Glendale Unified School District

The Path to Calculus BC:
A Progression to Support Accelerated Students

Philosophy Statement

The CCSSM content and practice standards have set out a rigorous progression of mathematics for grades K-12. Courses do not repeat material, so it is critical that students not miss necessary foundational concepts. The vast majority of K-8 students will be better-served by following the CCSS course of study through 8th grade, then taking Integrated I in high school.

Goals for GUSD Mathematics:

- Ensure that all students have deep understanding of concepts and can apply them to real-world situations
- Design pathways that ensure all students engage in rigorous coursework leading to high levels of math
- Align courses and assessments to CAASPP, Early Assessment Program, and SAT
- Ensure that our students are competitive and college and career ready

Acceleration Progression:

What Does the California Mathematics Framework Say about Student Acceleration?

The California Common Core State Standards for Mathematics Framework [CA CCSSM] clearly weighs in on mathematics acceleration points for students when it states: "Compacted courses should include the same Common Core State Standards as the non-compacted courses. 'Learning the mathematics prescribed by CA CCSSM 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. Skimming over existing materials in order to rush ahead to more advanced topics will no longer be considered good practice' (Wu 2012). When accelerated pathways are considered, it is recommended that three years of material be compacted into two years, rather than compacting two years into one. The rationale is that mathematical concepts are likely to be omitted when two years of material are squeezed into one. This practice is to be avoided, as the standards have been carefully developed to define clear learning progressions through the major mathematical domains. Moreover, the compacted courses should not sacrifice attention to the Standards for Mathematical Practice." (emphasis added)

The new *California Mathematics Framework* has recommendations on accelerated pathways. These two documents are helpful to reference as we have been using them to research best practices and aligning our accelerated pathways to meet the recommendations in the *California Mathematics Framework* and the Common Core State Standards.

- **CA mathematics framework: http://www.cde.ca.gov/ci/ma/cf/documents/mathfw-appendixd.pdf**
- **Outlined in more detail here: http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf**

When May My Child Accelerate in Math?

There are multiple acceleration decision points located throughout the secondary math pathway. The first acceleration decision point is at the end of 6th grade and the criteria for acceleration is based on multiple measures including district approved diagnostic assessments, current grade in mathematics, and the summative CAASPP state assessment. These district approved math assessments are based on K- 6th grade California State Standards. There are multiple entry points for acceleration throughout the pathway.

Single Acceleration – Option 1: End of Grade 6

The following criteria will be used at the end of Grade 6 to accelerate to Math 7/8 Accelerated. Three of the four criteria must be met.

1. Score of "Exceeds Standards" on the most recent CAASPP Summative Assessment.
2. Scaled score of 528 or higher on the i-Ready Mid-Year Diagnostic Assessment.
3. Score of 7 out of 7 topics proficient or 80% or better on the district diagnostic test.
4. Score a 3 or 4 in Mathematics on the Trimester 2 and 3 report cards (elementary) or an A or B at the semester 1 and 2 report cards (middle school) in Grade 6.

Single Acceleration – Option 2: End of Grade 9 Integrated I

The following criteria will be used for students enrolled in Integrated I in grade 9 to accelerate into Integrated II Accelerated. Three of the four criteria must be met.

1. Score of "Exceeds Standards" on the most recent CAASPP Summative Assessment.
2. Score of 70% or better on the district diagnostic test.
3. Grade A in Integrated I, both semesters.
4. Teacher recommendation.

Double Acceleration: End of MS Integrated I (grade 8)

The following criteria will be used for students enrolled in Middle School Integrated I in grade 8 to accelerate into Integrated II Accelerated. Four out of the five criteria must be met.

1. Score of "Exceeds Standards" on the most recent CAASPP Summative Assessment.
2. Scaled score of 563 or higher on the i-Ready Mid-Year Diagnostic Assessment.
3. Score of 70% or better on the district diagnostic test.
4. Grade A or B in Integrated I, both semesters.
5. Teacher recommendation.

What Do the Accelerated Classes Represent?

The accelerated math courses offer an opportunity to accelerate along the pathway by compacting standards across courses. The middle school accelerated math courses take the content standards from Math 7, Math 8, and Integrated I and redistribute them across two years. The accelerated math courses in high school compress the standards normally taken in Math II, Math III, and Math Analysis (Pre Calculus) into two years.

Which Math Courses in High School Will Have the "Honors Point" for Weighted Grade Point Average?

The UC system has recently altered the criteria for weighted grade point average. If honors points are awarded in the area of math on a commensurate level to traditional pathway courses, the same level of courses would be awarded the honors points. In the new pathway, this would mean that Integrated III Accelerated could receive the weighted grade point average.

My Child Is Currently Doing Higher Grade Level Standards in 6th Grade (i.e. Tutoring Program, Summer Coursework, etc.). Can He/She Skip to MS Accelerated Math I to Start 7th Grade?

Students in sixth grade who may have had exposure to higher grade level standards will still need to meet GUSD criteria for acceleration. If students meet the multiple criteria for acceleration at the end of sixth grade, they will be placed in the Math 7/8 Accelerated course. The Math 7/8 Accelerated course represents a significant acceleration for students and will include rigorous, fast-paced instruction that covers 1.5 years of mathematical standards and standards for mathematical practice.

What If My Child Does Not Meet the Placement Criteria for Acceleration in 7th grade, but I Believe That This Is Not an Accurate Representation of His/Her Ability?

Taking Math 7/8 Accelerated in the 7th grade is highly challenging and should only be attempted by clearly qualified students who are developmentally ready for this acceleration. Students who do not meet the placement criteria for acceleration at this time are advised to take MS Math 7 in grade 7 which is the course recommended by the California Department of Education in the *California Mathematics Framework*. Taking MS Math 7 in 7th grade may still lead to AP Calculus as a 12th grader with opportunities to accelerate after 7th grade and multiple places in high school. Parents and guardians who disagree with their student's placement should contact a site administrator and/or school counselor.

What Do the Experts Say?

- Decisions to accelerate before ninth grade should not be rushed. Placing students into an accelerated pathway too early should be avoided at all costs. *California Math Framework, Appendix A*

- The CA CCSSM Grade 8 standards are of significantly higher rigor than the Algebra 1 course that our students have taken in 8th grade. *Common Core State Standards, Appendix A*

- Skipping material to get a student to a particular point in the curriculum will create gaps in the student's mathematical background, which may create additional problems later. *College Preparatory Mathematics position paper*

- CPM discouraged algebra in the 8th grade for most students and recommended that acceleration should take place in the high school. *Paul Heckman, PH.D., UC Davis Education Professor*

- Instead of having kids go faster, maybe we should be focusing more on understanding. We know this from the research literature on learning and yet the rhetoric around the political aspect of the issue is that "we have to go faster to cover more." *Hung-His Wu, Ph. D., Professor Emeritus, UC Berkley Mathematics*

- ... a misguided topic has emerged: the best way to educate our brightest students in mathematics is to let them accelerate through the grades. But, many of us in the institutions of higher learning across the country do not agree. *Hung-His Wu, Ph. D., Professor Emeritus, UC Berkley Mathematics*