Secondary Mathematics - Looking Forward

Presentation 5/4/21
P Bambenek, Brenda Florestano, Ed Lewis, Jane Juten, and Pamela Nelson

Duluth Background

- 8th grade must select Intermediate Algebra to reach Calculus in 12th grade
- Historically, approximately 50% of OEMS 8th graders that took Intermediate Algebra did NOT enroll in Calculus
- Students of color disproportionately represented in lowest tracks; ie. special education math class or Trans Math
- With the exception of Asian students - no students of color were in Calculus a decade ago

Background

Past 30 years - national high school mathematics outcomes have remained flat while increases have been noted in 4th and 8th grade (NAEP) scores*

2018 - NCTM released ***Catalyzing Change in High School Mathematics: Initiating Critical Conversations***

2019-20 - Twelve 8th grade and high school teachers attended a News & Views book study, all secondary sites were represented.

*https://my.nctm.org/blogs/my-nctm/2018/03/21/catalyzing-change-in-high-school-mathematics

Catalyzing Change - 4 Recommendations to Address Inequities

- explicitly broadening the purposes for teaching high school mathematics beyond a focus on college and career readiness;
- dismantling structural obstacles that stand in the way of mathematics working for each and every student;
- implementing equitable instructional practices
- identifying Essential Concepts that all high school students should learn and understand at a deep level and organizing the high school curriculum around these Essential Concepts in order to support students' future personal and professional goals.

Why Change?

Catalyzing Change addresses the fact that significant numbers of high school students develop unproductive mathematical identities and see little value in mathematics, while the need for mathematical skills is increasing to meet the workplace, postsecondary education requirements, and to ensure active participation in our democratic society.

Dismantling Structural Obstacles - Tracking

Delay acceleration until junior year.

Examples

San Francisco Unified School District - failure of first HS course 51% to 8%

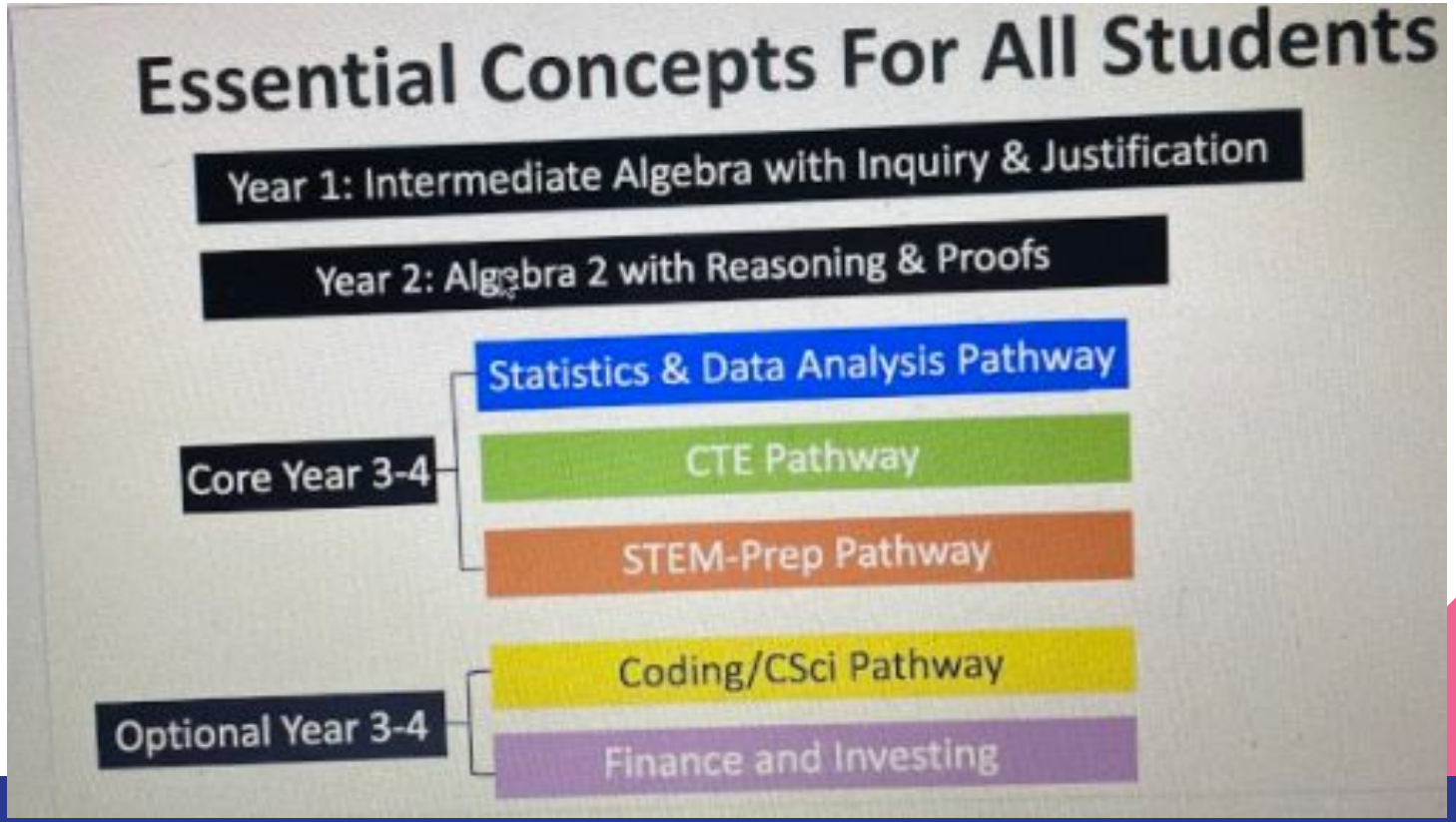
DPS Book Study - compact Intermediate Algebra 2 and

Pre-Calc to take Calculus Senior Year

Teach Essential Concepts

Colorado's Use of the Essential Concepts

Closer to Home - MN Example SPPS



Looking Forward

NCTM Makes Key Recommendations in Catalyzing Change:

1. Eliminate student and teacher tracking
2. Teach all Essential Concepts in mathematics
3. Provide engaging and empowering mathematics instruction for every student
4. Offer high school students continuous and meaningful four-year mathematics instruction

Catalyzing Change

No time like the present to begin the conversation to improve mathematics outcomes for all students.

Catalyzing Change in School Mathematics Key Recommendations pre-k-12

Questions?