

# Math Update

For 6-12<sup>th</sup> grade math

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Presenter

Jennifer Goforth

Director of K-12 STEM

**MONTCLAIR PUBLIC  
SCHOOL DISTRICT**

Montclair Public Schools



Great by Design



# Agenda

- Presentation purpose
  - Background
- Data Review
- Recommendations
- Next Steps

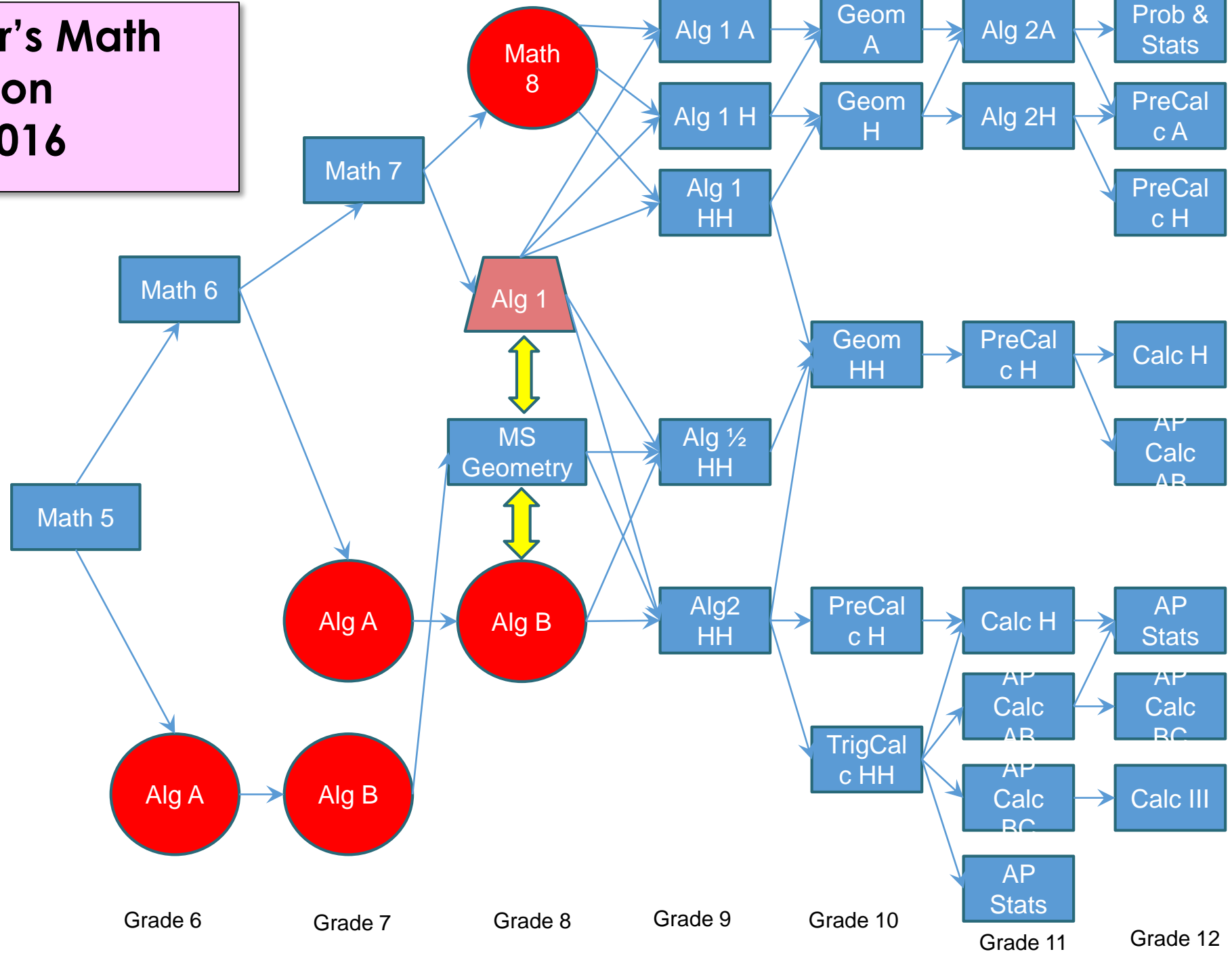


# Purpose

To provide a high-level overview of the math program for Montclair Public Schools and how we got here.

