Secondary MATHEMATICS
Equity - Access - Opportunity

Secondary Curriculum Committee
April 5th, 2021
Overview – Secondary Mathematics

Voice  
NJSLA Data  
Research  
Moving Forward
“...as I was growing up, math was the only subject in which [tracking] was offered, and frankly, I enjoyed it better when I did not feel as if students were divided up or "segregated" based on their "knowledge" into various levels of math.”

“I remember that some of the kids in the highest math classes who I was friends with would always have this automatic label that they were smart, and it almost seemed to be the only aspect of them that people saw, rather than their whole personality.”

On being selected to participate in the equity pilot at Rosa in 2016:
“...I felt really excited, because I was given a second chance to do better in my academics....going to 7th enriched changed my perception of me as a math student”
As a co-teacher, I work with a variety of teachers. One day, I visited one of my co-teachers during a different class period. I was shocked to see a classroom full of White students. The demographics of this advanced course were so glaringly homogeneous compared to the diversity I experience throughout the rest of my schedule in Cherry Hill. I asked myself “how does this happen?”

“I have noticed that students in the 8th Enriched classes are often held to lower standards than kids in the higher level math courses. While I don't believe it's intentionally done by teachers, or when it is it's done with the best of intentions, it does allow for room for it to be acceptable that students in those classes are challenged less, do less, and are just generally held to a lower standard.”

“Once tracking occurs in 7th grade, the die is essentially cast for the rest of the students’ time in Cherry Hill.”
“By regrouping the 7th Academic and 7th Enriched classes into one heterogeneously grouped class, we can provide more students access to upper-level math classes beyond middle school into high school. Carusi has been piloting the Eureka Math resource in both 6th and 7th grade. Professional Development for teachers and support for students is paramount. 7th Academic and Enriched students are both finding success using the same resource this school year. 7th Academic students are provided additional supports to ensure their success, which clearly shows us that merging these two levels with targeted support can be done to provide greater opportunity and access for our students.”
"As a middle level administrator I have been working toward providing access to historically underserved (African American, Latinx and free and reduced lunch ) students since 2016. This access has allowed more students to take 7th Enriched and Algebra. We are watching these students go to HS East and HS West. There they are maintaining success with higher level mathematics as they matriculate. Now I am asking myself why are we continuing to keep 7th grade Academic as a course section when we have seen that with supports all students can find success within the 7th grade Enriched course."

“For years 7th academic has been a pigeonhole for students who did not demonstrate a high math aptitude or were disqualified based on learning abilities, disproportionately impacting students of color. De-tracking in 7th grade offers equitable and inclusive opportunities for all students to take multiple levels of mathematics in grades 8 - 12.”

“I believe the time is right to de-track the 7th grade Academic math course”
<table>
<thead>
<tr>
<th>Grade</th>
<th>Course Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>AP Calculus</td>
</tr>
<tr>
<td>9</td>
<td>Functions H</td>
</tr>
<tr>
<td>8</td>
<td>Geometry</td>
</tr>
<tr>
<td>7</td>
<td>Introduction to Functions</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Grade 12</td>
<td>MVC (36)</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>Grade 11</td>
<td>AP Calc (60)</td>
</tr>
<tr>
<td>Grade 10</td>
<td>PreCalc H (55)</td>
</tr>
<tr>
<td>Grade 9</td>
<td>Functions (69)</td>
</tr>
<tr>
<td>Grade 8</td>
<td>Geometry (71)</td>
</tr>
<tr>
<td>Grade 7</td>
<td>ITF (129)</td>
</tr>
</tbody>
</table>

**Data Source:**
2020-2021 Enrollment Data for East and West
Data Source:
2020-2021 7th Grade Math Enrollment Data from Beck, Carusi, Rosa
“We found that teachers, on the whole, structured generative rules that communicated lower expectations and provided less support to students in low-track classes than they did to those in high-track classes.”


https://doi.org/10.1086/698453
### 9th Grade Algebra 1 Proficiency Level 2018-2019

