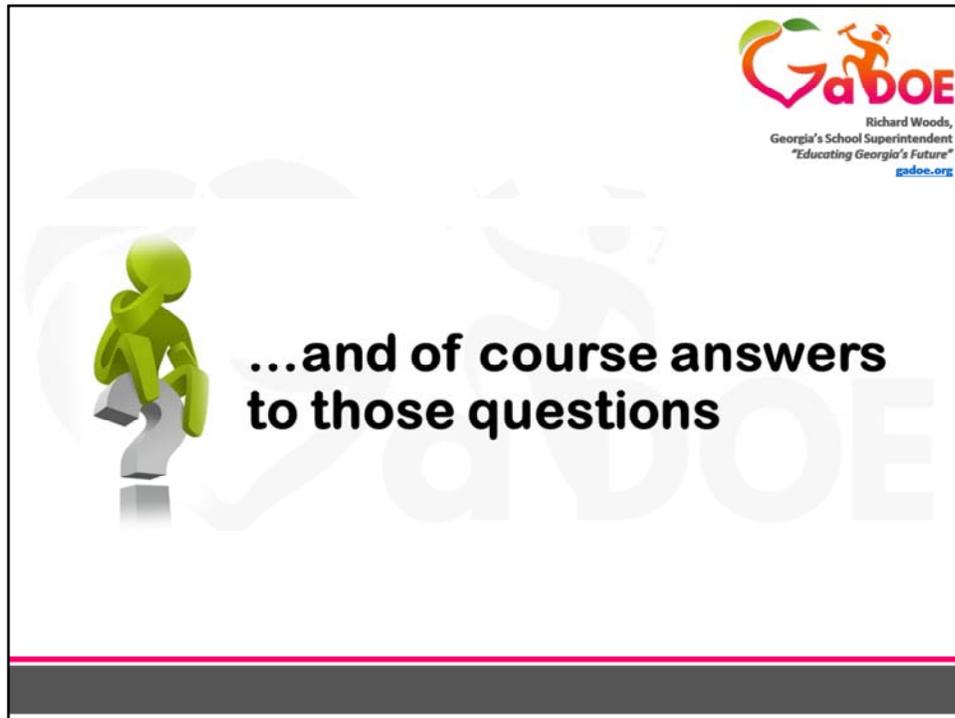


# Questions About Mathematics You Are Sure To Be Asked

New Curriculum Directors Conference  
September 20, 2016



Congratulations on your new and very critical role! There have been many changes in Georgia's K-12 mathematics program in the last decade and you are sure to be asked about them.



This powerpoint with my scripted notes has been downloaded to the flash drive. Also, we have supplied you with four documents to assist you – 2016-2017 Graduation Guidance, MOWR FAQs, a synopsis of the current program, and Look Fors when observing math classes. We are constantly updating the mathematics program webpage within GaDOE Curriculum and Instruction with information aimed at district and school level administrators and school counselors.



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➤ I'm not a former mathematics teacher. What should I look for when observing mathematics teacher classrooms?



Certainly you want to be able to observe in mathematics classrooms and offer suggestions even if you're not a content specialist. The Standards for Mathematical Practice provide overarching standards for every grade level and high school course. Standards 1 and 6— make sense of problems and attend to precision - should be evident in every lesson. You are receiving a handout which describes examples of expected student and teacher behaviors and which matches the SMPs to our TKES standards to assist you in observations.

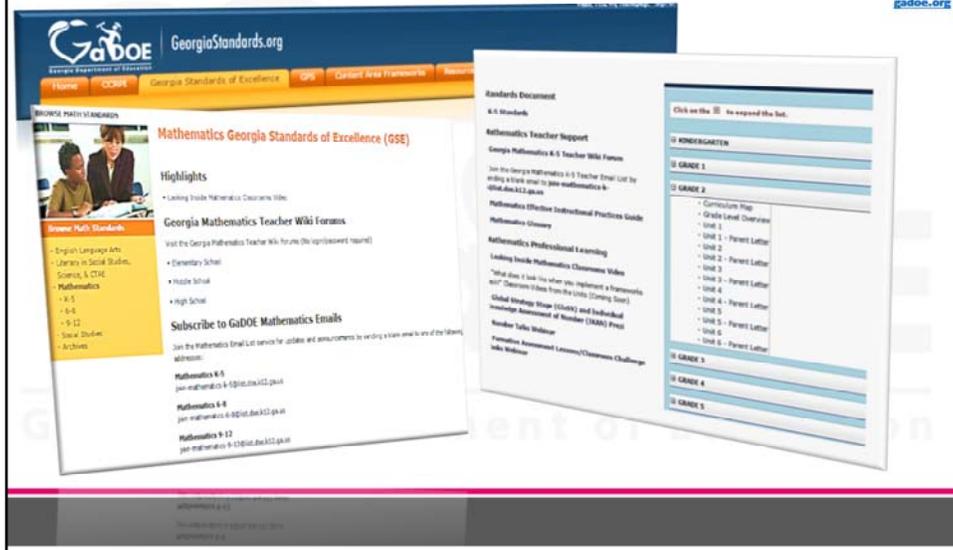
The screenshot shows the GaDOE website's Mathematics page. At the top, there is a search bar and the name of the Georgia School Superintendent, Richard Woods. Below this is a navigation menu with links for Offices & Divisions, Programs & Initiatives, Data & Reporting, Learning & Curriculum, State Board & Policy, Finance & Operations, and Contact. The main content area is titled "Mathematics" and includes a sidebar with "Content Areas" such as English Language Arts, Mathematics (highlighted), Science, Social Studies, Fine Arts, Health & Physical Education, and World Languages & Global Initiatives. The main text describes the Georgia Mathematics standards, emphasizing rigorous concept development and real-world applications. A quote from Vinnie Prasad, Cobb County, is displayed: "What do we do now to monitor progress? How can we determine why our students aren't achieving as well as they should in math?" followed by the text "PAUSE AND DISCUSS." and a small photo of Vinnie Prasad.