- In 2015-2016, the math program for Montclair Public Schools was revised to increase opportunity to access upper level math courses for ALL students.
  - This work promotes **EQUALITY**.
- Yet, you will see in this presentation that more work is needed towards **EQUITY**.
  - Inherent biases must be teased out so that we include students who have circumstances or barriers that may hinder them.

# Montclair's Math Progression Prior to 2016



Grade 6

Grade 7

Grade 8

Grade 9

Grade 10

Grade 11

Grade 12



# EQUALITY in Math

In an effort to increase opportunities for all students to take Calculus or higher in high school:

- Implemented an **ALGEBRA for ALL** middle school students as a two-year program called Algebra A/B.
- Moved from three levels of math to two in Montclair High School.
- Removed the high school Algebra I/II course that required students to repeat Geometry in sophomore year and take Algebra II over three semesters.



# EQUITY in Math

New Jersey Student Learning Standards for Math (NJSLS)

**Excellence in mathematics education requires equity**

- ❖ high expectations,
- ❖ worthwhile **opportunities**,
- ❖ accommodation for differences,
- ❖ **resources**,
- ❖ and strong **support** for all students.



# EQUITY in Math

An excerpt from the National Council for Teachers of Mathematics (NCTM) position statement:

Achieving access and equity requires that all stakeholders ensure that **all students have access** to a challenging mathematics curriculum taught by skilled and effective teachers who:

- **differentiate instruction** as needed;
- monitor student progress and make needed accommodations;
- and offer remediation or additional challenges when appropriate.



# EQUITY in Math

A few minutes (2011) from [Bob Moses](#),

American educator and civil rights activist and creator of The Algebra Project:

- The notion is simple: **Every child must master algebra**,
- **preferably by eighth grade**,
  - for algebra is the gateway to the college-prep curriculum,
    - which in turn is the path to higher education,
      - which is seen as the key
        - to even basic success in modern society.

