San Francisco Detracking: Early Indicators, Policy Choices, and Holding An Equity-Based Vision

Mathematics of Opportunity
November 2018

www.sfusdmath.org @SFUSDMath
Who are the 56,000 SFUSD Students?
February 2014: Passage of the Math Course Sequence Policy
Turning A Proposal Into Policy

What Drives Policy Shifts?

- Local Data
- Research
- CCSSM
SFUSD Class of 2014

Percent of Students Maintaining Proficient Status
(start of 8th grade through end of 10th grade)

- All 8th graders enroll in Algebra 1.
- By end of 8th grade, less than half test proficient on Algebra 1 CST.
- By sophomore year, only one third are enrolled in Algebra 2 and take the CST.
- By end of sophomore year, less than one fourth test proficient on Algebra 2 CST.
Turning A Proposal Into Policy

Who Drives Policy Shifts?

Teachers

Senior Leaders
February 2014: Passage of the Math Course Sequence Policy
SFUSD Math Department Vision

All students will make sense of rigorous mathematics in ways that are creative, interactive, and relevant in heterogeneous classrooms.

Two premises:
All students are brilliant mathematically.
Mathematics is a web.
Levers of Change
- Policy
- Curriculum
- Professional Development
- Coaching
Early Indicators of Success in Math
Algebra 1 Repeat Rate, Ethnicity

Class of 2018
Class of 2019

- All
- Afr Am
- Asian
- Latino
- White
Increase in the amount of Math credits students have earned at the end of 11th grade, Ethnicity
Learnings:
Where should we start?
How should we start?

- Drive from what you believe.
- Use your data as evidence alongside research.
- Build a critical mass amongst teachers.
- Must align and employ all levers of change.
- Unit of change must be school sites/learning communities.
Contact us!

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www.sfusdmath.org
@SFUSDMath
Pipeline to Calculus is increasing in size and diversity

<table>
<thead>
<tr>
<th>2017/18 Calculus Enrollment</th>
<th>Number of Students</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>18</td>
<td>1.5%</td>
</tr>
<tr>
<td>American Indian</td>
<td>2</td>
<td>0.2%</td>
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<tr>
<td>Asian</td>
<td>861</td>
<td>73.6%</td>
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<tr>
<td>Declines to State</td>
<td>68</td>
<td>5.8%</td>
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<tr>
<td>Filipino</td>
<td>39</td>
<td>3.3%</td>
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<tr>
<td>Hispanic or Latino</td>
<td>77</td>
<td>6.6%</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>3</td>
<td>0.3%</td>
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<tr>
<td>Two or More Races</td>
<td>13</td>
<td>1.1%</td>
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<tr>
<td>White</td>
<td>89</td>
<td>7.6%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1170</strong></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>2017/18 non-seniors in course immediately preceding Calculus</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity</td>
<td>Number of Students</td>
</tr>
<tr>
<td>African American</td>
<td>21</td>
</tr>
<tr>
<td>American Indian</td>
<td>1</td>
</tr>
<tr>
<td>Asian</td>
<td>927</td>
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<tr>
<td>Declines to State</td>
<td>127</td>
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<tr>
<td>Filipino</td>
<td>93</td>
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<tr>
<td>Hispanic or Latino</td>
<td>167</td>
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<tr>
<td>Pacific Islander</td>
<td>10</td>
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<tr>
<td>Two or More Races</td>
<td>29</td>
</tr>
<tr>
<td>White</td>
<td>161</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1536</strong></td>
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</table>
Questions?
Supplementary Slides
Communication to Stakeholders

- 15 different family and public events during 2017–18
- Featured in major local and national media
- [http://www.sfusdmath.org](http://www.sfusdmath.org) is listed as exemplary by CDE with 4000 unique visitors
- 22 different presentations in 17–18 at conferences or within community partnerships
- More than 75 different district, state and policy leaders outside of SFUSD have consulted directly
SFUSD Core Values

1. Student Centered
2. Fearless
3. United
4. Social Justice
5. Diversity Driven
6. We Are SFUSD
664 students are currently enrolled in the compression course, 594 of these students are in 11th grade. 177 rising sophomores completed SFUSD Summer School Geometry in 2017 in order to take Algebra 2 in 10th grade.
187 students are currently doubling-up in Algebra 1 and Geometry in 9th grade
Doubling Up as a Sophomore

446 students are currently doubling-up in Geometry and Algebra 2 in 10th grade
Algebra in 8th and 9th Grade

**Old CA Algebra 1**
- Proportional Relationships
- Linear Equations and Inequalities
- Systems of Equations
- Roots and Exponents
- Expressions and Polynomials
- Quadratic Equations and Functions

**Content from old CA Algebra 1 course**

**Content from old CA Geometry and Algebra 2 courses (high school)**

**Content not previously included in the regular high school math sequence**

**CCSS Math 8**
- Proportional Relationships
- Linear Equations and Inequalities
- Systems of Equations
- Roots and Exponents
- Introduction to Functions
- Transformations and Congruence
- Angles and Parallel Lines
- Pythagorean Theorem
- Analyzing Graphs
- Bivariate Data

*(including projects and applications)*

**CCSS Algebra 1**
- Linear Equations, Inequalities, and Systems
- Expressions and Polynomials
- Quadratic Equations and Functions
- Modeling with Functions
- Interpreting and Building Functions
- Linear, Quadratic, and Exponential Models
- Categorical and Quantitative Data

*(including projects and applications)*
Math Professional Development

Teacher Leadership

Collaboration Days

Site Learning Communities

Site-Based Coaching
Entry Task:  
What do you already know?

Apprentice Task:  
What sense are you making of what you are learning?

Expert Task:  
How can you apply what you have learned so far to new situation?

Milestone Task:  Did you learn what was expected of you from this unit?
Math Teaching Toolkit
Focus on 3 Signature Strategies in Curriculum and PD

Math Talks

Three Read Protocol

Participation Quiz
SFUSD Classes of 2008 - 2010
Distribution of Algebra 1 and General Math
Algebra 1 Repeat Rate, Gender & Program

- All
- Female
- Male
- ELL
- Low SES
- SpEd

Class of 2018
Class of 2019
Increase in the amount of Science credits students have earned at the end of 11th grade, Ethnicity
Increase in the amount of Math credits students have earned at the end of 11th grade, Gender and Program.
Increase in the amount of Science credits students have earned at the end of 11th grade, Gender and Program.
Students of all major ethnic groups increasingly earned fewer Ds/Fs and more As in 8th Grade Math from 2013-14 to 2016-17.
Among the main programs, most notably, students receiving special education increasingly earned fewer Ds/Fs and more As in 8th Grade Math from 2013-14 to 2016-17.
Both female and male students increasingly earned fewer Ds/Fs and more As in 8th Grade Math from 2013-14 to 2016-17.
SRI’s Final Report: Year 3 SFUSD STEM Learning Initiative Evaluation, June 2017

The diagram shows the percent of students achieving different total scores on the End-of-year-Dinner MARS Task. The categories are:

- MARS
- SFUSD 2016
- SFUSD 2017

The x-axis represents the total score range from 0 to 9, while the y-axis indicates the percent of students achieving that score, ranging from 0% to 40%.
Systemic Barriers

● Accelerated success among our African American students has been elusive
● Public pushback to detracking math policy
● Relational trust among colleagues that allows teaching to be deprivatized is difficult to build
● Adult belief systems about student capacity
● Working to normalize components of a decentralized system creates significant pushback
● Collecting the right data, in the right cycles, for systemic improvement