

HQIM AP Precalculus

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Mathematics Shifts

Prepare for Shift to Integrated Algebra

Shift from...
Algebra 1
Geometry
Algebra 2

Shift to...
Integrated Algebra 1
Integrated Algebra 2

MSDE Math Policy:
Integrated Algebra
Implementation
(2027 – 2028)

Prepare for Secondary Math Pathways

Data & Statistics
Quantitative Reasoning
Calculus

MSDE will define
frameworks and
standards

MSDE Math Policy:
Secondary Math
Pathways
(2027 – 2028)

Background Information

Current Course Sequence

Two Courses

Honors Trigonometry

Honors Precalculus

Minimal changes
in the past decade

Include
overlapping
content between
courses

Required for
enrollment in AP
Calculus

Include content
not required by AP
Calculus

Do not award AP
Credit

Committee Feedback

*If we adopt AP Precalculus,
how should we revise HCPS's math sequence?*

Remove Honors Trigonometry and
Honors Precalculus; Add AP Precalculus

7 of 9 committee members

Other Sequences

2 of 9 committee member
(track students into two paths)

2 of 9 committee members
(include a Trigonometry prerequisite)

New Course Sequence

One Course

AP Precalculus (available beginning 2023 – 2024)

Algebra 2
Prerequisite

Access Course
for All Students
(Prerequisite for
AP Calculus and
senior option)

Aligned to
MSDE
Secondary Math
Pathway Draft
Guidance

HCPS Trigonometry
covers 65% of AP
Precalculus Content

HCPS Precalculus
covers 35% of AP
Precalculus content

AP Scholars Award Comparison

Requirement	MD AP Option/AP Scholars Award	HCPS AP Scholars Award
Minimum Number of Required AP Courses	5	5
Course Distribution Requirements	<ul style="list-style-type: none">At least 2 courses in the same content areaAt least 2 content areas included	<ul style="list-style-type: none">At least 2 courses in the same content areaAt least 2 content areas included
Exam Score Requirements	<ul style="list-style-type: none">Score of 3 or higher on at least 3 AP exams	<ul style="list-style-type: none">Score of 3 or higher on at least 3 AP exams by the end of 11th grade
Course Grade Requirements	<ul style="list-style-type: none">Grade of C or higher in 5 AP courses	<ul style="list-style-type: none">Grade of C or higher in 5 AP courses by the end of 12th grade

Key Difference:

The main difference between the two programs is the timeline. HCPS specifically requires exam scores by the end of 11th grade and course completion by the end of 12th grade, while the MD program does not specify timing requirements.

Advanced Placement
Pass Rate (3 or better):

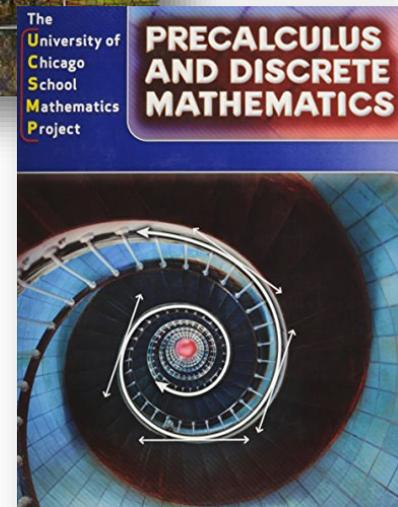
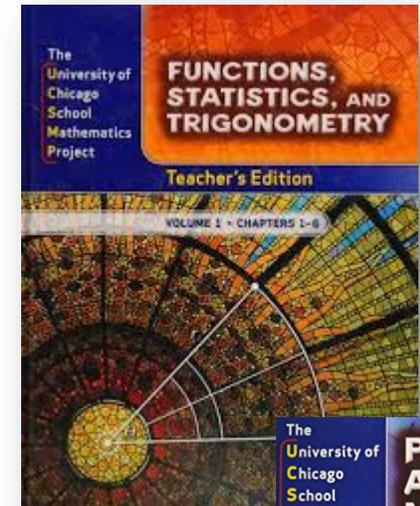
2025: 80.8%

2024: 75.6%

Current Math Instructional Materials

Current HCPS Honors Trigonometry and Honors Precalculus texts are not approved College Board resources for AP Precalculus.