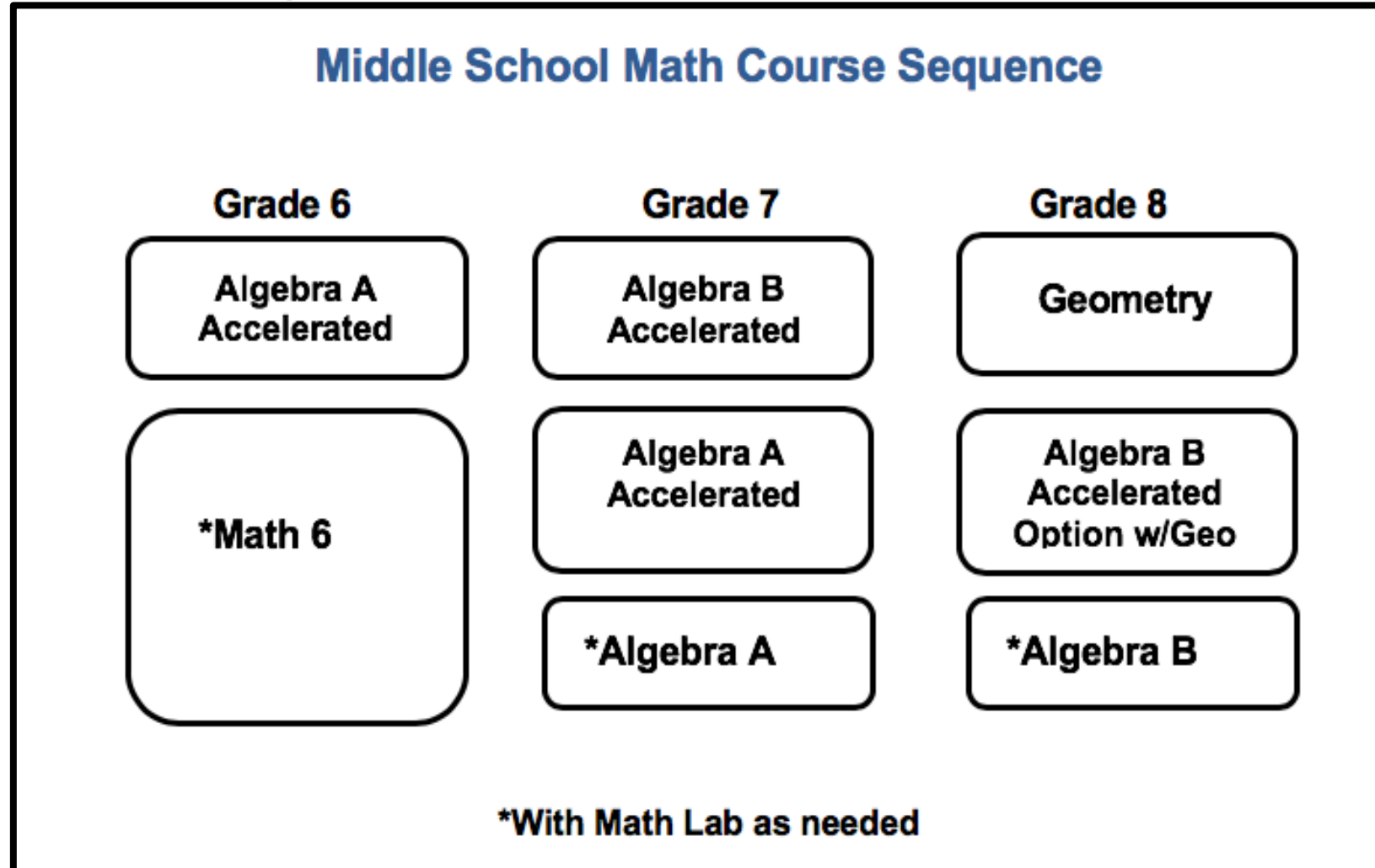




# Current MS Math Program

Renaissance Middle School  
(RMS)

- Only offers Algebra A/B at the accelerated level.
- Teachers continue to differentiate to meet student needs in the accelerated level classes.
- All RMS students take Math 6 and may take Algebra A Accelerated in addition to Math 6 for enrichment.



# Current Grade 8 to 12 Math Course Pathways

Middle School	Grade 9	Grade 10	Grade 11	Grade 12
Geometry (*Opt Alg B Accel with Geometry)	Algebra 2/Trig H Algebra 2 H (*Opt Geo. H)	Trig/Calc. H or Pre-Calc. H	AP Calc. BC AP Calc. AB Calc. H	Calc. III HH AP Calc. BC AP Calc. AB AP Statistics
Algebra B Accel. or Algebra B	Geometry H or Geometry	Algebra 2 H or Algebra 2	Trig/Calc. H Pre-Calc. H Pre-Calc. ** Prob & Stats H ** Prob & Stats	AP Calc. AB Calc. H AP Stats Prob. & Stats H Prob. & Stats
Algebra B	Algebra I H or Algebra I	Geometry H or Geometry	Algebra 2 H or Algebra 2	Pre-Calc. or Prob. & Stats

\* Option to double in Geometry in 8th or 9th Grade to accelerate.

\*\* Alternate option to Pre-Calculus or recommend taking Probability & Statistics after Pre-Calculus.



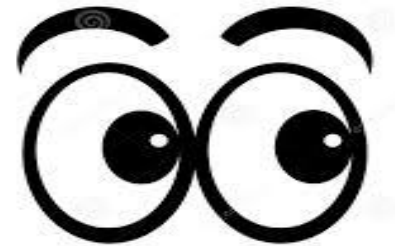
# How are our students doing?

