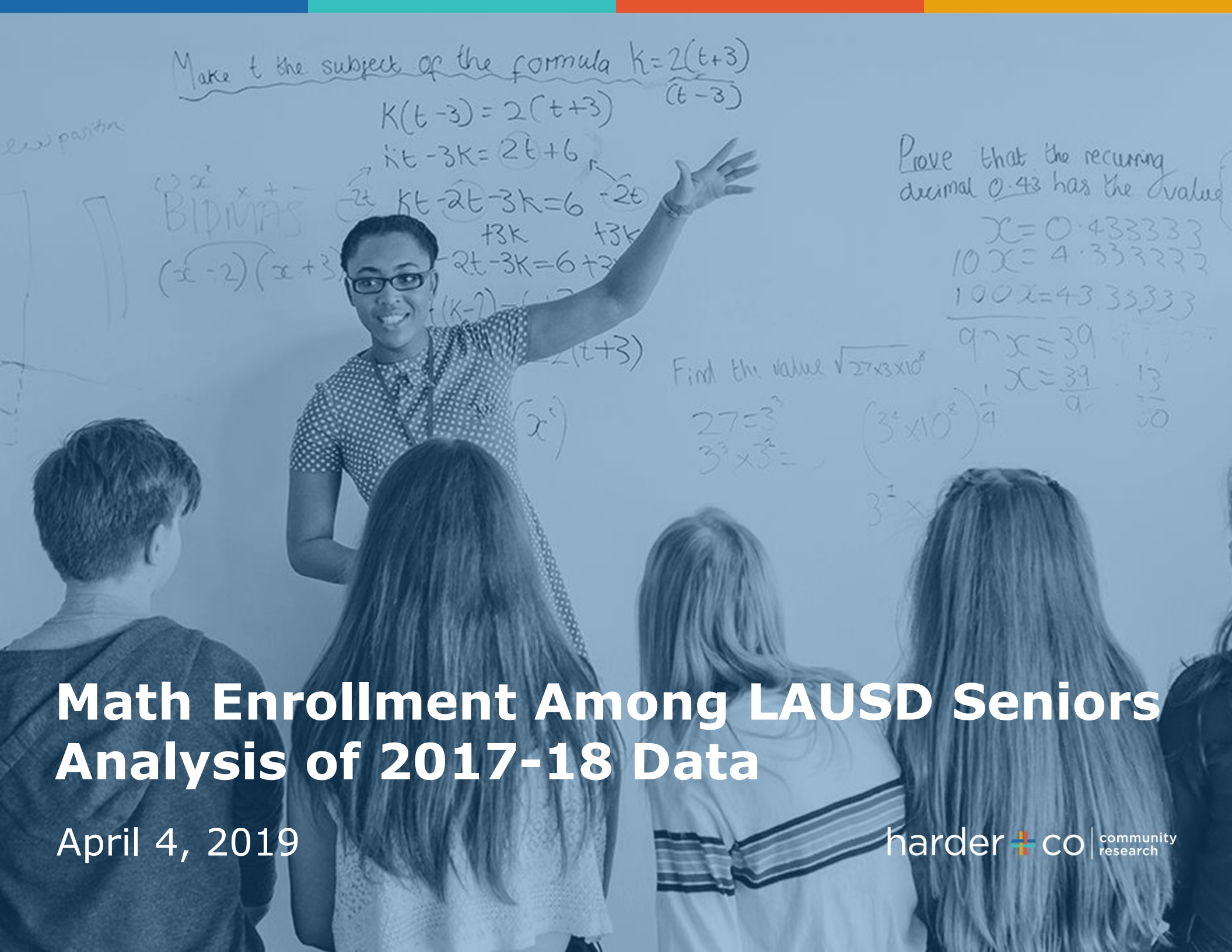


Math Enrollment Among LAUSD Seniors
Analysis of 2017-18 Data

April 4, 2019

harder + co | community research

Introduction and Background

Colleges are increasingly recommending that students take four years of math at high school stating that a fourth year of math is linked with success in college.[1] This presentation examines:

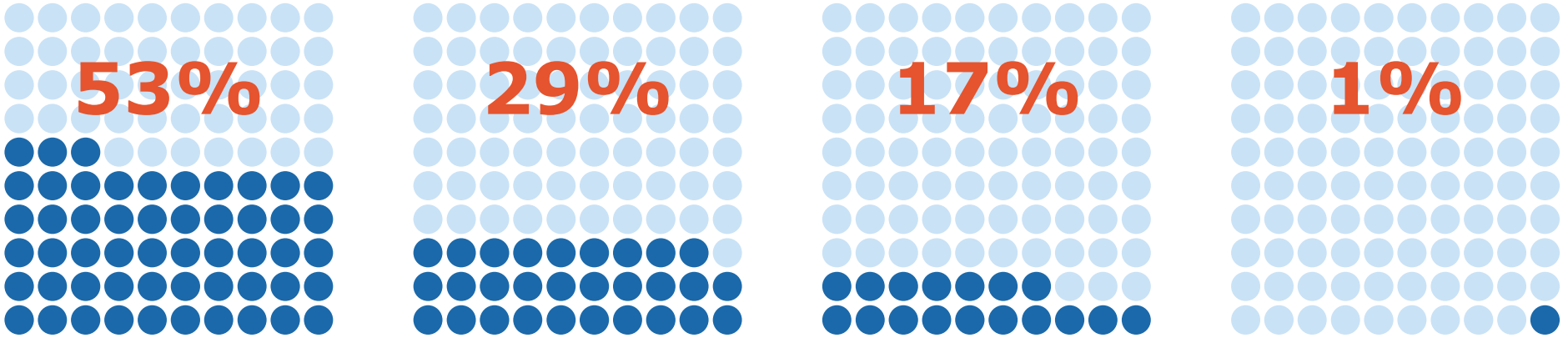
- Math enrollment among seniors.
- Characteristics of students enrolled in Transition to College Math and Statistics (TCMS) and two other comparable 4th year math classes (Pre-Calculus and Statistics and Probability). TCMS is a 4th year math class that was expanded across LAUSD during the 2017-18 and 2018-19 school years.
- Key findings from TCMS teachers, counselors, and students.

Data in this presentation are from the 2017-18 school year unless otherwise specified.

[1] CSU leaders eye requiring four years of high school math for admission, Press-Telegram, June 3, 2017

1. Enrollment in Math among LAUSD Seniors

What types of math classes are LAUSD seniors taking? (n=28,596)



Enrolled in a 4th year class

Not enrolled in a math class

Enrolled in Algebra or Geometry

In credit recovery

1. Enrollment in Math among LAUSD Seniors

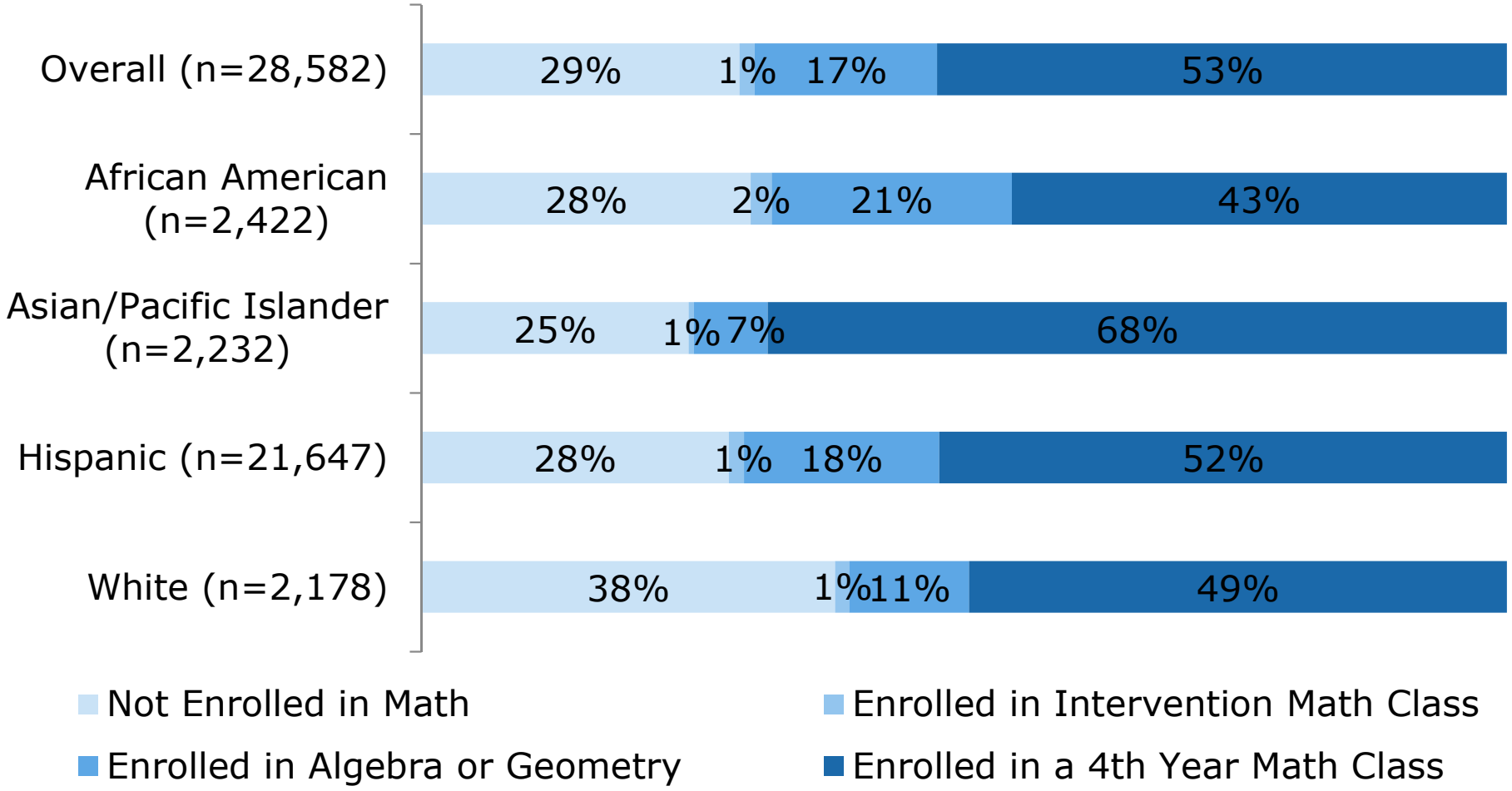
Which math classes are LAUSD seniors taking? (n=28,596)*