➤ When teachers ask about diagnostic tools, what can I tell them?

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While there are a number of diagnostic tools, we have focused on one – GloSS and IKAN a tool used by several of our districts which is free and a tool embedded in our Foundations of Algebra resource toolkit. We have provided a prezi and other resources at our DOE program webpage site and our teachers' GeorgiaStandards.org site.

➤ Are there resources available for mathematics teachers?



There are numerous quality resources developed by our own Georgia teachers and all available in a one-stop shop – GeorgiaStandards.org. These same resources are available in the Teacher Resource Link and we are currently working to organize them there more efficiently. Users will click on the Georgia Standards of Excellence tab, then click on mathematics to reveal grade band options. I've opened the K-5 section to show you grade two resources - the same resources are available for all GSE courses – a course overview, a suggested curriculum map, unit-by-unit curriculum frameworks, and for K-5 unit-by-unit parent letters.

The image is a collage of educational resources. At the top left is the Georgia Virtual Learning logo with the text 'GEORGIA VIRTUAL LEARNING GEORGIA DEPARTMENT OF EDUCATION'. To the right is the 'GaDOE' logo with the text 'Richard Woods, Georgia's School Superintendent "Educating Georgia's Future" gadoe.org'. Below these are three overlapping windows: 1) A 'Shared Content' menu with 'Math' highlighted by a red arrow. 2) A Khan Academy page with the URL 'https://www.khanacademy.org/'. 3) A document titled '3. Apply understanding of whether shapes have volume to real world situations (A)' with a 3D box diagram.

➤ Are there mathematics resources available for parents?

Georgia Department of Education

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Of course parents are welcome to browse the resources found at [georgiastandards.org](http://georgiastandards.org), but I have addressed many parent concerns over the years by pointing them to the Georgia Virtual Learning site shared resources. For parents of middle school and high school students, there are lesson by lesson resources which align with the course units you saw at [GeorgiaStandards.org](http://GeorgiaStandards.org). By the way, teachers can use these lessons as well.

Two quality free websites with parent resources for grades K-HS mathematics include Khan Academy, which you'll remember is partnering with College Board, and LearnZillion, which matches lessons to individual standards.



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- Can districts choose to accelerate elementary and/or middle school students in mathematics?



Districts can choose to accelerate those students who are gifted and talented in mathematics. At [GeorgiaStandards.org](http://GeorgiaStandards.org) you will find middle school acceleration resources designed for early entry into high school level mathematics. Currently, there are discussions taking place among some districts surrounding elementary acceleration and I will send out updates as they present themselves.

➤ What are the test-out options in mathematics?



The Awarding Credit Rule and Guidance which is posted on Pam Smith's C&I webpage explains that a student can earn course credit in two ways – either by earning a final course grade of 70 or higher or by achieving a pre-defined performance level on the course EOCT. So in math, that means that students can test-out of Algebra I/Coordinate Algebra and Geometry/Analytic Geometry.

It's important to know that students can test-out only if they are not currently or previously enrolled in the course or in a higher-level course. For instance, a student who is currently enrolled in Algebra II would not be eligible to test-out of either Algebra I or Geometry. Students have only one opportunity to test-out of any course.

- Are there alternative high school mathematics sequence options for students with disabilities?



The Awarding Credit Rule & Guidance, along with the Graduation Rule, address provisions for students with disabilities who might be struggling with high school mathematics. The handout at your seat summarizes the available alternative sequence options. Please be reminded that most students with disabilities will be able to complete the traditional sequence – perhaps with support in mathematics support courses.

Also, be aware of limitations regarding post-secondary study when IEP teams determine that an alternative sequence is appropriate. We want to keep the window of opportunity open widely while offering a broad safety net. The graduation rule allows students who have completed Algebra I and Geometry, along with their respective support courses, and Algebra II to opt out of a fourth mathematics course beyond Algebra II.