MSDE created a rubric for HQIM during 2024 – 2025. With this new lens and the introduction of AP Precalculus, it is time to re-evaluate our current curricular materials.



High Quality Instructional Materials

What are they?

Grade Level
and Standards
Aligned

Designed to
Affirm
Students

Instructional
Design

Educator
Supports

Why are they important?

Pillar 3 in the
Blueprint for
Maryland's Future

MSDE
Frameworks and
Rubrics

MSDE
Mathematics
Policy

Impact on Student
Achievement

Our Process

HCPS collaborated with MSDE to develop a process that is in alignment with HQIM frameworks, rubrics, and expectations to select HQIM.



Preparation

Establish
the Process

Develop
the Lens

Study

Know and
Winnow
the Choices

Investigate
Materials

Decide and Launch

Make a
Decision

Implement

Establish the Process

Preparation

Establish
the Process

Develop
the Lens

Vision: Every day, HCPS students will engage in reasoning, modeling, sense making, problem solving, and communication so that they can see, use, and enjoy mathematics in their daily lives.

Data: AP Calculus AB Proficiency Trends

Data: AP Calculus AB Trends				
HCPS Percent Proficient				
2021	2022	2023	2024	2025
42.1%	55.6%	60.7%	62.2%	54.5%

Establish the Process

Preparation

Establish
the Process

Develop
the Lens

HCPS Priorities: Based on our vision for mathematics teaching and learning, AP proficiency data, and desire to increase AP participation and success, these priorities have been established for a new HQIM:

- Balanced Rigor (Procedures, Concepts, Applications)
- Reasoning and Modeling
- Use of Visual Models (Rule of Four)
- Discourse and Formative Assessment
- Family Engagement
- Supports for students receiving special education services and multilingual learners

Establish the Process

Preparation

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the Process

Develop
the Lens

Theory of Change: If teachers have access to high quality instructional materials alongside robust professional learning, HCPS will see a 5-percentage point increase each year on AP Calculus scores.

Parameters

- **Decision Making**: The ratings, strengths, gaps, and gap solutions to Executive Council to make the final decision.
- **Budget**: Based on Budget Office
- **Timeline and Milestones**
- **HQIM Review Committee Member Selection**

July

- Meet with MSDE
- Design Process
- Process Feedback and Approval



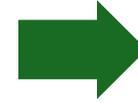
August

- Contact vendors
- Select HQIM Review Committee Members and Communicate



September

- Plan for HQIM review sessions

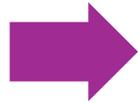


October

- Facilitate HQIM Review AP Precalculus
- Finalize Decision
- Course Sequence Decision Making / Course Numbers

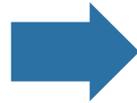
November

- GCC Report Creation
- GCC Presentation (November 19)



December

- Plan for training
- Course Sequence Adjustments



Spring 2025

- Board Presentation
- Ongoing Professional Development for Teachers and Leaders
- Curriculum Material Development



Fall 2026

- Ongoing Professional Development for Teachers and Leaders

Develop the Lens

Preparation

Establish
the Process

Develop
the Lens

Select Committee Members: Completed in partnership with Education Services, CIA Leadership, and principals.

Identify Priority Rubric Criteria: Completed in partnership with MSDE HQIM Office.

Plan for HQIM Review Committee Process

Study

Know and
Winnow the
Choices

Investigate
Materials

Know and Winnow the Choices

Review a small set of HQIM:

- Textbooks approved by College Board
- Textbooks with Advanced Placement in the title
- Textbooks published after 2023

