

MSAD11: Strategic Planning on the Road to Math Pathways

The Maine School Administrative District 11 (MSAD11) is engaged in strategic work to improve math education from elementary to high school. Using intentional, data-driven decision-making practices, the district has prioritized teaching practices that support student engagement in mathematical practices and math content they need to succeed in their future academic and career pursuits. They foster whole-school buy-in to support implementation of student-centered policies and practices.

Starting with a Needs Assessment

To guide decision-making, MSAD11 leaders worked with an independent education consultant to conduct a comprehensive review of current math education practices at every level. The review included observing lessons, meeting with teachers and administrators, and reviewing data and instructional materials. They used the findings to create a roadmap for next steps in consultation with teachers, administrators, and the school board. With these groups they didn't just share a report of the findings, they engaged them in mathematics, and in the findings, to grapple with what it means to strengthen math instruction. This process led to a strategic plan for improving mathematics instructions across the grade levels.

An Approach Focused on the Long View

MSAD11 leaders have taken a long view in plans to improve math instruction K-12. They started with intensive elementary grades work, then built in support in the middle grades—including a strong focus on intervention for students behind grade level in math—and are now focusing on high school math. At each level they start by building relationships and trust among everyone involved in math instruction to lay a foundation for continued growth. Before considering new program materials at any level, they spend a year or more focused on building a learning community around mathematical practices and using coaching to build knowledge and teaching practice. Laying this groundwork allows for a transition from procedural-heavy resources to those emphasizing conceptual understanding.

"We're really trying to bridge from fifth grade teachers all the way to twelfth grade teachers to see that progression of learning and develop some shared language."

Professional Development and Coaching Support for Teachers

The MSAD11 math team has made significant changes in the elementary grades math instruction by supporting teachers to strengthen their pedagogical and content knowledge before introducing new resources. They are now continuing this work in upper grades, knowing that this support for teachers fosters advocacy for change that in turn leads to improved

About MSAD11: MSAD11 has 6 schools: [Laura E. Richards](#) (grades PK-2, 243 students, 15 teachers), [Pittston-Randolph Consolidated School](#) (grades K-5, 190 students, 16 teachers), [River View Community School](#) (grades 3-5, 183 students, 12 teachers), [Helen Thompson](#) (grades PK-5, 253 students, 16 teachers), [Gardiner Regional Middle School](#) (grades 6-8, 459 students, 34 teachers) and [Gardiner Area High School](#) (grades 9-12, 621 students, 42 teachers including 6 math teachers and 2 special education teachers focused on math). In 2023, the Gardiner Area HS 4- and 5/6-year graduation rates were 87.5 and 86%.

student outcomes. They work closely with the Maine Math and Science Alliance and emphasize professional learning that spans time and offers opportunities for trying and reflecting on new practices. Math instructional coaching following a [student-centered coaching model](#) has been key, so district leaders have been strategic about building sustainability. The coaches report to a district mathematics lead, not to their principals, to ensure that the coaching relationship with teachers does not become evaluative, and coaches provide data each year to illustrate the impact of their work right before budget decisions are being made. Coaches emphasize collaboration and relationship-building, act as liaisons between teachers and administrators, and focus on pedagogical skills.

“We're building trust. We're improving practice. We're developing pathways. And our next step is to strengthen the instructional materials.”

Shifting and Communicating High School Graduation Requirements and Course Offerings

The MSAD11 math team redesigned their graduation policy to offer more flexibility for students. Previously, Algebra I, Geometry, and Algebra II were required as three math credits. Now, students must take Algebra I, Geometry, and one other math course. This increased flexibility has supported:

- Continuing the Algebra I, Geometry, Algebra II path followed by options such as statistics, trigonometry, or calculus.
- Introducing a high school “pre-algebra” class for students identified through intensive screening.
- Supporting students who take Algebra I in eighth grade to take Geometry and Algebra II and then have choices of additional courses to pursue.
- Investigating how to support a math credit from Career and Technical Education classes.

“Building trust that kids who need Algebra 2 will still take Algebra 2, and kids who need other courses like statistics will take statistics, and that we can guide them and help them and support them in their decision making.”

The district considers shared awareness of the menu of math course options to be crucial and is working to reduce inconsistent messaging. They use a school-wide counseling process to outline options available for eighth graders transitioning to high school. They are developing a flow chart as a tool to assist students in making informed decisions based on their interests. They have also been working to engage families to increase their awareness of the math curriculum through accessible family engagement nights, videos posted online, and live-streaming of meetings focused on math with the curriculum committee of school board.

Summary

MSAD11 has had many successes in their work to strengthen math instruction K-12 for their students. They emphasize collaboration and recognize that real change takes a lot of time and careful planning. Having laid a strong foundation at the elementary and middle grades, they are hopeful that students will begin to enter ninth grade more prepared for high school math. They are eager for the work ahead to continue building flexible opportunities for high school students, and plan to continue their strategic work with the school board and administration to keep needed structures such as coaching in place, and to continue strengthening the math learning experience for their students.