<table>
<thead>
<tr>
<th>7th Grade Course</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th Grade Academic Math</td>
<td>7%</td>
<td>39%</td>
<td>34%</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>7th Grade Enriched Math</td>
<td>2%</td>
<td>20%</td>
<td>37%</td>
<td>41%</td>
<td>0%</td>
</tr>
</tbody>
</table>

**NOTE:** This data does not include students who took Algebra 1 in 8th grade.
Problem Statement

Racial inequity exists in our secondary mathematics program. This is evidenced by the overrepresentation of BIPOC in lower level math classes and underrepresentation in upper level classes.

“Racial inequity is when two or more racial groups are not standing on approximately equal footing”

- Dr. Ibram X. Kendi from How to be an Antiracist
Recommendations for Moving Forward

1. Detrack Academic and Enriched into 7th Grade Math
2. Implement Eureka Math Curricular Resource
3. Curriculum-Based Professional Learning
Recommendation 1:
Detrack Academic and Enriched into 7th Grade Math

“Tracking policies and practices widen the opportunity gap.”
- National Council of Supervisors of Mathematics

“Ensure that all students have access to a challenging mathematics curriculum, taught by skilled and effective teachers who differentiate instruction as needed”
- National Council of Teachers of Mathematics

“Systems that sort students on perceptions of "mathematical readiness" contain hidden racial and ability biases.”
- TODOS: Mathematics for ALL
**Recommendation 1:**
Detrack Academic and Enriched into 7th Grade Math

<table>
<thead>
<tr>
<th>Grade 9</th>
<th>Functions H</th>
<th>Geometry H</th>
<th>Geometry A</th>
<th>Enriched Algebra A</th>
<th>Algebra 1R</th>
<th>Algebraic Concepts 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 8</td>
<td>Geometry</td>
<td>Intro to Functions</td>
<td>Algebra 1</td>
<td>8th Grade Enriched</td>
<td>Resource Room Math</td>
<td>Resource Room Math</td>
</tr>
<tr>
<td>Grade 7</td>
<td>Introduction to Functions</td>
<td></td>
<td></td>
<td>7th Grade Math</td>
<td>Resource Room Math</td>
<td></td>
</tr>
<tr>
<td>Grade 6</td>
<td></td>
<td></td>
<td></td>
<td>6th Grade Math</td>
<td>Resource Room Math</td>
<td></td>
</tr>
</tbody>
</table>
Recommendation 2: Implement Eureka Math in grades 6 - 8

EdReports.org increases the capacity of teachers, administrators, and leaders to seek, identify, and demand the highest quality instructional materials.
<table>
<thead>
<tr>
<th>GRADE LEVEL</th>
<th>FOCUS &amp; COHERENCE</th>
<th>RIGOR &amp; MATHEMATICAL PRACTICES</th>
<th>ALIGNMENT RATING</th>
<th>USABILITY RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sixth Grade</td>
<td>10/14</td>
<td>6/18</td>
<td>Does Not Meet Expectations</td>
<td>N/A</td>
</tr>
<tr>
<td>Seventh Grade</td>
<td>6/14</td>
<td>N/A</td>
<td>Does Not Meet Expectations</td>
<td>N/A</td>
</tr>
<tr>
<td>Eighth Grade</td>
<td>10/14</td>
<td>8/18</td>
<td>Does Not Meet Expectations</td>
<td>N/A</td>
</tr>
<tr>
<td>High School</td>
<td>8/18</td>
<td>N/A</td>
<td>Does Not Meet Expectations</td>
<td>N/A</td>
</tr>
</tbody>
</table>
## Recommendation 2:
Implement Eureka Math in grades 6 - 8

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Focus &amp; Coherence</th>
<th>Rigor &amp; Mathematical Practices</th>
<th>Alignment Rating</th>
<th>Usability Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sixth Grade</td>
<td>14/14</td>
<td>16/18</td>
<td>Meets Expectations</td>
<td>25/38</td>
</tr>
<tr>
<td>Seventh Grade</td>
<td>14/14</td>
<td>16/18</td>
<td>Meets Expectations</td>
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Recommendation 3: Curriculum-Based Professional Learning

“When teachers participated in curriculum-based professional learning, their students' test scores improved by 9 percent of a standard deviation — about the same effect caused by replacing an average teacher with a top performer.”

