

# Middle School Math Journey

April 23, 2019

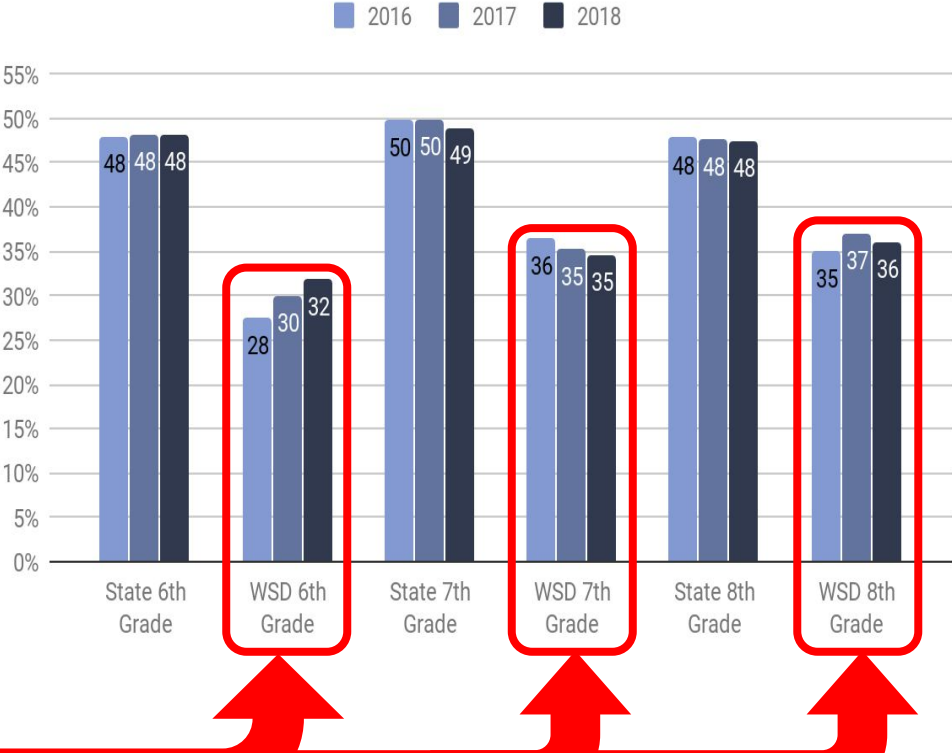
*Working collaboratively to instill problem solving skills  
and the confidence to do math.*

# Our “Why” for Researching Options

- Stagnant test scores and lagging behind the state
- Not all students had access to grade level mathematical standards
- Not all students having access to mathematical practices at high levels
- Students quitting math at the high school
- Disparity of access for underrepresented groups to higher level math

# WSD Middle School Math Data

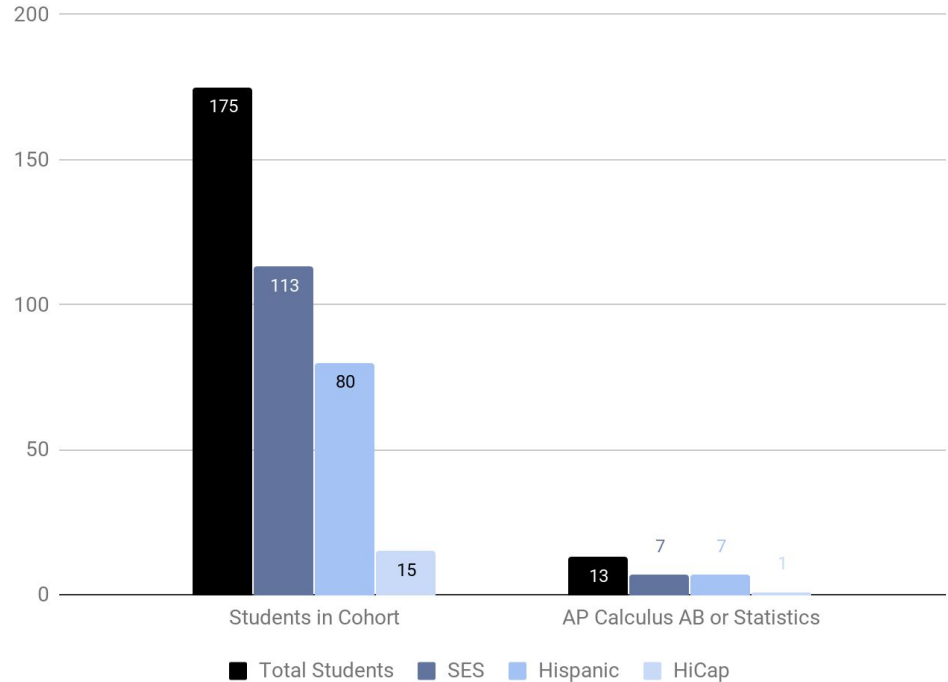
Smarter Balanced Math - Percent Proficient