**WHO:** 2017-2018 middle school students.

**HOW:** How did they perform on the district final exams in each math course offered?

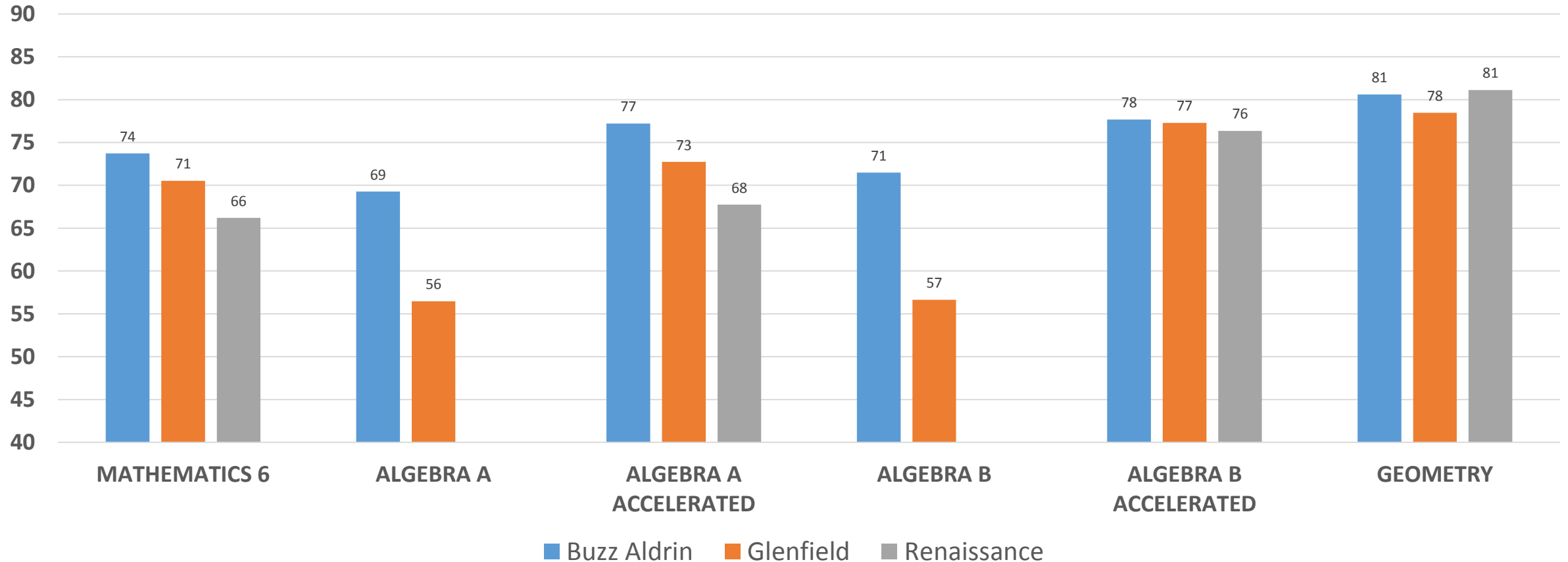
**WHY:** Are students successfully completing middle school math courses?

LET'S TAKE A CLOSER LOOK...



# District Final Exam Averages for Middle School Comparison for 2017-2018

Average Score: 2017-18 Final Exam



# Summary...

Majority of Montclair Public Schools' middle schoolers are passing the district final exams in all middle school courses.

- Algebra A and Algebra B students in Glenfield are significantly below passing on the district final exam.
- Renaissance does not have results for Algebra A/B because all students take Algebra A/B Accelerated.