4th year math classes	Other math classes
Pre-Calculus - 15%	Algebra 2 – 13%
Calculus - 10%	Geometry – 3%
Statistics and Probability – 10%	Financial Algebra 2 – 1%
TCMS – 7%	Intervention Courses – 1%
AP Statistics – 6%	Algebra 1 – 1%
Introduction to Data Science – 2%	Financial Algebra 1 - 0.0002%
Discrete Math – 1%	
Mathematical Studies - 0.4%,	
Quantitative Reasoning - 0.3%	

*Percentages represent the proportion of all LAUSD seniors

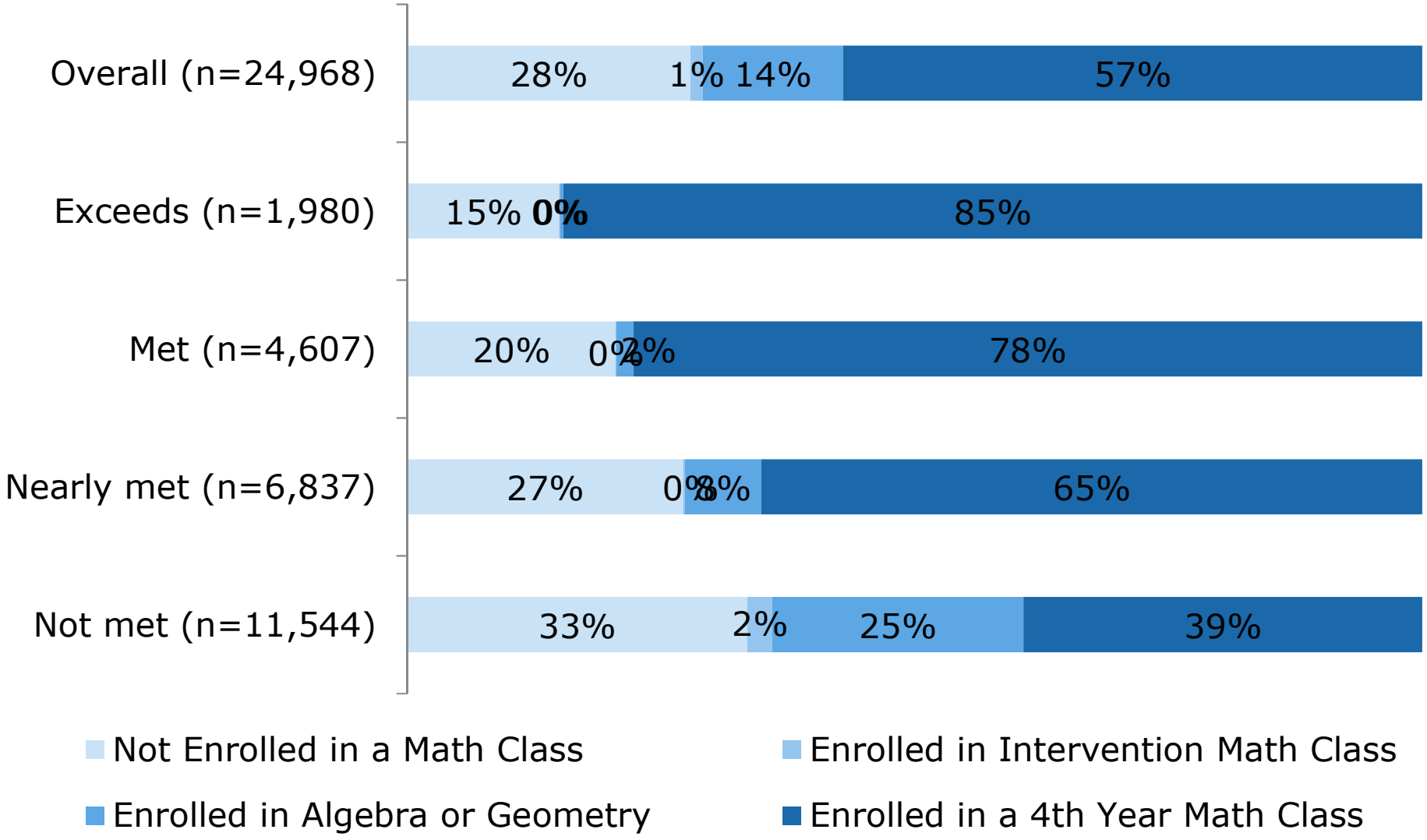
1. Enrollment in Math among LAUSD Seniors

