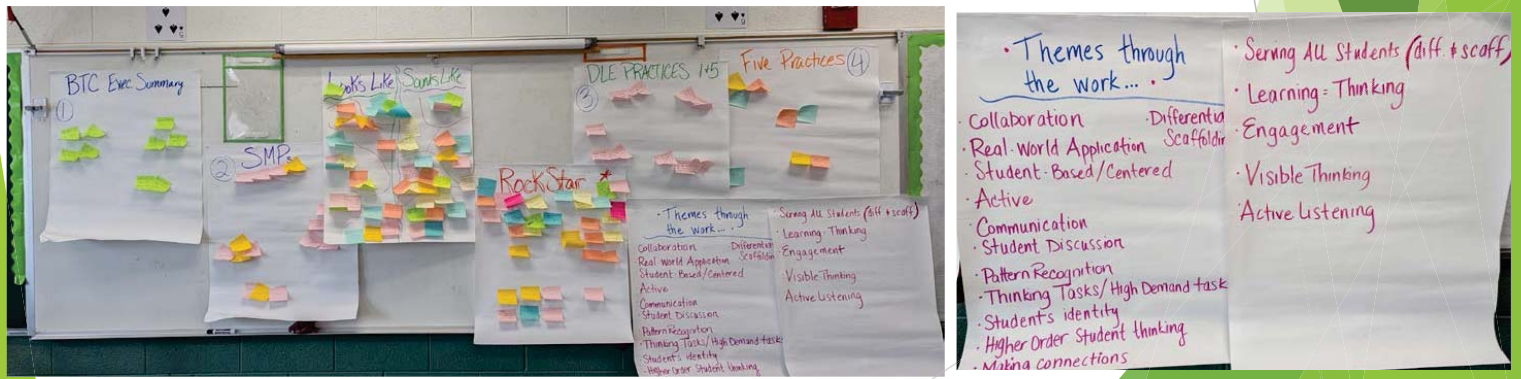
- We have been using Discovering Mathematics resources for 12 plus years
- The widely-held recommendation is to evaluate academic programs and examine their efficacy roughly every ten years

Vision Planning

What do we want mathematics classrooms to look like and sound like.

We used 5 anchoring documents to develop mathematical themes.

Math teachers developed a shared vision for mathematics in 9-12.



Vision Goals

- Students believe they are capable in mathematics and problem solving,
- Students are active learners, seeking out patterns.
- Students engage in collaboration with their classmates, ask questions, and appreciate multiple viewpoints.
- Students do the majority of the talking and thinking, participating in discovery tasks

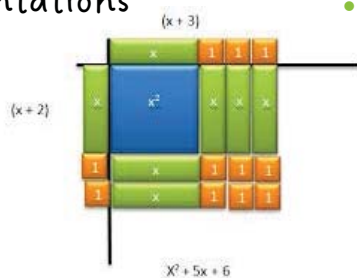
LOHS Mathematics Vision

In Lake Orion Community Schools, we strive to build mathematically proficient students prepared to meet the demands beyond K-12 schooling. By engaging in rigorous mathematics in collaborative and creative learning environments, students will be able to confidently apply mathematics.



Balancing Instruction

- Problem Based Instruction...
 - Helps passive learners make meaningful connections
 - Teaches conceptual understanding by connecting real world problems to concrete math representations
- We looked for a resource that blended conceptual and procedural understanding in a structured way
- "Conceptual" means understanding the true concept
- "Procedural" means following/mimicking/memorizing a procedure



Pilot Programs

- ❑ Examined districts with similar demographics and socio-economic distributions
- ❑ We used EdReports and requested samples from all relevant curriculums (Big Ideas, Envision, Reveal, Into AGA, Carnegie AGA, Agile Minds, Open Up, Illustrative, and CPM)
- ❑ Invited publishers in April 2024 to present the resources, and we used our vision, department feedback, local trends and EdReports to select CPM and Illustrative to Pilot Fall 2024.



**Illustrative[®]
Mathematics**
LEARN MATH FOR LIFE

Programs Piloted

Discovering
Mathematics
Current Resource



10 week Pilot
Sept - Nov 2024



10 week Pilot
Nov '24 - Feb '25



Arriving @ CPM

How well does each resource match the vision?
Is it falling short in a specific area?

Feedback and evidence was
assessed with the vision in mind



Our Destination



- Pilot Teachers were asked to rate each component of the programs through various lenses – Content Coverage, Balance, Math Practices, and Assessment. (High, acceptable, low)
- Overwhelmingly, the evidence showed that CPM Core Connections was rated “high” in the Instructional Materials scoring rubric.
- Each course was able to provide strong evidence for the high ratings.