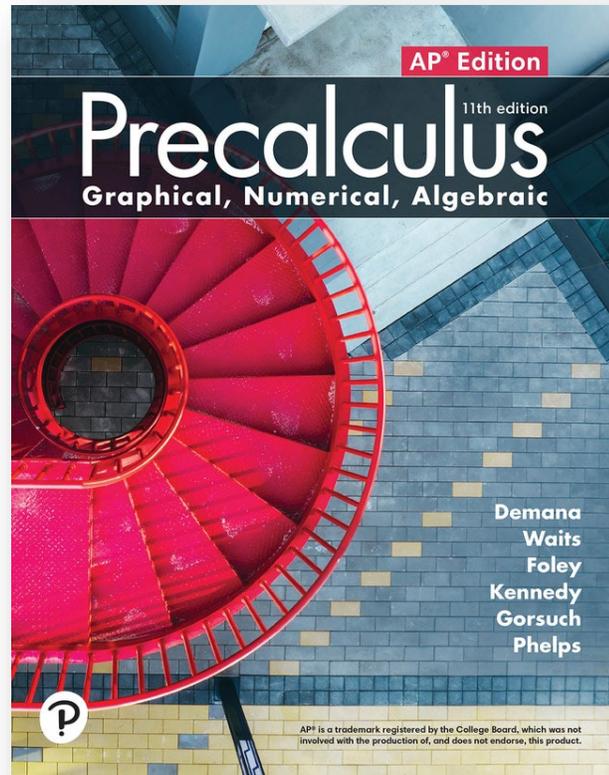
Note: MSDE is currently in the decision-making process about the Maryland Standards for Precalculus.

Study

Know and
Winnow the
Choices

Investigate
Materials

Know and Winnow the Choices



Math Medic

AP Precalculus

Study

Know and
Winnow the
Choices

Investigate
Materials

Investigate Materials

Select Model for Material Review

- Material Study
- Field Test
- PLC Review and Peer Teaching
- Vendor Presentations

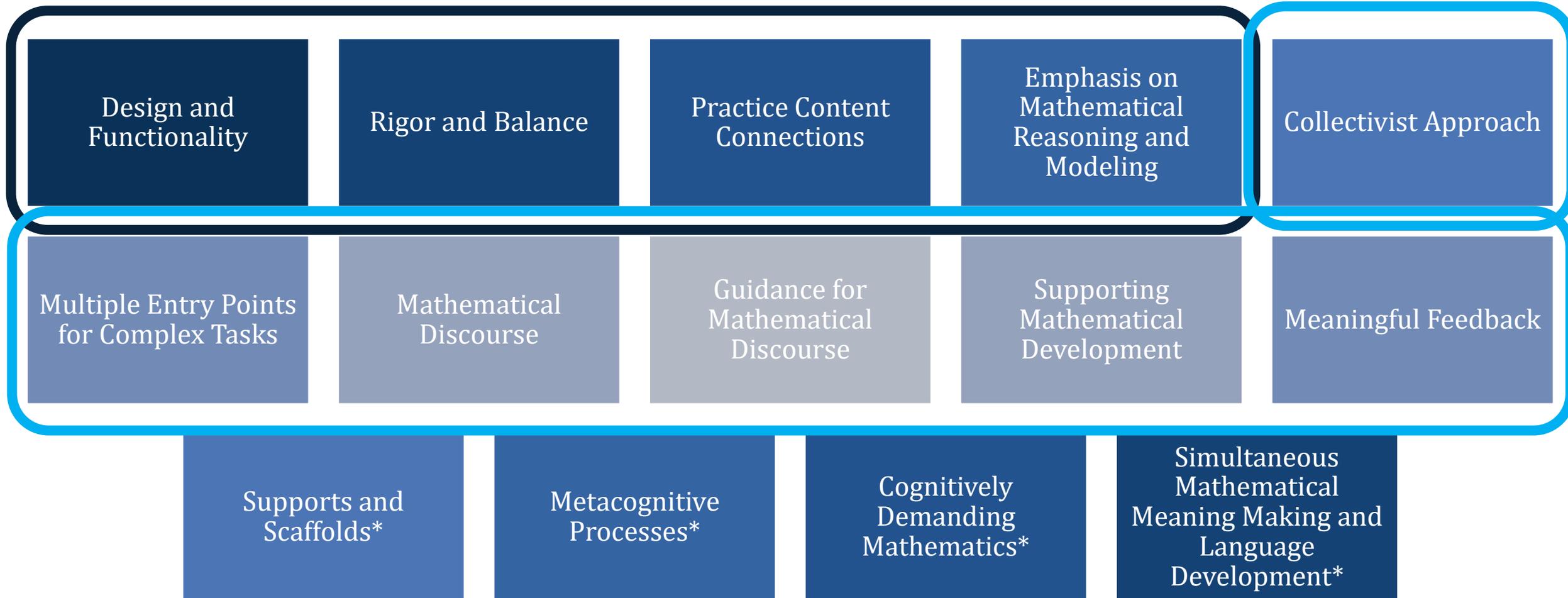
Use of HCPS Rubric.