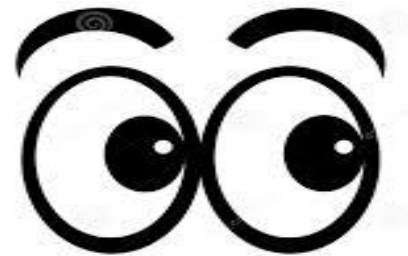


# How are our students doing?

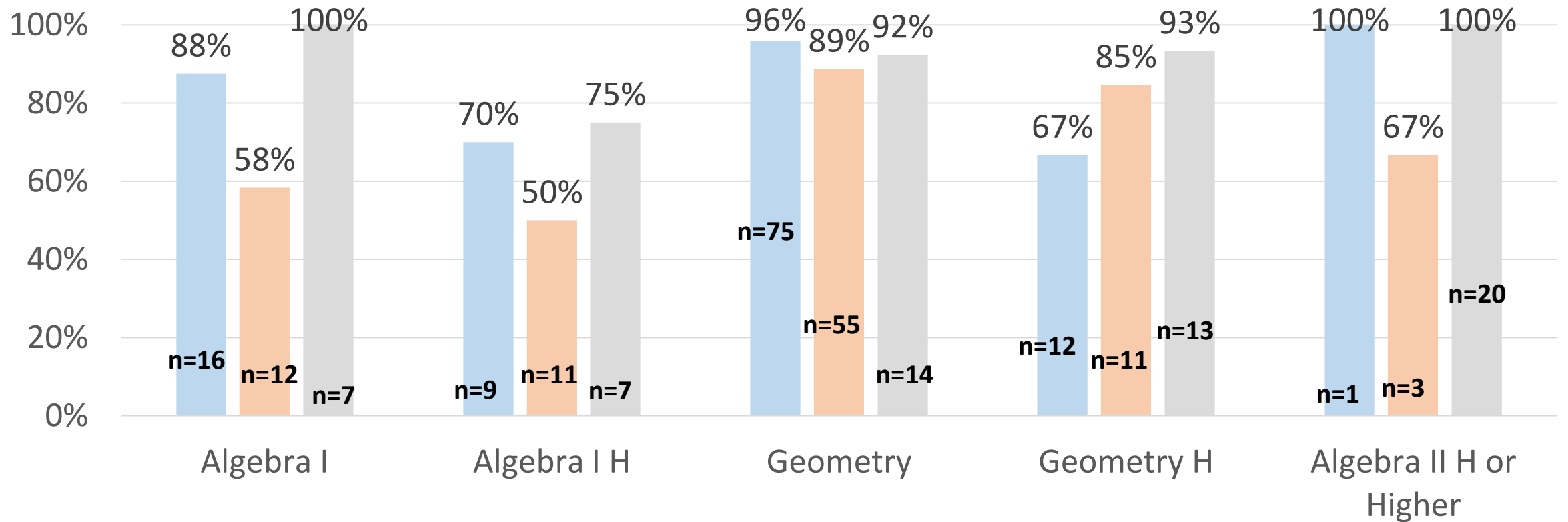
- Accelerated student data will not be analyzed in the next slides as they continue to perform above expectations for their grade level.
- 75% or higher performance in Math will be used as a benchmark for meeting expectations.
- Algebra A/B student data will be analyzed as they are the students who would have taken Math 7/8.

**Are students successfully advancing in math who would not have had the opportunity to do so in the past?**

LET'S TAKE A CLOSER LOOK...



# 2018-2019, 9th graders with 75%+ that earned 75%+ in Algebra B



- Buzz Aldrin Middle School
- Glenfield Middle School
- Renaissance Middle School at the Rand Building