# Senior Data

2015 Algebra Cohort (took Algebra in 8th grade)

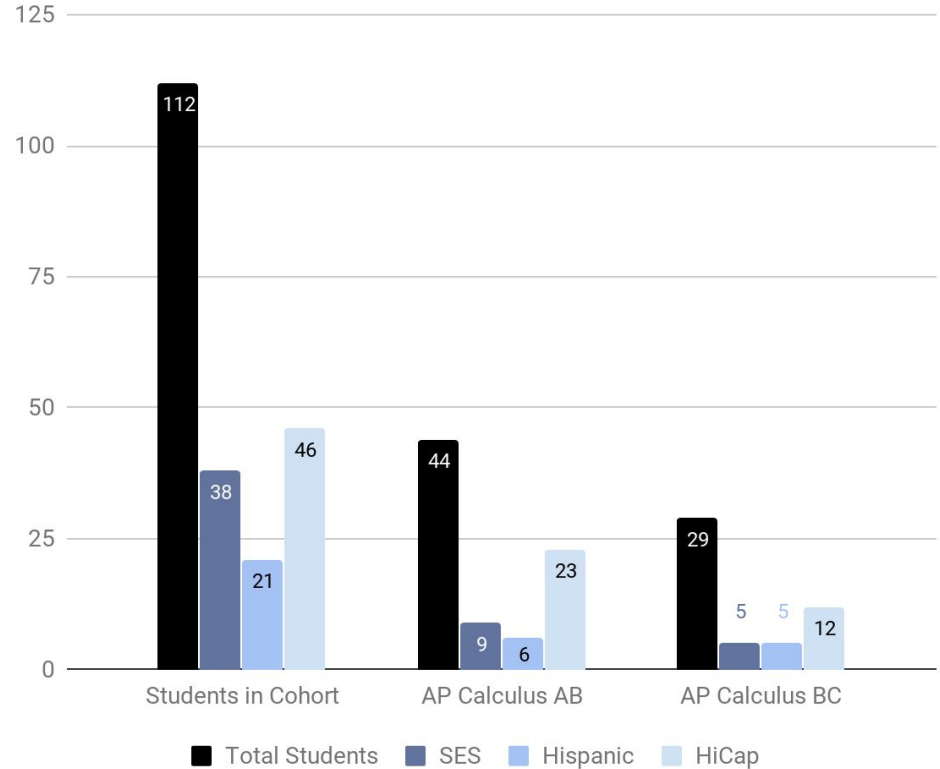
2015 Algebra Cohort Taking AP Calculus AB or Statistics



# Senior Data

2015 Geometry Cohort (took Geometry in 8th grade)

2015 Geometry Cohort Taking AP Calculus AB or BC



# Timeline of Events

## 2017-2018

- Book study on Dr. Jo Boaler's Mathematical Mindset
- Purchase Making Number Talk Matter by Kathy Humphreys and Ruth Parker
- Work with NCESD on engagement strategies and increasing student dialogue

## 2018-19

- Eliminated Math 180 classes - we were supplanting
- Taunya and Rob attend Mindset Mathematics Leadership Summit (used LAP high poverty \$)
- MS math teachers attend Youcubed Mindset Mathematics training at Stanford (used LAP high poverty \$)
- NCESD partnering, model lessons, planning lessons, engagement strategies and mathematical discourse (using LAP high poverty \$)
- MS math teachers developing common Unit plans - 2 common assessments per year

# Ongoing Support for Teacher Change of Practice

**Dr. Andy Boyd**

(NCESD Math and Science Specialist)