Key Elements of CPM Core Connections

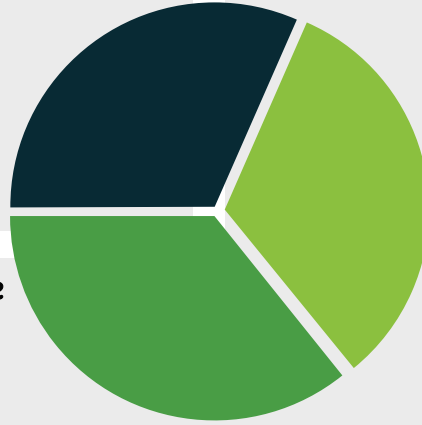


Collaborative Learning

Whole-group activities transition into individual and partner work, followed by a whole-class strategy-sharing session. Team strategies hold students accountable with consistent feedback.

Mixed Space Practice

Individual lessons and chapters follow the review and preview process, connection to prior learning and mastery over time.



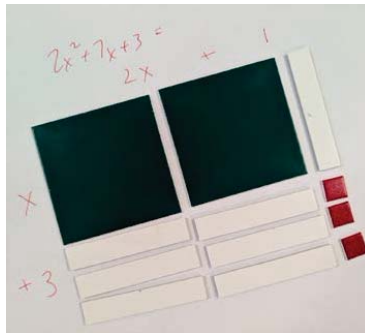
Problem Based Learning

Students and teachers value and engage in productive discussion demonstrating both conceptual and procedural knowledge. Lessons are facilitated so students make connections across multiple mathematical ideas.



Sample Lesson

During problems and investigations, educators launch tasks and activities that prompt students to notice and wonder about mathematical ideas.



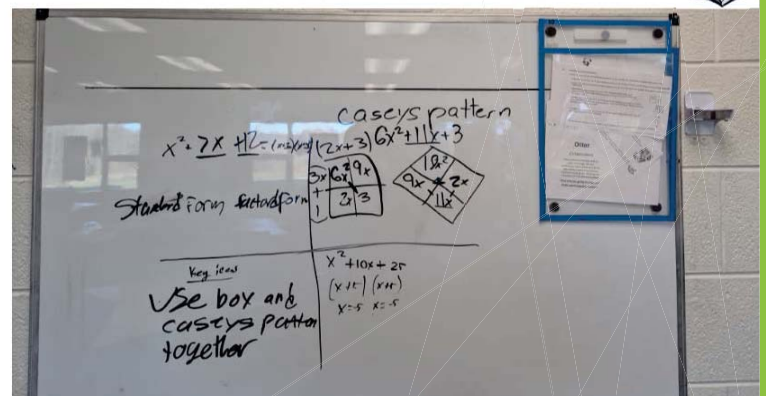
In small groups, students collaborate and investigate, looking for patterns using visual models and manipulatives

Whole group comes back together for consolidation.

- 8-4. While working on problem 8-3, Casey noticed a pattern with the diagonals of each generic rectangle. However, just before she shared her pattern with the rest of her team, she was called out of class! The drawing on her paper looked like the diagram below. Can you figure out what the two diagonals have in common?



- 8-5. Does Casey's pattern always work? Verify that her pattern works for all of the 2-by-2 generic rectangles in problem 8-3. Then describe Casey's pattern for the diagonals of a 2-by-2 generic rectangle in your Learning Log. Be sure to include an example. Title this entry "Diagonals of a Generic Rectangle" and include today's date.



We asked students and teachers:

**How did you feel
(or what did you like)
about the
CPM Core Connections
curriculum?**



Neighboring Districts say....

From Berkley schools: CPM is very effective in meeting our subject goals. The CCSS are being met in an interesting and inquiry-based format that has increased student engagement and teacher joy. CPM is very smart in how they build concepts throughout both the courses individually, as well as the Algebra, Geometry, Algebra 2, Pre-Calculus as a whole.

From Clarkston schools: CPM is very strong in meeting the 8 math practices and teaching student independence and collaboration. CPM training that was offered for free was imperative in making the program a success for us. Students learn deeply as they discuss. Also, CPM provides a huge list of teaching strategies and videos that help with suggestions. CPM also has a list of what is necessary to cover in the lesson and what part of the lessons are extensions.



Cost to our District

CPM covers most of our Math Students every year

- 7 out of 8 of our traditional and honors required math courses

□ Approx. \$36,000 for Year 1

Based on 2024-25 enrollment/class numbers

○ Teacher Editions

Primarily digital w/ one or two physical department sets

○ Student materials - limited print materials

□ Student/Teacher materials-Year 2

- Re-evaluate digital vs physical

□ Year 2 and beyond - \$25,000-\$30,000/year

- Digital student and teacher editions yearly



Professional Development Plan

Foundations for Implementation provided by CPM

➤ Year 1

- 1/2 day end of 2024-2025 school year
- 1 Day planned for Summer 2025
- 3 Days built into 2025-26 PD schedule

➤ Year 2

- Approximately 2 days provided by CPM

➤ Virtual PD readily available

➤ Opportunity for new teachers to attend Regional PD



Questions?

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