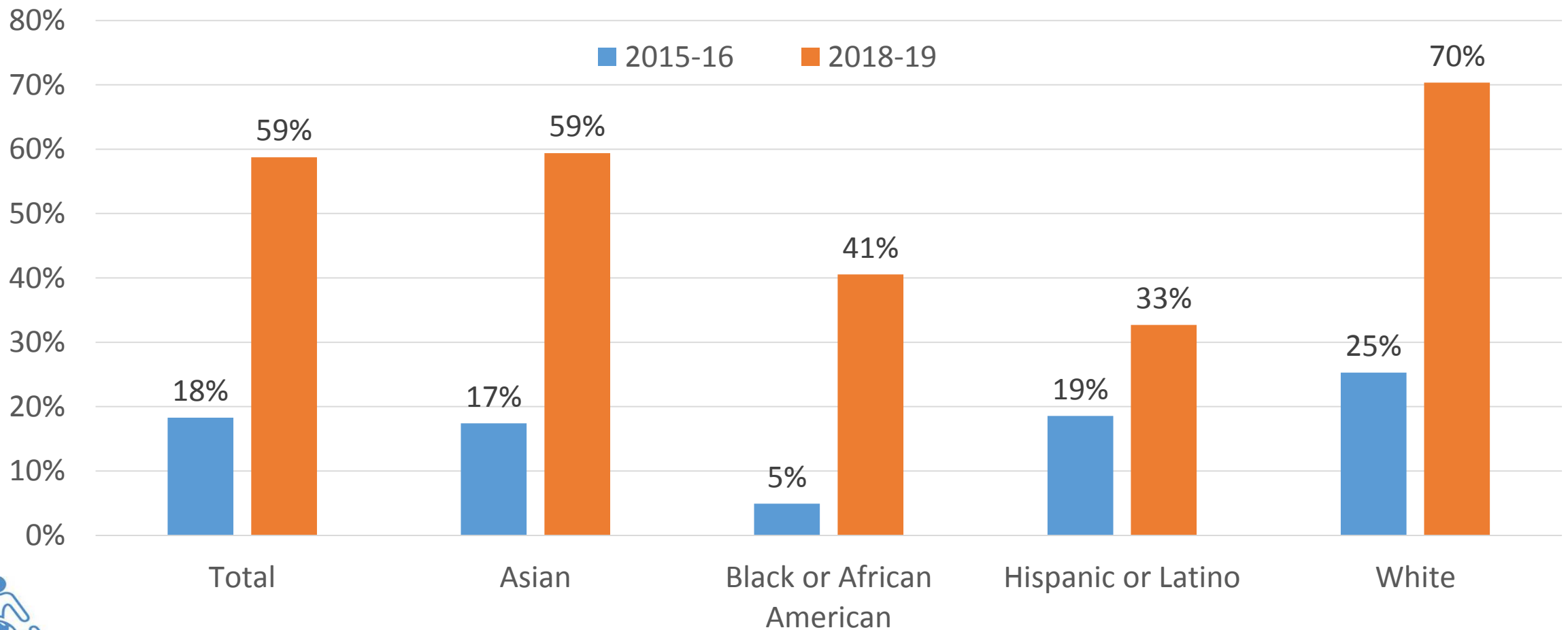
# To summarize...

- **Algebra for All is working for the majority of students.**
- **Majority of students who successfully completed Algebra A/B were placed in Geometry and majority of these students are successful in Geometry (averaging over 75% in class).**
  - Renaissance Middle School results are considerably higher because there are no levels offered, thus high performing students are combined with lower.
  - Glenfield has the lowest performance in comparison except for Geometry Honors.





# Enrollment of 9<sup>th</sup> graders in Geometry or Algebra I/II



# To Summarize...

After implementing Algebra for All, more students are not repeating Algebra in 9<sup>th</sup> grade, thus increasing the percent of students across demographics. Percent Increase for students shown below:

- ❖ White: 45%
- ❖ Hispanic: 14%
- ❖ Black: 36%
- ❖ Asian: 42%
- ❖ Overall: 41%



# Summary continued...

The racial gap still persists ...

- In 2015-2016, there was a 20% difference between Black students vs White students who are moving past Algebra in 9<sup>th</sup> grade.
- In 2018-2019, there was a 30% difference between Black students vs White students who are moving past Algebra in 9<sup>th</sup> grade.
- For Algebra B students to legitimately excel past Geometry in 9<sup>th</sup> grade, students would have to double in math in 8<sup>th</sup> grade or take an external Geometry course.
  - **This is our equity work: How can we better communicate the opportunities coupled with support?**



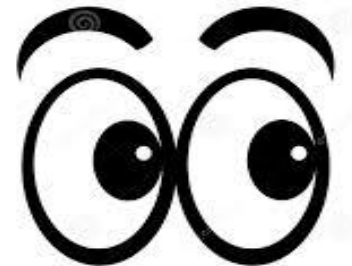
# How are struggling students doing?

How many students did not do well in Algebra B, that earned below 75%...

