



# Mathematics K-12

Methacton School District  
3-year Plan

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The mission of the Methacton Curriculum Department is to create and deliver a Math learning experience that supports growth and understanding for all students. Through the implementation of instructional best practices we will seek to engage students in mathematical thinking and skill development.

## *Why create a 3 -year plan?*

- Data indicates a lopsided progression over time in overall performance on state testing
- To increase teacher efficacy in mathematics instruction
- To align with the curriculum review cycle
- To address student and teacher learning needs

# Teacher Efficacy

*Teacher Efficacy refers to the teachers' beliefs in their ability to effectively handle tasks, obligations, and challenges to ultimately guide student learning.*

Why is it important?

- This plays a key role in influencing student motivation, engagement, and overall achievement
- According to the research of John Hattie (*Visible Learning*) teacher efficacy has a strong correlation with student achievement



# METHACTON SCHOOL DISTRICT CURRICULUM REVIEW CYCLE K-12



CURRICULUM AREA	JAN 21 JUN 21	JUL 21 DEC 21	JAN 22 JUN 22	JUL 22 DEC 22	JAN 23 JUN 23	JUL 23 DEC 23	JAN 24 JUN 24	JUL 24 DEC 24	JAN 25 JUN 25	JUL 25 DEC 25	JAN 26 JUN 26	JUN 26 DEC 26
Mathematics	Research/ Assess		Develop/Write/Identify			Implementation		Review		Monitor/Evaluate		R/A
Business, FCS, Tech Ed, Media	Research/ Assess		Develop/Write/Identify			Implementation		Review		Monitor/Evaluate		R/A
Music and Art	Monitor/Evaluate		Research/ Assess		Develop/Write/Identify			Implementation		Review		M/E
Health and Physical Education	Monitor/Evaluate		Research/ Assess		Develop/Write/Identify			Implementation		Review		M/E
Science	R	Monitor/Evaluate			Research/ Assess		Develop/Write/Identify		Implementation		R	
World Language	R	Monitor/Evaluate			Research/ Assess		Develop/Write/Identify		Implementation		R	
Social Studies	D/W/I	I/R	Monitor/Evaluate			Research/ Assess		Develop/Write/Identify		I		
Counseling	D/W/I	I/R	Monitor/Evaluate			Research/ Assess		Develop/Write/Identify		I		
English Language Arts ELD, Library	Dev/Write/Identify			Implementation		Monitor/Evaluate			Research/ Assess		Dev/Write/Ident	

STAGE	STAGE OF CURRICULUM REVIEW	CURRICULUM REVIEW OUTCOMES AND ACTIVITIES
Stage One	<b>Research and Assess</b> <i>This stage focuses on data analysis, National and State Standards review, needs assessment and research of best practices as well as trends in subject area, including site visitations and interviews.</i>	<ul style="list-style-type: none"> <li>Review local, state and national assessment data.</li> <li>Establish the roles and responsibilities of the steering committee.</li> <li>Create a mission statement that aligns with Comprehensive and Strategic Plans.</li> <li>Develop a synopsis of current best practices and evidence of new learnings.</li> </ul>
Stage Two	<b>Develop and Write</b> <i>This stage focuses on the development of the new and/or revised curriculum, creating of curriculum maps, and writing using the Understanding by Design (UbD) curriculum framework. Identify pilot/field study resource and materials once curriculum is written.</i>	<ul style="list-style-type: none"> <li>Establish a curriculum framework and course scope and sequence chart.</li> <li>Identify curriculum writing team to map and write the curriculum.</li> <li>Review materials and resources for purposes of a pilot and/or field study.</li> <li>Conduct pilot make recommendations to Board of School Directors/Plan for PD.</li> </ul>
Stage Three	<b>Implementation</b> <i>This stage focuses on the implementation of the revised curriculum, assessments, resources, and related professional development. Implementation of curriculum maps and assessment.</i>	<ul style="list-style-type: none"> <li>Provide for professional development throughout implementation.</li> <li>Create and/or revise pacing guides and assessment plan.</li> <li>Develop assessments aligned with curriculum and resources.</li> <li>Examine and analyze student achievement data and performance.</li> </ul>
Stage Four	<b>Review of Implementation</b> <i>The program is fully implemented with revisions being made as needed, as well as identification of any supplemental or additional resources. Analysis of effectiveness through student data and performance.</i>	<ul style="list-style-type: none"> <li>Review student assessment data in an effort to make needed revisions.</li> <li>Revise the curriculum, assessments, pacing guides, and/or scope and sequence as needed, based upon initial implementation and feedback.</li> <li>Provide ongoing professional development and revise assessments, as needed.</li> </ul>
Stage Five	<b>Monitor and Evaluate</b> <i>The program is supported through continuous monitoring student assessment data; revisions made as needed and align to any new or updated state or national standards.</i>	<ul style="list-style-type: none"> <li>Evaluate current program and curriculum with supports and revisions as needed</li> <li>Develop and conduct teacher, student, and/or parent surveys to gain additional information about the existing curriculum resources and/or program.</li> <li>Review student assessment data and post-secondary outcomes.</li> </ul>