Types of math classes taken by ethnicity



1. Enrollment in Math among LAUSD Seniors

Types of math classes taken by SBAC



1. Enrollment in Math among LAUSD Seniors

Summary:

- **About half of LAUSD seniors took a 4th year math class.**
- **African-American and White students are under-represented** among those taking a 4th year math class.
- **As junior year math SBAC levels increase, the likelihood that students take a 4th year math class increases.**

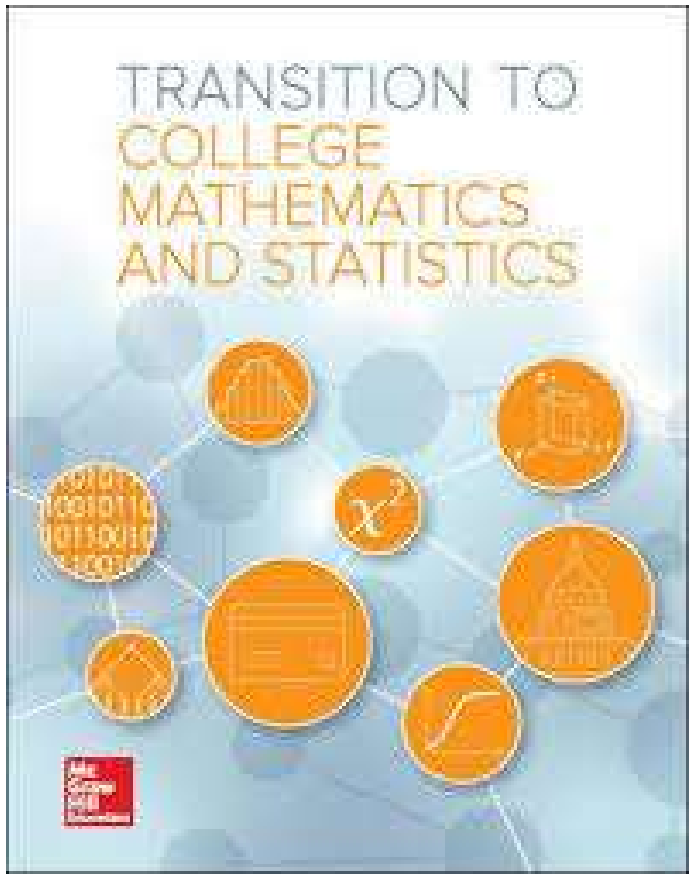
Implications:

- **What strategies can the district and schools implement to support more students in taking a 4th year math class?** Might different strategies be needed for students who are not taking a 4th year math class and those taking intervention class, Algebra, or Geometry?