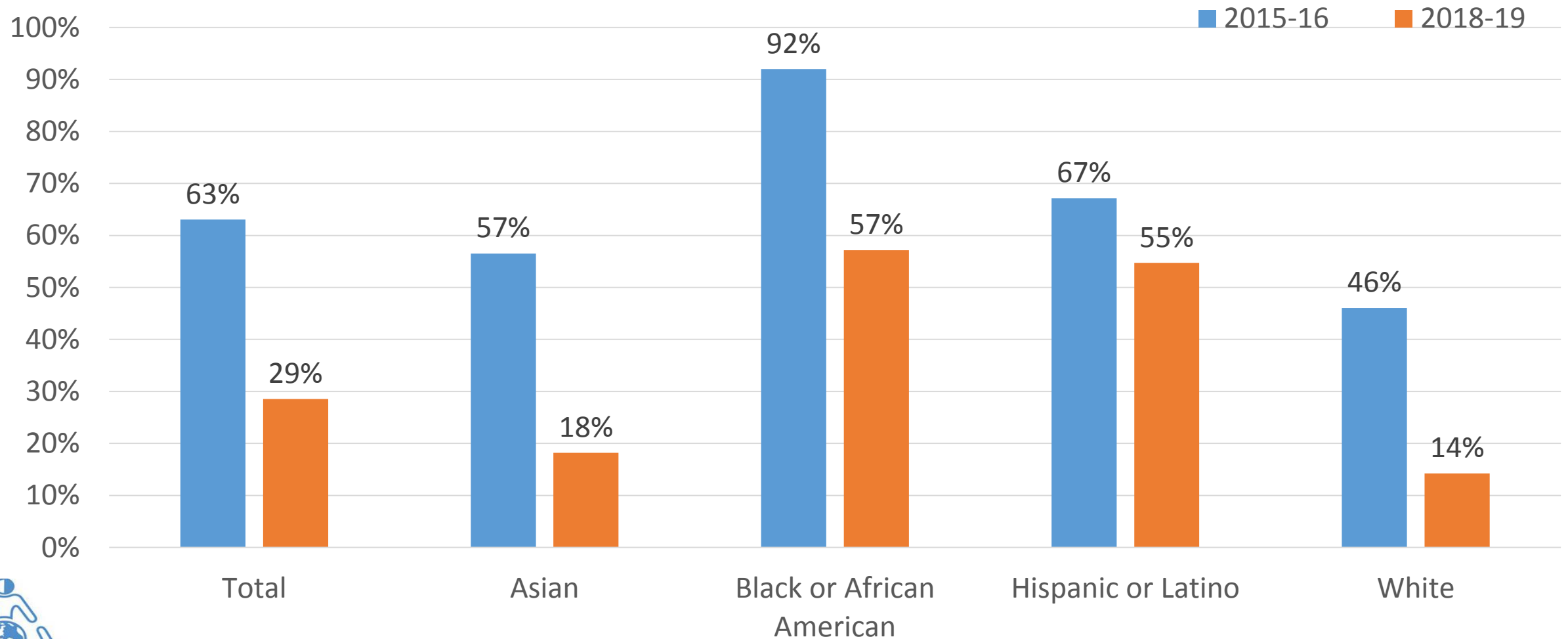
- Where are they in 9<sup>th</sup> grade?
- What percent are meeting expectations?

Are struggling learners in math being given ongoing support and adequate programming for math?

LET'S TAKE A CLOSER LOOK...