Select Focus Units

- AP Precalculus: Chapter 3
- Math Medic: Units 2

If reviewers focus one unit / chapter, the depth of evidence will be greater. We assume that if there is evidence in one unit / chapter, there is evidence across the course.

HQIM Criteria for Review



*These criteria were evaluated by the Department of Special Education and Office of Multilingual Instruction.

Make a Decision

Decide and
Launch

Make a
Decision

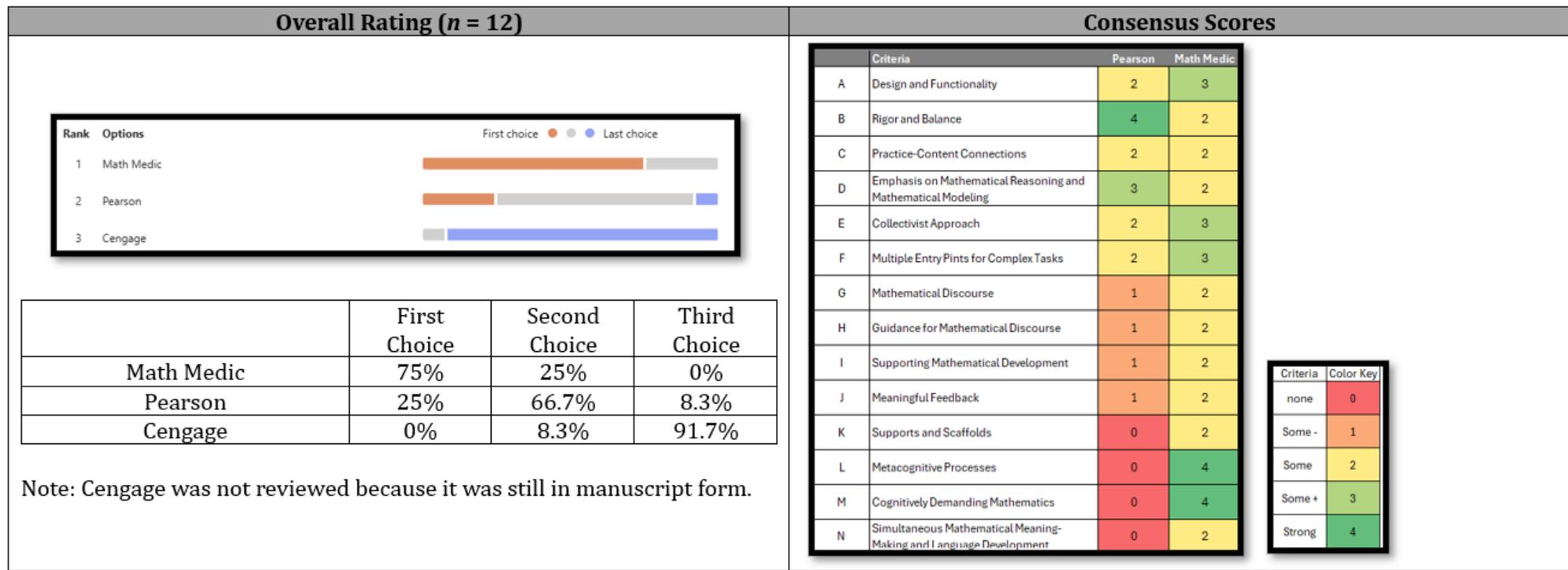
Implement

The HQIM Review Committee will:

- Complete an individual review using the rubric
- Record rating and evidence on rubric and MS Form
- Come to consensus on ratings and evidence
- Identify strengths, gaps, and potential gap solutions
- Rank each HQIM from most to least viable

The Executive Council will:

- Analyze rankings, strengths and gaps, and cost
- Make a final decision



Program	Meaningful Gaps	Gap Summary and Solution
Pearson	<ul style="list-style-type: none"> Planning guidance for problem selection, lesson chunking / sequencing (A, B) Instruction guidance for MP alignment / integration and reasoning support (C, D) Student engagement support for discourse, formative assessment, and collaborative learning (E, G, H) Support guidance for multilingual learners and students receiving special education services (K – N) 	<p>Gaps are broad and systematic.</p> <p>Comprehensive curriculum work, with a focus on structured teacher guidance and PD.</p>
Math Medic	<ul style="list-style-type: none"> Planning guidance for block scheduling, resource use, and additional practice (A) Instructional guidance for MP integration and attention to precision (C, D) and evidence collection (J) Student engagement support including discourse protocols and task implementation (launch) (G, H) 	<p>Gaps are specific and targeted.</p> <p>Some curriculum work, with a focus on PD and implementation support.</p>

Pearson Cost	Math Medic Cost
1 Year Contract: \$340,172.00 5 Year Contract: \$444,892.00	Each Year Assessments / Homework: \$9,000 Each Year Videos: \$13,920 Note: All student and teacher materials would be printed via HCPS Print Shop.

Decision: Math Medic AP Precalculus

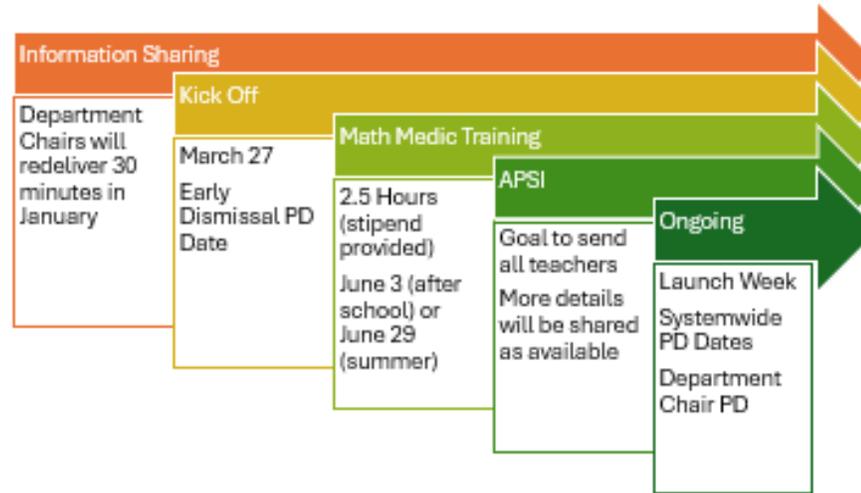
Decide and Launch

Make a Decision

Implement

Math Medic Professional Development Plan

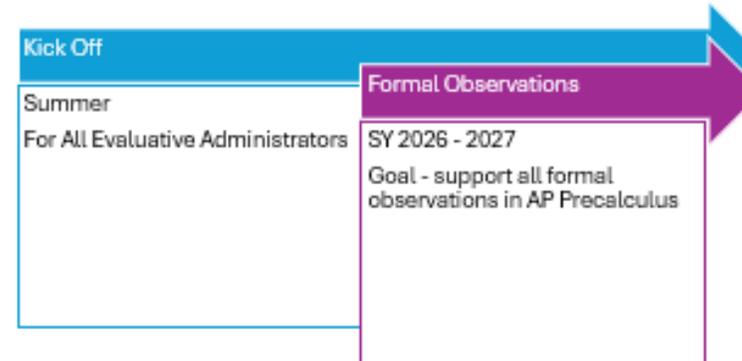
Teachers



Year 1 Focus Areas
<ul style="list-style-type: none"> • Experience First - Formalize Later • Lesson Internalization Protocol • Check Your Understanding Data Protocol

Year 2 Focus Areas
<ul style="list-style-type: none"> • To be determined based on needs • Will include a pedagogical, planning, and data component

Administrators



Year 1 Focus Areas
<ul style="list-style-type: none"> • What do I expect to see? • What do I see? • How do I reconcile the difference?

Year 2 Focus Areas
<ul style="list-style-type: none"> • To be determined based on needs • Will include feedback component.

Request

The Mathematics Office requests approval by the Board of Education for the adoption, purchase, and implementation of Math Medic AP Precalculus for students enrolled in AP Precalculus beginning with the 2026 – 2027 school year.

Questions?
