DRAFT Profile for Maine Math Pathways Toolkit
(See the Maine Math Pathways Toolkit For Additional Examples from Maine Districts – *Section 5 link*)

Brewer School District: Flexible Options for High School Mathematics Courses

The Brewer School District has adjusted its math requirements to help more students graduate while still ensuring each student has a strong math foundation for their future college or career endeavors. In particular, when Maine moved away from requiring the SAT—which included Algebra II standards—as a measure of student performance, Brewer capitalized on the additional flexibility this allowed for what mathematics courses students would need to take after completing Algebra 1 and Geometry. In Maine, all students must complete a minimum requirement of two years of math for a high school diploma. All SAUs have the ability, through local policy, to add requirements to this minimum.

About Brewer High School
The Brewer School District includes two schools: Brewer Community School (grades PK-8, 884 students, 73 teachers) and Brewer High School (grades 9-12, 720 students, 48 teachers). In 2023, the Brewer High School graduation rate was 88.36%. Brewer enjoys strong support from families and the school board, boasting a diverse student body. While the district serves a high socioeconomic population, it also caters to students from various socioeconomic backgrounds. Brewer remains dedicated to inclusivity, striving to provide pathways to graduation that meet the needs of all students.

Brewer's Math Course Options

Students at Brewer High School have a variety of choices for their math classes. Most students start with Algebra I and Geometry. However, starting in 2023-2024, Brewer offered flexibility by allowing students who might not be ready for Algebra I to take this class over two years (Parts 1 and 2), giving them extra time and support to understand the material. In addition, students in the CTE programs are able to earn Algebra I or Geometry math credits through CTE courses that cover the relevant standards.

Once Brewer High students finish Algebra I and Geometry, they have an assortment of options to continue their mathematics learning and achieve their three required math credits. The **2024-2025 Course of Study** lays out current suggested math pathways (page 15) and describes available math courses on the pages that follow. Course options after completing Algebra I and Geometry or Honors Geometry include:

- **Career Math and Intermediate Math**. Career Math focuses on mastering basic skills with real-world applications, covering fractions, decimals, percentages, ratios, and problem-solving, while Intermediate Math extends students' knowledge through teacher-recommended coursework, highlighting problem-solving and review in algebra and geometry concepts. These courses are designed to provide additional preparation before students might progress to Algebra 2.
- **Tech Math.** Tech Math is a new course being offered starting in 2024-2025 in partnership with Brewer's local Community College. This concurrent course is for students who are interested in a technical career. Algebra 2 is recommended but is not a pre-requisite.
- **Algebra II and Honors Algebra II leading to a Calculus pathway or Statistics.** The Algebra II course options expand on Algebra I content, covering quadratics, polynomials, and logarithms. The Honors course prepares students for higher-level math, such as Pre-Calculus and AP Statistics. To be eligible for the Honors course, students need higher grades and teacher recommendations. After completing Algebra II, additional course options include Trigonometry; Honors Functions, Statistics, and Trigonometry; Concurrent Statistics; concurrent Pre-Calculus options, and AP Calculus AB. Enrollment in these courses is based on teacher recommendations or high performance in Algebra II.

"It has allowed more students to achieve success by not prescribing their entire math careers and allowing them to have some flexibility for different kinds of success."

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Features of Brewer's Process to Enhance Math Pathways

As described below, several key features characterize the work that Brewer High School is doing to establish appropriate pathways through mathematics learning for their students.

- **Continuous Improvement Process.** The Brewer School District employs a continuous improvement process to ensure responsiveness to students' needs. The school actively pursues innovative approaches to learning and regularly reviews and adjusts the available course pathways. They regularly replace or add new courses to better meet students' present or future needs. With the help of RREV and ASPIRE grants, the school district is also offering more programs to alternative education students. This matches the district's main goal of helping K-12 students explore different careers. They want to make sure what students learn is useful for their future. Recognizing the evolving educational landscape, the department acknowledges that methods employed two decades ago may not align with current student needs. As such, they prioritize adaptability and progressiveness.

"We're trying to meet our students' needs and doing that in a way that's relevant and important for them."

- **Collaborative Course Development.** The school district facilitates collaborative efforts among teachers to develop innovative math courses. These non-traditional courses, like Algebra Part 1 and 2, Career Math and Tech Math, have been incorporated into Brewer High School's math sequences. During professional development sessions, teachers brainstorm ways to enrich the math curriculum across course options and foster student success.
- **Mentoring and Guidance Strategies.** Recognizing the important task of helping students navigate the various math courses, the district implements mentoring and guidance strategies to assist students in selecting their path to graduation in math. Teachers meet with students during "mentoring Mondays" throughout high school, providing guidance on suitable math courses and incorporating recommendations into progress reports. Guidance counselors also offer recommendations in progress reports to assist students in choosing their pathway enrollment.
- **Concurrent Math Course Options.** Brewer thinks flexibly about how to establish courses where students can learn the mathematics they need to learn. For example, multiple "concurrent" courses are offered in collaboration with local community colleges. Teachers get approved by a local community college and develop curriculum that aligns with the community college course, and students receive college math credit for their participation. For example, Tech Math will be offered starting in 2024-2025 as a concurrent course, and Statistics and Precalculus are also offered as concurrent courses.
- **Flexible Career and Technical Education (CTE) Mathematics Credit Options.** Students participating in the CTE program are able to earn Algebra I or Geometry credits through CTE courses that cover the relevant standards. This is important given that students in the CTE program spend over half of the school day outside the school building, which creates scheduling constraints for meeting requirements.

Conclusion

Brewer High School provides one example of what it looks like when a district works to ensure every student has a pathway for mathematics learning that meets their current and future needs. The school constantly updates its courses, and works to create new options, and provides guidance to help students choose the right math classes. Brewer High School also partners with local community colleges to offer advanced courses that count for both high school and college credit. This approach helps students be ready for college or their future careers.