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“Testing Out” of Mathematics Courses at Chenery Middle School

Curriculum Sub-Committee of the Belmont School Committee

Thursday, 10/17/2019

Objectives

- ▶ To express our concern about our tradition of “testing out” of mathematics courses at Cheney Middle School
- ▶ To seek your feedback for how different process might be implemented for the 2020-2021 school year

*In the future
new building — new opportunities*

Program History

- ▶ For many years received complaints from parents/guardians
 - ▶ Lack of adequate challenge in mathematics
 - ▶ “Boredom”
 - ▶ “Disengagement”
 - ▶ “When will my child start learning ‘real’ math?”
- ▶ Nothing in place prior to 2009-2010; case-by-case approach
 - ▶ In line with a Middle School philosophy (Teaming, Heterogeneously-groupings)
- ▶ Approach: Students kept on grade level through Grade 7. Starting in Grade 8, a small group of students placed in a slower-paced “Math 8,” while other students took “Algebra I.”

Program History (cont'd)

- ▶ 2009: Common Core State Standards (CCSS), resulting in two major changes:
 - ▶ Traditional curriculum was shifted into earlier grades, making each year more rigorous.
 - ▶ Amount of content needed to master in order to be ready for Algebra I meant that a different approach was needed.
- ▶ Approach: Keep students in "Grade-level Mathematics" through grade 6, then create two pathways starting in the Upper School:
 - ▶ Grade 7 "Compact Math" for students who were ready for a faster pace
 - ▶ "Math 7" for students who were not ready for a different pace
- ▶ *Note: In keeping with a middle school philosophy, the courses were not designated as "Honors" or "Remedial." The main difference was *pace*:
 - ▶ Combine curriculum standards for Grade 7, 8, and Algebra into a 2-year program in order to complete Algebra I in Grade 8
 - ▶ "Compact Math" was more accurate, as we were *compacting* 3 years of instruction into 2.

- process for gr. 7 compacted

- foundation

Program History (cont'd)

- ▶ Despite changes, demand continued to advance even faster than the already rigorous Grade 7 “Compact Math” course.
- ▶ Additional outside factors:
 - ▶ Students enrolling in the Russian School of Math
 - ▶ Independent study of mathematics with parents/guardians or grandparents
 - ▶ Students receiving private tutoring
 - ▶ Students enrolling in Chinese School
 - ▶ Students taking courses at Belmont Hill summer programs to preview a course “before it counts”
 - ▶ Students self-teaching content through independent study
 - ▶ Parents/Guardians homeschooling children as a means of providing a more intensive mathematics sequence
- ▶ Result: Increasing number of students exposed to content *well beyond* even our Grade 7 “Compact Math” curriculum

Process Evolution and Unintended Consequences

- ▶ A more formal placement process was established:
 - ▶ Began by asking Grade 6 math teachers to recommend students
 - ▶ From there, Curriculum Director and Grade 7 math teachers created placement test
 - ▶ Result: 30 students sat for the Grade 7 placement test; Between 10 and 14 Grade 6 students met the criteria
- ▶ The placement process was revised:
 - ▶ Placement test was opened to all interested students when parents/guardians requested that their child have the same opportunity
 - ▶ Result: Over 100 students sat for the placement test; Between same number of students met the criteria
 - ▶ **For the first time there was a call to “test out” of a class entirely. We offered one.**

Process Evolution and Unintended Consequences(cont'd)

- ▶ Offering additional placement tests had a “step up” effect on BHS
 - ▶ Students attempting to test out of Geometry, Algebra II, etc.
 - ▶ Concerns existed about skipping an entire year of math instruction, let alone 2 or 3 years
 - ▶ Concerning about students feeling unsuccessful if they cannot skip a year of instruction
- ▶ Never promised to create “Honors” or “Accelerated” or “Super” math track, but that is how it began to be talked about among parents/guardians
- ▶ Not seeking to create a system that could be “gamed” by outside programming, but that is what happened
- ▶ Not uncommon today for parents/guardians to start inquiring about the process as early as Grade 5
 - ▶ “What do I need to be able to pass the skippy math test in June?”
 - ▶ “How can my son skip 2 years of math?”
 - ▶ Do you offer ‘practice’ placement exams?”