- Carnegie Corporation of New York
FROM TRADITIONAL TEACHER PROFESSIONAL DEVELOPMENT

- Focused on topics or themes
- One-time workshops, usually when school is closed
- Teachers grouped by school
- Information shared in lectures, presentations, or Q&A discussions
- Coaching and feedback reserved mostly for new or struggling teachers
- Selected teachers receive support for using new curriculum materials

TO CURRICULUM-BASED PROFESSIONAL LEARNING

- Focused on instructional materials with specific teaching strategies
- Repeated sessions, coaching, and feedback opportunities during teachers’ regular workdays
- Teachers grouped by the curriculum they are using
- Active learning experiences, such as practicing instruction or participating in lessons as students
- Curriculum-focused coaching and feedback for all teachers
- All teachers using new materials participate in curriculum-based professional learning
Timeline

Fall 2019 - Winter 2020

- Mathematics Leadership Team
  - Purpose of secondary mathematics
  - Guiding Principles

Summer 2020

- Secondary Mathematics Curriculum Committee
  - The moment to prioritize antiracist mathematics

Fall /Winter 2020:

- Social Justice in Mathematics
- Where do we see injustice / racism in Cherry Hill mathematics?
  - Calculus Data, NJSLA Data, Course Sequence
- Idealized math program presentations
- Formalize recommendations for next steps
Timeline

Spring 2021:
- Present to C&I Committee
- Presentation to math secondary math departments
- Messaging to community
- Initial professional learning sessions (Launch Eureka, Differentiation)
- Continuation of curriculum committee work

Summer 2021:
- Summer Mathematics Institute (weeklong professional learning institute)
- Continuation of curriculum committee work

Fall 2021:
- 6th, 7th, and 8th grade implementation of Eureka Math
- Sustained curriculum-based professional learning
- Continuation of curriculum committee work

Winter 2021-22
- Updates and recommendations for next steps presented to C&I Committee
Long Range Plan

2021
Condense 7th Grade Courses & Implement Eureka 6-8

2022
Revise 8th Grade Courses & Pilot HS Curricular Resources

2023
HS Course Changes & Implement new HS Curricular Resources

2024
HS Course Changes & Implement new HS Curricular Resources

2025
Continuing towards an equitable mathematics program

*Continuously monitor changes and re-evaluate as needed
What does a Socially Just Math Program look like?

- Equitable access to a fundamentally "sound" math curriculum
- Support that is provided must work for our students, and may need to take place outside of what we would call "normal" times
- Opportunity for and access to in school support free of charge (versus paying for an outside tutor)
- Inclusive of different perspectives and cultures, both in example problems and the problem solving/thinking process
- Problem examples are reflective of many cultures
- Challenging math for ALL students
- Diversity proportional to the student population in all levels

- Access to higher level courses
- Grades that ONLY reflect content mastery.
- Grades that reflect understanding, not the ability to comply
- No grades - success is determined by understanding of concepts
- Achievable expectations for all
- All students are EXPECTED to succeed.

- Student Choice
- Choice and opportunities based on interests. Math that extends beyond the year...[high school] years
- Helps students see themselves as math learners

- Equity of resources
- Continuous opportunities to refine knowledge and demonstrate understanding
- Flexibility in paths with the same destination

- Opportunities for students to transition between levels
Increasing Access and Equity

High Expectations

High-Quality Curriculum

Differentiated Instruction

When access and equity have been successfully addressed, student outcomes cannot be predicted by students’ racial, ethnic, linguistic, gender and socioeconomic backgrounds.