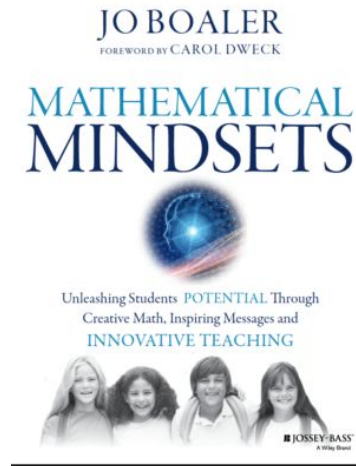
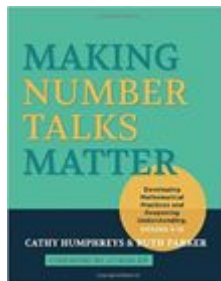
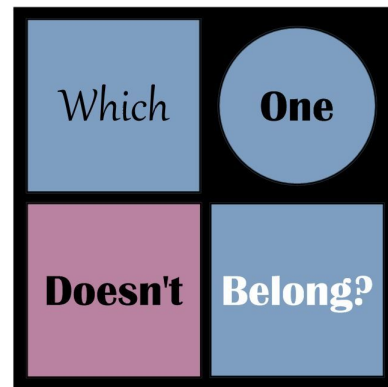
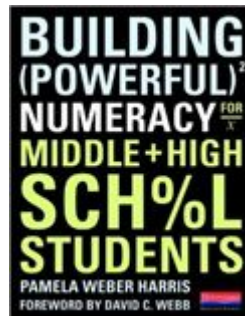
## *The collaborative work plan*

- Beginning Fall 2017
- Use of District PD days
- Classroom Support days
- Importance of  
Collaboration Time
- Shift towards  
Mathematical Mindset

# Ongoing Support for Teacher Change of Practice

Dr. Andy Boyd

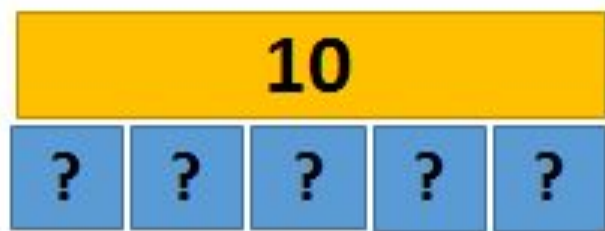
Example of math





# Which one doesn't belong?

<http://wodb.ca/index.html>



1	2
2	4
3	6
4	8
5	10



$2n$

# Ongoing Support for Teacher Change of Practice

*Dr. Andy Boyd*

## Current Outcomes in Wenatchee Middles Schools

- Middle School Administration Collaboration
- Student Discourse around Mathematics
- Student mathematical mindset
- Physical Classroom space
- Unit Plans
- Common District Assessments

Dr. Jo Boaler  
*Mathematical  
Mindsets*  
Stanford University

Rethinking Giftedness

<https://vimeo.com/241875015>

Dr. Jo Boaler  
*Mathematical  
Mindsets*  
Stanford University

1)Special Education:

<https://www.youcubed.org/special-education/>

2)Mixed Ability Grouping:

<https://www.youcubed.org/resource/ability-grouping/>

3)Brain Science:

<https://www.youcubed.org/resource/brain-science/>

4)Depth not Speed:

<https://www.youcubed.org/resource/depth-not-speed/>

5)Impact Papers:

<https://www.youcubed.org/resource/short-impact-papers/>

6)Research:

<https://www.youcubed.org/evidence/research-articles/>

# San Francisco Unified

New data show 10.4% more high school students taking advanced math courses in 2018-19 school year

- 34.7% increase in African American students taking courses beyond Algebra 2
- 32.7% increase in Filipino students
- 20.1% increase in Latino students
- 25.2% increase in Pacific Islander

# San Francisco Unified

- 16.7% increase in white students
- Additionally, there is a 31.6% increase in English Language Learners
- A 10% increase in students with an Individual Education Program (IEP)
- A 11.9% increase in students who qualify for free and reduced price lunches.

# Research Articles

[Railside HS](#)

[SFUSD Math Enrollment](#)

[The Mathematics of Hope](#)

[SEEING AS UNDERSTANDING: The Importance of Visual Mathematics.](#)

[Questions from Jo Boaler Night in SFUSD](#)

[Girls and Stem - White house presentation](#)



# Next steps

- **Bring more researchers and problem solvers to the table**
- **Bring in people from Stanford for parent and family math nights**
- **Community exposure and engagement**
- **Continue working with elementary and high school for alignment of pedagogy**