2. TCMS: Another 4th Year Math Option

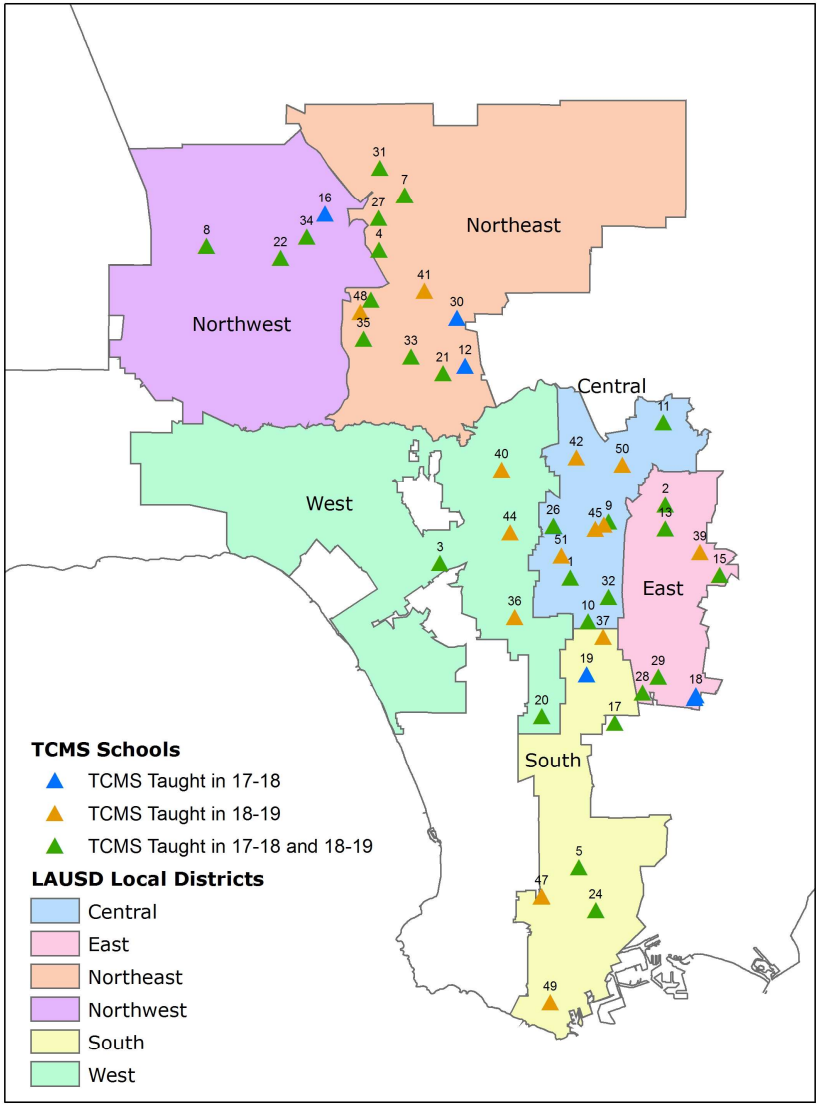
What is Transition to College Math and Statistics (TCMS)?

- A **college preparatory math course that does not require Calculus**.
- Course **aligns with the math standards** and is **based on real world application** with direct transfer to the workplace and life skills.
- An option for students on a non-STEM pathway.



2. TCMS: Another 4th Year Math Option

Schools Where TCMS Was Taught



2. TCMS: Another 4th Year Math Option

TCMS schools by year(s) offered			
1. 32nd Street USC Performing Arts Magnet	Both	14. International Studies Learning Center	17-18
2. Abraham Lincoln Senior High	Both	15. James A Garfield Senior High	Both
3. Alexander Hamilton Senior High	Both	16. John F Kennedy Senior High	17-18
4. Arleta Senior High	Both	17. King-Drew Senior High Medicine and Science Magnet*	Both
5. Carson Senior High	Both	18. Legacy Senior High Visual and Performing Arts	17-18
6. Cesar E Chavez Learning Academy - Academy of Science Exploration	Both	19. Mervyn M Dymally Senior High	17-18
7. Cesar E Chavez Learning Academy - Arts/Theatre/Entertain Magnet	Both	20. Middle College High School	Both
8. Chatsworth Charter High School	Both	21. North Hollywood Senior High	Both
9. Downtown Business Magnet	Both	22. Northridge Academy Senior High	Both
10. Dr Maya Angelou Community Senior High	Both	23. Panorama Senior High	Both
11. Eagle Rock High School	Both	24. Phineas Banning Senior High	Both
12. East Valley Senior High	17-18	25. RFK Community Schools - Ambassador School - Global Leadership	17-18
13. Francisco Bravo Senior High Medical Magnet	Both	26. RFK Community Schools - Los Angeles High School of the Arts	Both