# Enrollment of students in Algebra in 9<sup>th</sup> grade



## To summarize...

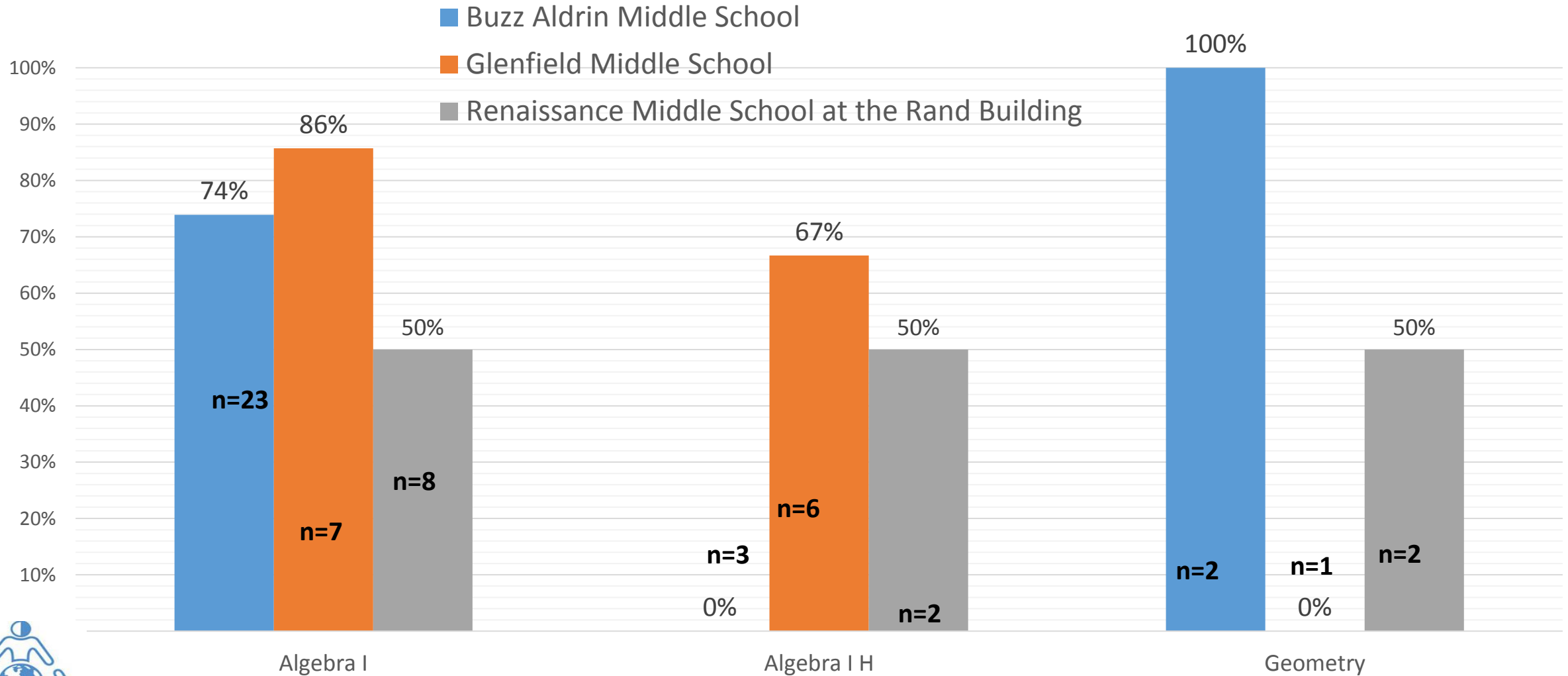
In 2016, almost all Black or African American students (92%) were enrolled in Algebra in 9<sup>th</sup> grade. This means almost all of these students did not have an opportunity to take higher level math above Pre-Calculus.

In 2018, all MS students completed the Algebra A/B course. Thus, all students from different backgrounds, benefitted and advanced in math.

- ❖ A third (34%) more students are completing Algebra 1 in MS than before.
- ❖ The largest improvement: 35% more Black or African American students advanced past Algebra in 9<sup>th</sup> grade.



# 2018-2019, 9th graders with 75%+ that earned below 75% in Algebra B



# Summary continued...

- A third (33%) students enter 9<sup>th</sup> grade above Geometry Honors (advanced path).
- A third (33%) students enter 9<sup>th</sup> grade with Geometry (accelerated path) .
- A third (33%) students enter 9<sup>th</sup> grade with Algebra (traditional path).
  
- Of those that repeat Algebra, 70% average are successful in 9<sup>th</sup> grade.
- 20% of our students overall continue to struggle with math.





# Next Steps: Supporting our Students

Montclair is reviewing and purchasing resources to support our learners, including:

- New K-5 Math Program: Go Math, that includes a personalized Math Trainer tool for providing intervention and enrichment.
- Forming a committee to review Math Lab, structure, guidelines, resources and curriculum for 6-12 math support.
- Providing coaching and professional development for K-12 teachers in blended learning, engagement, cultural responsiveness and differentiation.



# Final Conclusion

The implementation of Algebra for all our middle school students has accomplished its goal to provide opportunity to access higher level math for all students, yet more work is needed to decrease the achievement gap and provide adequate support for struggling students.

\*This work is in progress and the final results will be determined when this cohort graduates in 2022.

*Thank you to all of the staff and parents that have supported our students in math, especially with the transition to changes in our math program!*

