

Mathematics Pathway Pilot

Statutory and/or Budget Language

\$553,000 of the general fund—state appropriation for fiscal year 2024 and \$553,000 of the general fund—state appropriation for fiscal year 2025 are provided solely for the office of the superintendent of public instruction to develop and implement a mathematics pathways pilot to modernize algebra II. The office should use research and engage stakeholders to develop a revised and expanded course.

Purpose

Funding was provided to create a mathematics pilot aimed at modernizing Algebra 2 to make the course more meaningful to students in both content and application to their postsecondary goals. Additionally, the math pathways pilot seeks to apply what was learned from the development of Modern Algebra 2 toward the creation of additional math pathway courses for high school students, equally grounded in meaningful content and teaching practices that center inquiry and perspective. The mathematics pathway pilot continues to engage in research to develop course instructional materials for Modern Algebra 2 and additional course frameworks and engage stakeholders to revise and expand the course including instructional materials aligned to student interest. The pilot continues to examine additional math pathway options for students, and professional learning for mathematics educators across the state to increase access to teaching strategies that have benefitted students in the pathways pilot.

Description of Services Provided

The continued funding enabled educators to engage with fellow educators to deepen their skills and understanding of equity-focused, student-centered mathematics instruction, and continue to create mathematics learning and teaching centered on mathematics in meaningful contexts for students, centered on discourse, while adhering to higher education admission expectations of the student experience in algebra 2.

Specifically, services provided for the math pathway pilot included: contracting for the creation of new learning modules, creation of new module assessments, and revision of existing modules. OSPI math staff facilitated professional learning for pathway pilot educators in the summer of 2023 and spring of 2024 covering topics to facilitate equity-focused and student-centered mathematics instruction and facilitated virtual communities of practice meetings for educators to connect outside of school to discuss their experiences in teaching the course and preview of the upcoming modules. OSPI math staff provided outreach to ESDs on the pathways pilot and engaged with the national math community to learn from and apply successes in math pathway initiatives across the nation.



Criteria for Receiving Services and/or Grants

Funding is available to schools and districts committed to providing professional learning for secondary mathematics educators to engage in the practice of equity-focused and student-centered teaching and learning with the purpose of improving the student experience in mathematics including but not limited to: Tribal Compact Schools, schools with high free and reduced lunch populations, rural and remote schools, students in alternative learning environments, students of color, multilingual learners, and students receiving special education services.

Beneficiaries in the 2023-24 School Year

Number of School Districts 7 school districts

Number of Schools 8 high schools

Number of Students 950 students

Number of Educators 16 educators

Other

Are Federal or Other Funds Contingent on State Funding?

No

State Funding History

Fiscal Year	Amount Funded	Actual Expenditures
2024	\$553,000	\$441,742
2023	\$553,000	\$185,972

Number of Beneficiaries Per Fiscal Year (e.g. School Districts, Schools, Students, Educators, Other)

Fiscal Year	Number of Beneficiaries
2024	981
2023	1,417

Programmatic Changes Since Inception (If Any)

The development of remaining modules was completed and made available to districts for use in the second semester of the Modern Algebra 2 course. In this way the second semester of instruction can be tailored to student interest at the classroom level.

Program Evaluation or Evaluation of Major Findings

Students and teachers continue to report the structure of the Modern Algebra 2 course is better than a traditional math course. Educators report the content of the lessons provide

opportunities for rich mathematical discourse where students can offer mathematical perspectives and solutions that demonstrate the many ways a real-world situation can be mathematically analyzed. Educators also report student participation in student-centered inquiry models (Building Thinking Classrooms, Liljedahl, 2021) increase student engagement and understanding of the Modern Algebra 2 content. Students report the math they are learning in the Modern Algebra 2 course matters and is more relevant than content they engaged with in previous courses.

Major Challenges Faced by the Program

Getting the word out to districts about Modern Algebra 2 has been slow, and yet districts that teach the course year over year value how the course structure (grounded in student mathematical discourse and inquiry) and the course content (relevant for students while still meeting college requirements for an algebra 2 course) meet the needs of high school students in Washington today.

Educators report now that the course is fully developed, polishing may be necessary to strengthen the through-lines of the curriculum that at times feels disconnected from one module to another. For example, students have reported that the start of the finance module is redundant compared to the depth by which they examined exponential functions earlier in the year.

The language of the proviso is centered on a math pathways pilot to modernize algebra 2, but as educators report the benefits of the structure and content of the course, limiting these benefits to algebra 2 may not best serve students and educators across the state of Washington. Expanding the professional learning from this course design across mathematics may best serve student success throughout their K–12 math experience.

Future Opportunities

There is continued work to be done in developing math pathways for students in high school in both the 3rd and 4th credits of mathematics. Additionally, as students report increased confidence, and sense of belonging in their math learning, students across all grades would benefit from the research and lessons learned through the development of Modern Algebra 2. In the coming year, current math pathways educators will help revise and refine the course with the goal of making the course more accessible to educators across the state.

OSPI is reviewing and revising state learning standards with plans to add Data Science to the mathematics standards across all grades K–12. The addition of the data science standards creates the opportunity for OSPI to create a high school data science framework that can be taught as a 3rd credit of math through community connected algebra 2 content as examined through a data science lens. In this way, students are prepared for both college and university acceptance by completing an algebra 2 course connected to their interests and career options grounded in statistics and data science. Additionally, a framework model, similar to Career and

Technical Education, facilitates the instruction of mathematics through community connected contexts.

The revised mathematics learning standards facilitates opportunities for OSPI to create and deploy professional learning for mathematics educators across the state to access the same rich methods of teaching practices developed in the math pathways pilot. Shifting the educator experience is essential to improving the students' ability to see themselves as flexible thinkers and adept mathematicians. Broadening educators' perspective to build pedagogy that engages and deepens student understanding moves Modernized Algebra 2 from the goal of the math pathways pilot to the starting point of larger work. This move can broaden access for all students across all grades to equitable teaching practices that facilitate mathematics in authentic community connected contexts. When students engage in rich mathematical discourse and flexible problem-solving strategies they are better prepared for college and career readiness. This shift, paired with the revised Washington Standards in Mathematics across all grades will impact robust outcomes for students in mathematics.

Professional learning built from the principles of the mathematics pathways pilot will benefit teachers and students across the state to explore and understand the interconnected nature of mathematics with all content, to develop rich understandings of how mathematics is used in students' communities. Sharing the research and learnings from the math pathways pilot to all math educators across the state further prepares Washington students for a changing world and to be critical analyzers of data and mathematics as they move into society as participants in democracy.

Other Relevant Information

The Modern Algebra 2 course has received positive accolades from national partners in secondary mathematics. The learning and design of this course can be taken in a larger direction to support K–12 students and educators across the state.

Schools/Districts Receiving Assistance

[Click here to see a list of all OSPI grant recipients in the 2024 Fiscal Year.](#)

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