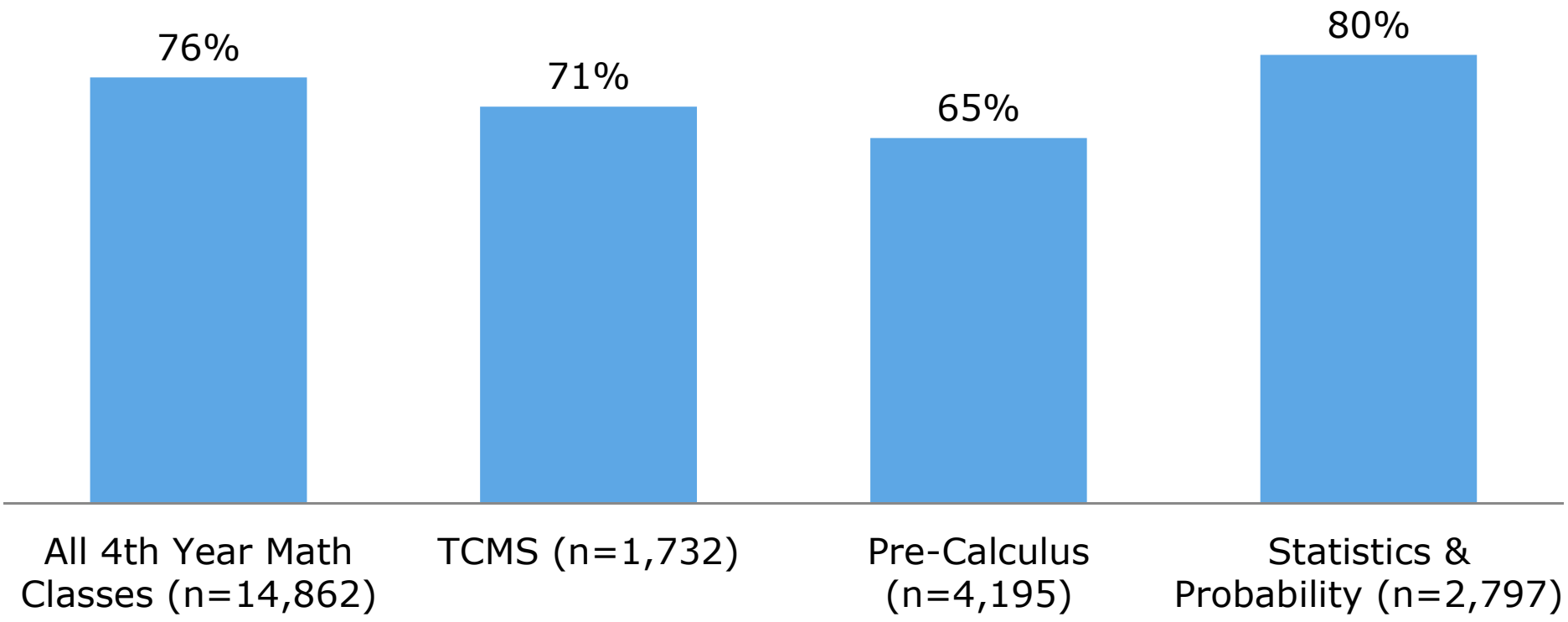
*LAUSD in cooperation with the Compton Unified School District , offers a limited number of 9th grade openings at the King- Drew Magnet High School of Medicine and Science.

