

[Mohawk Trail Regional School eyes shift in math curriculum](#)

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BUCKLAND — Mohawk Trail Regional School students may have a new math class to take next fall as the school is considering offering an Integrated Math program that would combine elements of the geometry and algebra into one course, rather than two separate classes.

In most high schools across the country, students follow a curriculum schedule of taking Algebra I followed by Geometry and then Algebra II. However, after seeing the impacts of a combined course at Northampton High School, Mohawk Trail Regional School teachers and administrators believe switching to a program where the two concepts are combined would be more beneficial for students.

“We want the curriculum to be organized, efficient and accessible to everybody. ... We want it to be a collaborative process,” Algebra I teacher Wayne Kermenski said during a School Committee meeting on Wednesday. “Linking algebra and geometry, and in turn reinforcing each, really helps make those concepts more solid.”

Kermenski has been working with Principal Chris Buckland, Director of Curriculum and Instruction Sarah Jetzon, as well as the School Committee’s Education Subcommittee, to develop the new program after being invited to watch Northampton High School math teachers teach Integrated Math lessons.

According to Kermenski, the program could prevent any loss of knowledge that comes with the long gap between Algebra I and Algebra II, while also interweaving algebra concepts with geometry for greater understanding. The program meets state curriculum standards. He added that the method of combining algebra and geometry is how math is taught across the rest of the world and cited a report from J. Michael Shaughnessy, president of the National Council of Teachers of Mathematics.

“Exposure to relevant applications of algebra integrated with statistics and geometry throughout a high school student’s learning of mathematics will help instill more meaning and sense making in his or her algebra experience and lay a foundation for transition options to college mathematics,” Shaughnessy wrote in the report.

At Northampton High School, Integrated Math is offered in three different courses, with honors options for each. After taking Integrated Math I, II and III, students can enroll in Pre-Calculus, AP Calculus, Statistics, Personal Finance and other advanced math classes.

According to the Northampton course catalog, Integrated Math I covers extending understanding of numerical manipulation to algebraic manipulation, synthesizing understanding of functions, linear and exponential relationships, congruence through rigid transformations and geometric

constructions, applying the Pythagorean theorem to the coordinate plane, and properties of polygons and polyhedra.

Integrated Math II covers key characteristics of quadratic functions with those of linear and exponential functions; creating and solving equations involving linear, exponential and quadratic expressions; and using algebraic methods to solve geometric problems. The course also covers the core concepts of univariate and bivariate statistics, and some geometry topics, including establishing criteria for similarity of triangles based on dilations and proportional reasoning, and right triangle trigonometry.

Integrated Math III covers using algebraic methods to discover more advanced geometry topics and using geometry to discover more advanced algebra topics; geometry of circles and other conic sections; perimeter and volume; solids of revolution; triangle geometry; inverse functions; and probability.

Mohawk Trail Regional School is looking at rolling out the new program next fall. Students currently enrolled in Algebra I or Geometry will take Integrated Math II next year and students currently enrolled in Algebra II will be able to enroll in Pre-Calculus, AP Calculus, Personal Finance or Statistics.

Current eighth graders and subsequent freshman classes will go through the new Integrated Math program. Students will take Integrated Math I their freshman year and Integrated Math II their sophomore year. Come junior year, they will have the option of taking Integrated Math III for the full year or Algebra II for one semester and Pre-Calculus for another. Lastly, seniors can choose between Pre-Calculus, AP Calculus, Personal Finance or Statistics.

As Mohawk Trail Regional School administrators continue planning for the switch, Kermenski said the next steps will include community outreach, answering questions from students and families, and reaching out to colleges to see how they view the Integrated Math program in comparison to the traditional combination of algebra and geometry classes.

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