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
<ul style="list-style-type: none"> <li>*Establish Steering committee</li> <li>*Perform Site visitations</li> <li>*Create Needs Assessment</li> <li>*Develop Curriculum</li> </ul>	<ul style="list-style-type: none"> <li>*Identify Curriculum Writers</li> <li>*Write using UbD template</li> <li>*Identify materials to pilot/study</li> <li>*Recommend approval of program</li> </ul>	<ul style="list-style-type: none"> <li>*Share pacing guides</li> <li>*Implement w/Prof Dev.</li> <li>*Create assessments</li> </ul>	<ul style="list-style-type: none"> <li>*Review implementation</li> <li>*Examine student data</li> <li>*Revise assessments</li> <li>*Extend DI activities</li> </ul>	<ul style="list-style-type: none"> <li>*Evaluate current program</li> <li>*Monitor student performance</li> <li>*Research Professional Lit.</li> <li>*Prepare Stakeholder Survey</li> </ul>

## ***Key components of the 3-year plan***

- Math Teaching and Learning Coaches  
(K-4, 5-8, 9-12)
- Supports the Curriculum Review Cycle
- Professional Development tied to the Standards for Mathematical Practice
- Instructional Supervision and Evaluation
- Tied to Strategic Plan for increased favorability and rankings.

## STUDENT FOCUSED



## COMMUNITY CENTERED

Increase constituent favorable feedback by 25% in the next 5 years.

To ensure an exceptional Methacton School District experience for all

Increase District ranking by 25 places in next 5 years.

# Math Teaching and Learning Coaches

- The primary functions of this role will be to provide coaching opportunities and modeling lessons for teachers. The coach will also work with students who have specific areas of math needs.
- Collaborates with administration on identification of target areas for support and coaching.
- Assists in ongoing math program review.
- Assists classroom teachers and administrative staff in the coordination of activities related to the regular developmental math program.
- Works with Principals and Supervisor of Continuous Improvement to develop a schedule of support for teachers and students.
- Analyzes student performance data to assist teaching staff with using this data to inform instruction.
- Plans and presents grade level professional development.



# Math Teaching and Learning Coaches

- Provides remediation to small groups of students to strengthen their understanding of concepts needed for success with the grade level curriculum.
- Participates in job relevant sessions at MCIU
- Participates in regularly scheduled building and curriculum department meetings.
- Acts as a resource person for classroom teachers, parents, administrators, and other members of elementary schools.
- Keeps the staff abreast of current research, literature, and instructional materials in the field of math.

**Math Teaching and Learning Coaches shall be responsible for assisting teachers in the implementation of instructional best practices and the analysis and use of student data to inform instruction. A portion of this role will include helping students develop math skills that will maximize their potential to grow into mature, capable and responsible adults.**

# Professional Development

## Standards for Mathematical Practice

**1** **Make sense of problems and persevere in solving them.**  
  
Keep on going!

**2** **Reason abstractly and quantitatively.**  
Write a story for the mathematical equation  
 $\frac{1}{2} \times 4$   
Dad's exercise is 1/2 hour a day for 4 days.  
How many total hours does he exercise?  
Think what makes sense.

