



## **Integrated Mathematics Program FAQ**

Birmingham Public Schools will start implementation of a new high school mathematics program beginning with the 2017-2018 school year. The new program, phased in over three years, will replace the current Algebra 1, Geometry, and Algebra 2 sequence. The new courses, Integrated Math 1, 2, and 3, will present the same content as the traditional sequence, but in a different order, and with additional concepts not typically found in algebra and geometry.

### **What is integrated math?**

Integrated math refers simply to the organization of the mathematics students learn. Instead of having separate courses for algebra and geometry, integrated programs present mathematical topics sequenced in ways that help students see the connections between ideas and the coherence of mathematics as a discipline.

Research has shown that this type of instruction is very rigorous and can result in increased student engagement and higher student achievement. The recursive nature of an integrated program provides several opportunities for students to learn concepts over time. These concepts are presented multiple times, in increasing complexity and depth, over the course of the three-year sequence.

### **Why did Birmingham Public Schools choose to adopt an integrated program?**

Our decision to shift to an integrated mathematics curriculum reflects our commitment to offering our students the highest quality mathematics program we can envision. An integrated mathematics program affords students opportunities to focus on developing conceptual understanding and to see how the disciplines of mathematics are intertwined.

Organizing mathematics learning around coherent strands of concepts allows students to more easily make sense of mathematics and reason with it to solve problems. Teaching algebra and geometry as separate courses can leave students with the false impression that they are not related. There is also much more to mathematics than just algebra and geometry. An integrated curriculum provides opportunities to investigate other topics such as functions, probability, statistics, trigonometry, and data analysis.

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### **Was our old math program broken?**

Our shift in curriculum and instruction is more of a response than a reaction. Our high school mathematics program has been successful for many of our students. Using traditional measures of success (e.g., ACT, SAT, and AP test scores), the math departments at Groves and Seaholm have performed well. While these traditional measures did emphasize procedural fluency, they are changing in response to new standards. Feedback from colleges and employers highlight a different set of skills, both cognitive and non-cognitive, that can, and should be addressed in mathematics classrooms. Birmingham Public Schools' Learner Profile highlights skills such as collaboration, creativity, critical thinking, motivation, and communication as valued skills for all our students. Our new program will develop these skills and leverage them to deepen mathematical learning.

### **Will this new program adequately prepare my child for college?**

Our new program actually delivers more content than the traditional program it replaces. The new program delivers traditional algebra and geometry topics as well as topics in probability, statistics, trigonometry, and data analysis. In addition, our new program presents the content in a spiral manner, with concepts being revisited in greater complexity and depth as the three-year sequence progresses. Students will gain a better understanding and appreciation of how mathematics is used. The end result is that students will learn mathematics in more meaningful, durable, and transferable ways. After completing the three-year integrated sequence, students will be better prepared for courses like pre-calculus and statistics.

### **How will classroom instruction change in the new program?**

Classroom instruction will focus on developing a balance of conceptual understanding and procedural fluency. Our new program is a problem-based and student-centered curriculum. Mathematical practices are embedded within lessons that are focused on big ideas and mathematical connections. Guided by a knowledgeable teacher, students will interact in groups to foster mathematical discourse. Students will become independent learners who excel in reading and writing about, exploring, applying, and communicating mathematical concepts.

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### **What other schools are using an integrated program?**

The mathematics curriculum has always been integrated at the elementary and middle school levels, as well as in the high schools of almost every other country in the world. In the United States, integrated high school mathematics programs are gaining in popularity as more and more states and districts realize how well integrated programs enhance student learning.

### **How will an integrated math program look to college admissions offices?**

Birmingham Public Schools is proud to offer a wide variety of courses at the high school level that integrate curricula in innovative ways such as Excel, Flex, and our new K-12 English Language Arts program. College admissions representatives understand these innovative instructional approaches. Every year Birmingham's high schools host many college admissions representatives to review and update our school profiles. In these meetings, changes to our curriculum are explained and the college representatives get necessary clarifications to better understand our program. Seaholm and Groves are, and will continue to be, excellent schools whose students go on to succeed at the university level.

### **Will students still have an option of taking honors-level mathematics classes?**

Yes, the high school mathematics program will still have honors courses. Students in the advanced math program in middle school will begin the integrated sequence in eighth grade, taking Integrated Math 1. Eighth-grade teachers of advanced students will continue to recommend whether a student enter high school in Integrated Math 2 or Honors Integrated Math 2. Students taking our college prep sequence in middle school will begin the integrated sequence in ninth grade. These students, in consultation with their teachers, will have the opportunity to move into and out of the honors program during high school.

### **Will students in the college prep sequence in middle school still be able to take Calculus as a senior?**

Yes, a student in the college prep sequence taking Math 8, Pre-Algebra, will have the opportunity to take Calculus as a senior. As with our current program, there will still be an opportunity for students to accelerate themselves. A student entering 9<sup>th</sup> grade in Integrated Math 1 can reach AP Calculus by 12<sup>th</sup> grade. To do so, students would take Integrated Math 2, Integrated Math 3, and Pre-Calculus all during their 10<sup>th</sup> and 11<sup>th</sup> grade years.

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**What is the timeline for implementation of the integrated math program?**

Integrated Math 1 replaces Algebra 1 in the fall of the 2017-2018 school year. Integrated Math 1 will be three trimesters for all students. Other math courses in the traditional sequence, Geometry and Algebra 2, will remain in place for students that were in the traditional sequence in either Algebra 1 or Geometry during 2016-2017. Geometry will be replaced by Integrated Math 2, a two-trimester course during 2018-2019, leaving only Algebra 2 remaining from the traditional sequence. Integrated Math 3, also two-trimester course, replaces Algebra 2 during year 3 of implementation in 2019-2020.

**Why isn't there a three-trimester option for Integrated Math 2 and 3?**

Studies have consistently shown that heterogeneous grouping leads to better outcomes for all learners. Our staff members have worked with students in both the two-trimester and three-trimester versions of our current program and believe that with the change in instructional approach that accompanies our new program, all students will be better served in the same class. Members of the Specialized Instruction and Student Services Department have been involved in the planning process for the new program from the start, support this change, and continue to work closely with the Mathematics Department in planning the implementation of these new courses.

**For further information, please visit the following websites:**

[About College Preparatory Math \(CPM\)](#)

[College Preparatory Math \(CPM\) Introduction Videos](#)

[College Preparatory Math \(CPM\) Research Base](#)