The Awarding Credit rule allows a more intensive intervention for students whose IEP team prior to ninth grade identified a disability that affects mathematics achievement. If a student meets the criteria detailed in the mathematics rubric included in the rule guidance, the student can meet his mathematics graduation requirements if he completes Algebra I and Geometry and two additional math credits – could be support courses, Foundations of Algebra, Mathematics of Finance. This decision is made in the student's 11<sup>th</sup> or 12<sup>th</sup> grade of high school.



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- Are there state requirements for enrollment in Foundations of Algebra?
- Is Foundations of Algebra an acceptable fourth core option?

The SBOE approved enrollment criteria for Foundations of Algebra was in place for the 2015-2016 school year only. Enrollment requirements are now determined at the district level.

Foundations of Algebra can be used as a fourth course option to meet graduation requirements. Students who complete Foundations of Algebra + Algebra I + Geometry + Algebra II are eligible for admission to some USG institutions. I should mention that students who complete Algebra I + Geometry + Algebra II + Mathematics of Finance also meet high school graduation requirements, but not the requirements for entry into a USG institution.

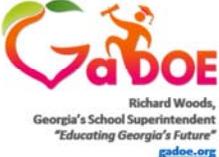
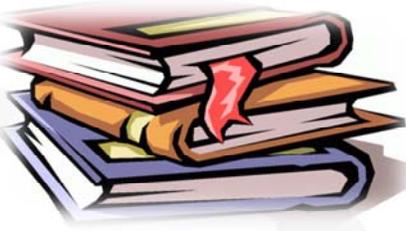


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➤ What are the determining factors in choosing fourth mathematics course options?

First and foremost, decisions regarding fourth course options should be made in alignment with students' career aspirations and required post-secondary study. A talented mathematics student who plans to major in a STEM-related field does not want to leave high school without completing Pre-Calculus; students who are successful in mathematics coursework but with no plans to follow a STEM-related career might choose Advanced Mathematical Decision Making, Mathematics of Industry and Government, Statistical Reasoning, AP Statistics, or College Readiness Mathematics; students who will enter the workplace or the military might consider Mathematics of Finance. Student interest and success in previous math courses should be primary factors in fourth course option selection.



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- At what point can students take advantage of MOWR mathematics?
- Can we substitute MOWR College Algebra for Algebra II or Advanced Algebra?

Students must be college ready to enroll in college level MOWR courses. Our K-HS standards were designed with that in mind. The standards associated with Algebra II/Advanced Algebra supplied the benchmark for college readiness and standards for preceding courses were determined with the Algebra II/Advanced Algebra standards as the end goal. So simply put, students are prepared to be successful in MOWR math courses once they have completed Algebra II/Advanced Algebra. It is not the high school grade of the student which determines readiness. Some students will complete Algebra II in grade 11, others in grade 10, and some as early as grade 9. Accordingly, we cannot substitute MOWR College Algebra for Algebra II/Advanced Algebra. This is a decision jointly agreed upon with our graduation rule, TCSG, and USG.

- Where are the new MOWR mathematics codes?
- Why aren't the MOWR courses on the list of State Funded K-8 Subjects and 9-12 Courses?



Approved MOWR course codes are found within the MOWR course directory at the GAFutures URL <https://www.gafutures.org/hope-state-aid-programs/state-scholarships-and-grants/move-on-when-ready/course-directory/>. The courses are not on the list of State Funded K-8 Subjects and 9-12 Courses as this list is limited to K-12 courses. The approved MOWR courses are, however, state-funded.



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- Is the new College Readiness Mathematics course approved for USG admissions?
- Is the course included on the HOPE Rigor List?
- Will NCAA accept College Readiness Mathematics?
- Will there be professional learning opportunities for College Readiness Mathematics teachers?



College Readiness Mathematics has been approved for USG admissions as reflected in USG's Staying On Course High School Curriculum Requirements at

[http://www.usg.edu/assets/student\\_affairs/documents/Staying\\_on\\_Course.pdf](http://www.usg.edu/assets/student_affairs/documents/Staying_on_Course.pdf) and is included on the HOPE Rigor List at

<https://www.gafutures.org/media/113414/rigor-course-list-july-2016.pdf>.

Because NCAA only requires three math credits at or above the level of Algebra I/Coordinate Algebra, College Readiness is not required.

However, NCAA has not recognized College Readiness Mathematics as an eligible additional course to complete the 16 core course requirement – although we working on it.

I will make you aware very soon of a 2017 summer professional learning opportunity for College Readiness Mathematics Teachers.

## When I have questions, who can I ask?



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Your RESA Mathematics  
Mentor

Brooke and I are delighted to be able to assist you. If you are charged with mathematics program issues in your district and would like to be included in mathematics program updates and announcements, please email your contact information to me. I will, in turn, add your name to the district mathematics supervisor roster.

Every RESA has one or more Mathematics Mentors who can assist you with classroom instructional issues.



**Thank You!**