**3** **Construct viable arguments and critique the reasoning of others.**  
  
Talk and explain.

**4** **Model with mathematics.**  
  
 $\frac{1}{2} \times 4 = 2$  or  $4 \times \frac{1}{2} = 2$   
Show your thinking.

**5** **Use appropriate tools strategically.**  
 $3 \times 2 = 6$   
  
Use the right tools.

**6** **Attend to precision.**  
 $120 \text{ minutes} = 2 \text{ hours}$   
symbol equals (the same as)  
units of measure  
Check your work.

**7** **Look for and make use of structure.**  
 $8 + 4 = 12$   
  
See the pattern or connection.

**8** **Look for and express regularity in repeated reasoning.**  
  
See the pattern or connection.

# Professional Development

Targeted professional development in instructional practices

- Teachers
- Administrators

Use of coaches in implementation of professional learning

- Lesson modeling
- Foster collaboration among teachers
- Discussions to link learning to practice to impact on student learning

# Timeline Targets

## ***April - June 2022***

- Continued work with the K-12 Math Steering Committee
- Math Virtual Help Desk (grades 7 -12) - PILOT
  - Mondays-Thursdays, 7 - 8 p.m. in April and May
  - Drop-in format for assistance from a Methacton teacher certified in Math
  - Examine usage for inclusion in 2022-2023

# Timeline Targets

## ***Year One 2022-23***

- Approval, hiring and implementation on Math Teaching and Learning Coaches
  - Position description developed
  - Coaches will be under supervision of Curriculum Department
  - Articulated an implementation plan for coaches
    - Professional development planning
    - Expectation of modeling of targeted instructional best practices
    - Responsibility in data analysis and planning
    - Determination of student support
- Math Curriculum Review Cycle
  - Committee Meetings
  - Planned Course Document review and revision
  - Piloting of materials

# Timeline Targets

## *Year One 2022-23*

K-6

- Active participation in review of materials K-8
- Volunteers sought for pilot program (2 per grade level; 2 programs)
- Instructional minutes for Math review at Skyview
- Implementation of additional Math Teaching and Learning Coaches
- Targeted support of students
  - MTSS (Multi-Tiered System of Supports)
  - Focus on instructional best practices

# Timeline Targets

## *Year One 2022-23*

### Arcola Intermediate School

- Active participation in review and pilot of materials
- Math intervention and assistance during period 8
- Implementation of additional Math Teaching and Learning Coach (5-8)
  - Targeted support of students
  - Focus on instructional best practices
- Homework Club - after school academic support
  - Increase access by providing transportation

### Secondary 7-12

- Analysis of math progression
- Current discussion is around pilot programming for Algebra 1
- Recommendations for alterations for math progression - target date October 2022

# Timeline Targets

## ***Year One 2022-23***

### Methacton High School

- Math Teaching and Learning Coach
  - Targeted support of students
  - Focus on instructional best practices
- Modification to structure of co-taught math classes
  - Use of small group model 3 days per cycle
  - Collaboration between special and regular education teacher to target skills deficits
- Addition of Math Literacy Support for Special Education
  - Pairs with Algebra I class
  - 3 days/cycle
  - Targeted work with students based on data
- CSR (Curriculum Support Room)
  - Maintain availability for all students for 1:1 assistance throughout the day
  - Target is to have Math and English teachers available for curricular assistance
- Tutoring Center - before and after school
  - Curricular assistance for core subject areas
  - Provide transportation



# Timeline Targets

## ***Year Two 2023-24***

- Analysis of Year One Goals
- Implementation of approved Math resources (Stage 3)
  - Professional development for teachers and administrators
- Ongoing review of coaching model
  - Feedback process
  - Analysis of observation and walk-through evidence

# Timeline Targets

## ***Year Three 2024-25***

- Analysis of Year Two Goals
- Ongoing review of coaching model
- Modifications as necessary to pacing guides and assessment (in Planned Course Documents)
- Continued professional development

**Thank you!**

