

Middle School Math FAQ

DMPS Families and Caregivers,

The purpose of this document is to provide additional information about our middle school math program, including our approach to math learning, curriculum and instruction, and next steps in the continuous improvement of systems and pathways.

Approach to Math Learning

Mathematics is a tool we use to understand and interpret our world. In our increasingly technological economy, those who know how to apply mathematics have significantly enhanced opportunities in continuing education and later in life. The key to opening the door to these opportunities is thorough understanding of important mathematical concepts and procedures. “Learning in mathematics ...requires that all students, including those most accomplished in mathematics, rise to the challenge by spending the time to learn each topic with diligence and dedication.” (Wu, 2012)

The goal of the Des Moines Public Schools K-12 mathematics program is to ensure all students have equitable access to a rigorous math experience that is supported by a balance of conceptual understanding, procedural skills and fluency, and real-world application. Students who understand a concept can identify examples and non-examples; describe the idea with words, symbols, tables, graphs, and models; and transfer math knowledge to new situations. Procedural fluency includes knowing which procedure to use and executing it without difficulty in order to progress in solving a problem. The end result is the ability to think and reason mathematically and use mathematics to solve problems in authentic contexts.

How will middle school students be enrolled in math courses?

Most middle school students will be enrolled in their grade-level math course for the 2020-2021 school year with embedded extensions for students who demonstrate early readiness for advanced work. It is our priority to not only serve our students based on their mathematical readiness but also to serve all students as equitably as possible. Strengthening core learning and working toward mastery of untaught topics from the final quarter of last school year will be priorities. In addition, the GT Department will provide extended learning opportunities via online platforms. These activities to deepen learning may be a combination of synchronous support and independent learning and practice.

Will students still have the opportunity to take Algebra I in 8th grade in the 20-21 school year?

Eighth grade students will be best served with a strong, enriched eighth grade math curriculum, so most eighth graders will be placed in Math 8. We do, however, recognize that there may be students who will be academically ready for Algebra I. Since Algebra I is a foundational course critical to advanced levels of mathematics, we must ensure that our students, especially in a virtual environment, are ready for this challenge. Course placement in Algebra I will be based on readiness for the algebraic concepts as indicated by a mathematics RIT Score > 240 on at least one seventh grade Measure of Academic Progress (MAP) test. Parents could also choose the new Math 8 course with enrichment. In buildings where Algebra I cannot be offered due to enrollment numbers, DMPS will provide Algebra I through a district-wide virtual course.

Students who participated in the seventh grade accelerated course but scored < 239 on both MAP tests last year will be placed in Math 8. Because of missed instruction last spring and the requirements of virtual learning this fall, students scoring 239 or lower are typically better served in the Math 8 IM course with new enrichment modules. There is an appeal process for students who score between 230 and 239 to take Algebra I. We know that a single test score can sometimes overlook students with high interest and/or effort in mathematics. This appeal process will include a survey to determine interest and commitment to effort and may include the requirement to take the math MAP test to demonstrate readiness. The Gifted and Talented Department sent a survey to those scoring 239 or higher to ask about their placement preference and interest in appeal if they were not identified for Algebra I.

A note about MAP testing and scores: MAP tests shift from elementary to middle school grades. A MAP test taken in 5th grade would award a higher score for demonstrating thinking associated with Pre-Algebra than the 6-8 MAP test given in the middle school as it is a more expected skill
Updated 9/13/20

Middle School Math FAQ

for this age group. The MAP test indicates readiness for engagement with new material. It is not an indicator of mastery. There is a difference between a student who has grappled with content in class and had exposure to algebraic topics compared to a student who had not yet experienced pre-Algebra topics in Math 8 or the previous Accelerated Math class in 7th grade (that was incomplete last year).

How have students previously placed in accelerated courses continued in their math learning pathway?

Graduation Requirements are 3 years of high school mathematics to include Algebra I or higher. Many students (approximately 7 in 8) complete Algebra II as sophomores or Pre-Calculus as juniors and then stop. Anecdotally, students will say they have other interest areas and teachers say students begin to struggle in these later years because they do not have the foundational learning. Approximately 1 in 12 students not identified for GT services in mathematics who took Accelerated Mathematics in 7th grade continue on to Calculus. Approximately 1 in 6 students who are identified for GT services in mathematics take Calculus in High School. That means about 83% of mathematically gifted students do not continue to Calculus.