SEL

factors

Pros

- ▶ A genuine feeling of accomplishment when students succeed on placement tests
- ▶ Some are able to advance to an honors level course at BHS prior to completing grade 8
- ▶ Some are able to explore more mathematics before they go off to college
 - ▶ Advanced Placement Statistics at BHS
 - ▶ Advanced Placement Computer Science at BHS
- ▶ Grade 7 students who demonstrated readiness for Algebra I are absorbed into Grade 8 classes
 - ▶ Close monitoring of the social dynamic of Grade 7; younger students never get “too big” for themselves
 - ▶ Grade 8 students pushed to compete with younger students

Cons

- ▶ With class sizes increasing, no longer easy to “absorb” Grade 7 students into Grade 8 sections
 - ▶ Needed to offer a Geometry section at the middle school when those Grade 7 students arrived in Grade 8
 - ▶ Disrupting the team concept, with students taking mathematics “off team.”
 - ▶ Impacted other classes that met at the same time
- ▶ Also needed to have an answer for students who tested out of Geometry (0-5 students annually)
 - ▶ Allow them to take Algebra II at BHS with 10th graders
 - ▶ The growth of Chenery and BHS has made that process even more difficult
- ▶ Reports of “emotional scarring” when students do not succeed on a placement test
 - ▶ Qualifying for Grade 7 “Compact Math” no longer seen as demonstrating readiness for an accelerated pace
 - ▶ Seen as failure for not being able to skip an entire year of instruction; skipping a year is now seen as “the norm,” even though less than 5% of students meet the criteria

Attention to equity

Cons (cont'd)

- ▶ Significant uptick on reliance on outside programs to “game” the system
- ▶ Exacerbates economic gaps between Chenery students as outside programs require substantial financial means to enroll
- ▶ Increase in students sitting for placement tests has become unsustainable

Action Taken

- ▶ In 2018-2019: “Mathematics Pathways” Professional learning Team (PLT)
 - ▶ Surveyed how many students benefitted from the current approach
 - ▶ Surveyed Chenery Math teachers about placement in general, in an effort to understand how it was impacting school climate.
 - ▶ Surveyed Chenery parents/guardians about student motivation and challenge
- ▶ Patty Soliozy spoke with the School Committee Curriculum Sub-Committee on 11/1/2018 and informed them that the process was under review

Recommendation

- ▶ Discontinue the current “testing out” practice at Chenery Middle School, reducing the number of pathways to:
 - ▶ “Grade 7 Math” (Grade 7), ~~Algebra I~~ (Grade 8) *Math*
 - ▶ Grade 7 “Compact” Mathematics (Grade 7), ~~Geometry~~ (Grade 8)

Algebra

Grade 8 algebra I

Pathways

- ▶ Pathway I: Grade-level math (K-8), Algebra I (Grade 9), Geometry (Grade 10), Algebra II (Grade 11), and Pre-Calculus / Math Elective (Grade 12).
- ▶ Pathway II: Grade-level math (K-8), Algebra I (Grade 9), Geometry and Algebra II (Grade 10), Pre-Calculus or Math Electives (Grade 11), Calculus or Math Electives (Grade 12).
- ▶ Pathway III: Grade-level Math (Grade 6), Compact Mathematics (Grade 7), Algebra I (Grade 8), Geometry (Grade 9), Algebra II (Grade 10), Pre-Calculus or Electives (Grade 11), Calculus or Math Electives (Grade 12).
- ▶ Path IV: Grade-level Math (Grades K-6), Compact Mathematics (Grade 7), Algebra I (Grade 8), Geometry & Algebra II (Grade 9), Pre-Calculus (Grade 10), Calculus or Math Electives (Grade 11), and Mathematics Electives (Grade 12).
- ▶ Path V: ~~Grade-level Math (Grade K-6), Algebra I @ CMS with Grade 8 students (Grade 7, after "testing out" of 'Compact Math'), Geometry @ CMS (Grade 8), Algebra II (Grade 9), Pre-Calculus (Grade 10), Calculus or Math Electives (Grade 11), Math Electives (Grade 12)~~
- ▶ Path VI: ~~Grade-level Math (Grade K-6), Geometry @ CMS with Grade 8 students (Grade 7, after "testing out" of 'Compact Math' and Algebra I), Algebra II at BHS (Grade 8), Pre-Calculus (Grade 9), Calculus (Grade 10), Math Elective (Grade 11), Math Elective (Grade 12)~~

Feedback Welcomed

- ▶ We appreciate, in advance, your thoughtful consideration of our analysis of this complex and - for many families - emotional topic.