2. TCMS: Another 4th Year Math Option

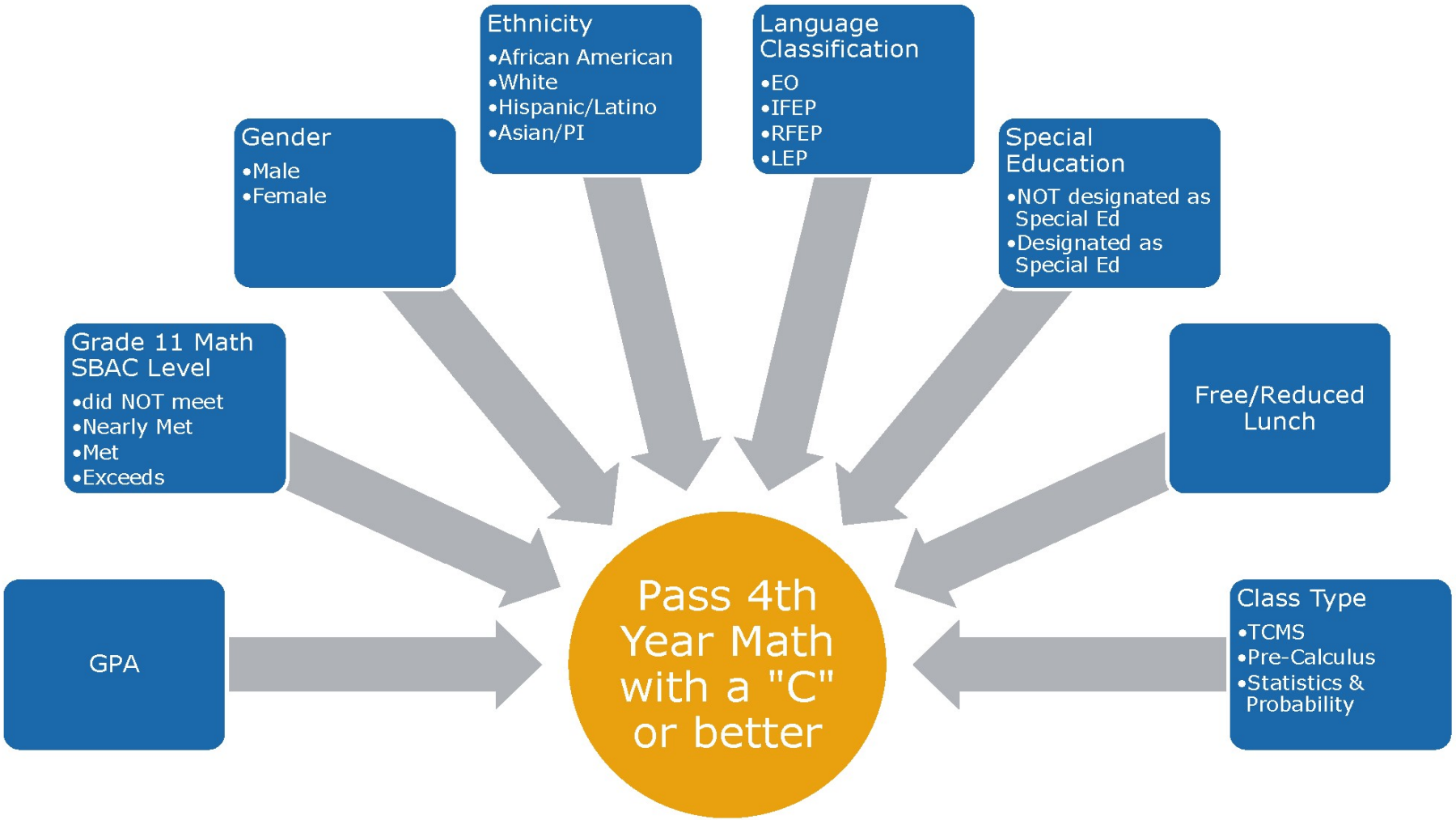
TCMS schools by year(s) offered			
27. San Fernando Senior High	Both	39. Esteban Torres HS - East Los Angeles Renaissance Academy	18-19
28. South East Senior High	Both	40. Hollywood Senior High	18-19
29. South Gate Senior High	Both	41. John H. Francis Polytechnic Senior High	18-19
30. Sun Valley Magnet: Engineering Technology	17-18	42. John Marshall Senior High	18-19
31. Sylmar Charter High School	Both	43. Los Angeles Senior High	18-19
32. Thomas Jefferson Senior High	Both	44. Miguel Contreras Learning Complex - The Academic Leadership Community	18-19
33. Ulysses S Grant Senior High	Both	45. Narbonne SH-Humanities & Arts (HArts) Academy of Los Angeles	18-19
34. Valley Academy of Arts and Sciences	Both	46. Nathaniel Narbonne Senior High	18-19
35. Van Nuys Senior High	Both	47. Robert Fulton College Preparatory School	18-19
36. Crenshaw Magnets: Science Tech Engineer Math & Medicine	18-19	48. San Pedro Senior High	18-19
37. Diego Rivera Learning Complex Performing Arts	18-19	49. Sonia Sotomayor Arts & Science Academies	18-19
38. Edward R. Roybal Learning Center	18-19	50. West Adams Preparatory Senior High	18-19

2. Passage Rate Among 4th Year Math Classes

Percent of students that received a "C" or better in a 4th year math class



2. What Impacts Students' Likelihood of Passing TCMS, Pre-Calculus, and Statistics & Probability?

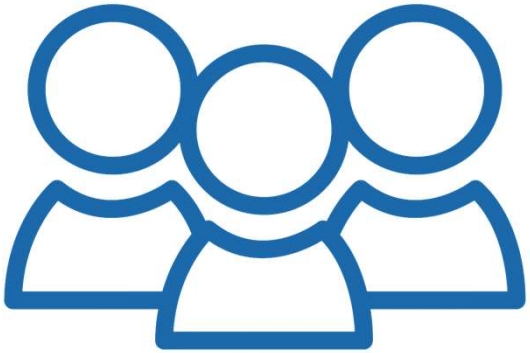


2. Who was more likely to pass TCMS, Pre-Calculus or Statistics & Probability?

Academic Performance:

- **GPA.** For every unit GPA increase, students were 4.5 times more likely to pass.
- **Grade 11 Math SBAC Scores.** Compared to students that DID NOT MEET:
    - NEARLY MET were 1.2 times more likely,
    - MET were 1.6 times more likely, and
    - EXCEEDED were 3.6 times more likely to pass.

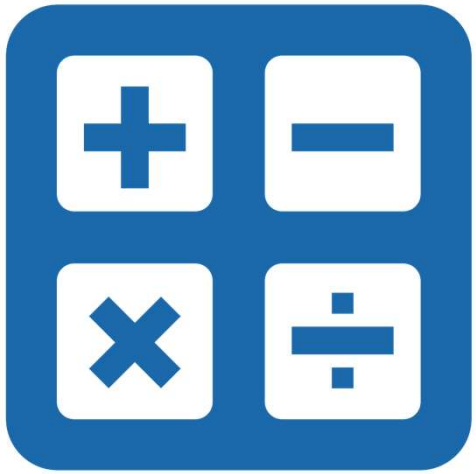
2. Who was more likely to pass TCMS, Pre-Calculus or Statistics & Probability?