If my child took Accelerated Math 1 last year and is now in 7th Grade Math, won't they be repeating a lot of content?

Accelerated Math 1 traditionally covers all 6th grade math topics as well as the first half of the topics in 7th grade math. However, with our interruption last spring, the majority of the topics from 7th grade math were not taught in Accelerated Math. Therefore, a student who took Accelerated Math 1 last year simply covered most of the content from a typical year of 6th grade math.

Curriculum & Instruction

What is our middle school math curriculum?

A cohort of classrooms piloted Illustrative Math curriculum in the 19-20 school year. Beginning in the 20-21 school year, all 6-8 math classrooms will implement Illustrative Math (IM) curriculum with integrity. IM Math is a problem-based core curriculum designed to address content and practice standards to foster learning for all. Students learn by doing math, solving problems in mathematical and real-world contexts, and constructing arguments using precise language. The curriculum was chosen for its direct alignment to standards, embedded instructional practices, supports, and extensions. The Common Core standards in mathematics were built on a set of progressions - mapping out the progression of mathematical topics across grade levels from K through HS. They were informed by research on children's cognitive development and by the logical structure of math. The Common Core math standards were written to shift mathematics instruction to have a balance between procedural fluency, conceptual knowledge, and application. Many of the foundational underpinnings that students previously did not experience until HS Algebra 1 or Geometry are now included in the MS math standards, which is why it is so important to ensure every student has a strong middle school mathematics foundation that is complete. Students have immediate access to extended learning as lessons throughout each unit include "Are you ready for more?" prompts. This link provides full access to the curriculum - including Family materials (in both English and Spanish) for each grade level. <https://im.kendallhunt.com/MS/index.html>

What training has been provided for teachers in this new curriculum?

Classroom teachers have been developing their skills and understanding of effective math instructional practices in preparation for adoption of the new curriculum for the past year. Teachers were trained with the IM curriculum in May. This training included utilizing differentiated tasks for various ability levels in their classrooms. We do not have GT teachers at DMPS. The GT department, in conjunction with Central Academy, has provided a bulk of extensions for the teachers to use with their students. GT consultants are trained in using data to determine student need and creating flexible grouping, adding depth and complexity to tasks, and providing activities /resources that focus on problem solving and higher-level thinking skills. Ongoing development of both classroom teachers and GT consultants will continue throughout this year.

What is the role of the GT consultant in supporting students' math learning?

The role of a GT Consultant is to consult with the content area expert (the middle school teacher) and provide supports in identifying academic need and assisting in providing for that need. The GT Consultants will be working with the teachers during regular and frequent collaboration meetings (PLCs) used for planning and analyzing student data. They will be assisting teachers with analyzing the student data to create flexible groups for serving students who need to have access to extensions.

Updated 9/13/20

Middle School Math FAQ

GT Consultants will also be assisting teachers with progress monitoring of student data to ensure high ability students are taking advantage of extensions and successfully completing them. Part of this monitoring will also include watching for students who have needs for significantly more challenge beyond the extensions being provided. Each middle school consultant serves two buildings.

Next Steps in Continuous Improvement

How will these approaches to math learning be monitored and adjusted?

Programming and pathways will continue to be developed and improved based on student outcomes. The new programming is what is best for strengthening the mathematical foundation in our students. Math has been identified as a priority by our broader community, district, and school board. Student achievement is closely monitored from the classroom to the board table and at all points between. It is this study of effective math learning that will allow for evidence-based improvement.

What course pathways will exist for my child as the transition into high school?

Increased enrollment and success in AP level mathematics courses are important indicators of the success of this approach to middle school mathematics. There are a number of potential pathways under development that create an effective, supported progression from a strong foundation in middle school math and Algebra I through AP Calculus and AP Statistics. The Algebra I Task Force will be determining future pathways for DMPS math courses. Algebra I in 8th grade will be central to this discussion, and clear delineation of pathways will be communicated this fall.

I still have more questions about math learning in DMPS? How can I learn more?

We recognize that while documents and emails can provide good information, conversations can be even more clarifying! Please complete this survey no later than Friday, September 18th. A series of topic-based seminars will be developed based on your feedback.