Student Characteristics:

- **Gender.** Females were 1.2 times more likely pass than males.
- **Ethnicity.** African American students were:
  - 1.9 times more likely to pass than White students.
  - 1.8 more likely to pass than Hispanic and Asian/PI students.
- **Special Education.** Students NOT designated as special education were 1.4 times more likely to pass than students designated as special education.

2. Who was more likely to pass TCMS, Pre-Calculus or Statistics & Probability?



4th Year Math Class:

- Students in Statistics & Probability were 1.4 times more likely to pass than students enrolled in TCMS.
- Students in TCMS were 1.7 times more likely to earn a C/higher than students enrolled in Pre-Calculus.

2. Who was more likely to pass TCMS?

When looking just at TCMS:

- **GPA.** For every unit GPA increase, students were 5.8 times more likely to pass TCMS.
- **Grade 11 Math SBAC Scores.**
  - NEARLY MET were 1.3 times more likely to pass than DID NOT MEET.
  - MET were 2.1 times more likely pass than DID NOT MEET.

Why is this significant?

Demographic characteristics (gender, ethnicity, language classification, special education, and free/reduced lunch) did not impact a student's likelihood of passing TCMS. In other words, students along these demographic characters had an equal likelihood of passing TCMS!

3. Students, Counselors, and Teachers Experiences

Students liked variety of learning modalities that TCMS offered.

Some teachers and students had challenges integrating the ALEKS content and the TCMS textbook into a single course.

> *What I like best about the class is that it's not just like the teacher teaching all the time. So, it's kind of like the mixture between the computer and you learning by yourself and figuring things out by yourself then the teacher assisting you…[the teacher] also allows us to work a lot in groups. So…we're allowed to ask for help with one another. (TCMS Student)*
>
> *It's too disconnected. It's two different courses, two different subjects. Let's say we meet on Monday, we teach ALEKS. Okay, get on ALEKS and I'm going around helping them out review. This is, oh, how do you add or multiply fractions? To go from that to now we're talking statistics terms, like completely what are we doing? This is algebra one, and then boom, we jump to like college-level statistics. Where is the connection there? Students are confused. (TCMS Teacher)*

3. Students, Counselors, and Teachers Experiences

Brief written information about TCMS would have been helpful for Counselors.

Counselors emphasized that TCMS would help prepare students for college math and the placement exam. It will be important for Counselors to craft messages for taking a fourth year math course that resonate with students given that placement exams are being transitioned out.

> *It would be nice to have just, kind of like a ... I mean, they already put in so many other meetings. It would be nice to just have, like yeah, a one hour meeting, or a half hour meeting, that did give us like a written description. I've never seen a written description of the course. (Academic Counselor)*
>
> *We're going to give you something that's going to prepare you for the math placement exam when you go off to college. So, hopefully, you don't have to start with remedial math courses. You'll be closer to the level that you're supposed to be in. (Academic Counselor)*

3. Students, Counselors, and Teachers Experiences

Teachers appreciated the professional development offered to TCMS teachers and many noted that the **trainings were strengthened over time**.

> *The trainings have definitely gotten better as the year went on, and when I say better, the content of the topics they covered during the professional development sessions were more practical and something that I could apply immediately…The first few professional development sessions weren't as helpful as the last couple. And we gave them our feedback. I think that's one of the reasons why it gradually got better. (TCMS Teacher)*

Students at both schools appreciated that TCMS was **based on real world application**.

> *Oh yeah, like when he taught us about was it taxes? Tax rates and all that? Yeah. That was pretty helpful because like up until this point this class, I've never had a teacher talk to me about anything of that sort. So, that was helpful that he was able to include that into a lesson. (TCMS Student)*

3. Students, Counselors, and Teachers Experiences

Students, especially at one school, said that **they had learned more in TCMS than any of their other math classes**. They **attributed learning more in TCMS due to the pacing of the course and smaller class size**.

> *I think I've learned more in this course than I've learned for the past three years in high school, because all those years were rushed, and I only learned the subject just for the test, but I didn't actually learn it because I wanted to, but for this class, we learn it, and we actually remember what to do later on…*
> *(TCMS Student)*
>
> *I really never liked word problems and this group has a lot of word problems that you have to apply , understand in order to move on. I've actually become very good at that... (TCMS Student)*
>
> *I think that everyone should get a chance to experience this class…I feel like we've learned more in this class than we've ever learned in any other math class. (TCMS Student)*