

# Middle School Acceleration

*From Foundations to Futures: A PD Series on  
Readiness, Access, and Alignment*



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# From Foundations to Futures: A PD Series on Readiness, Access, and Alignment



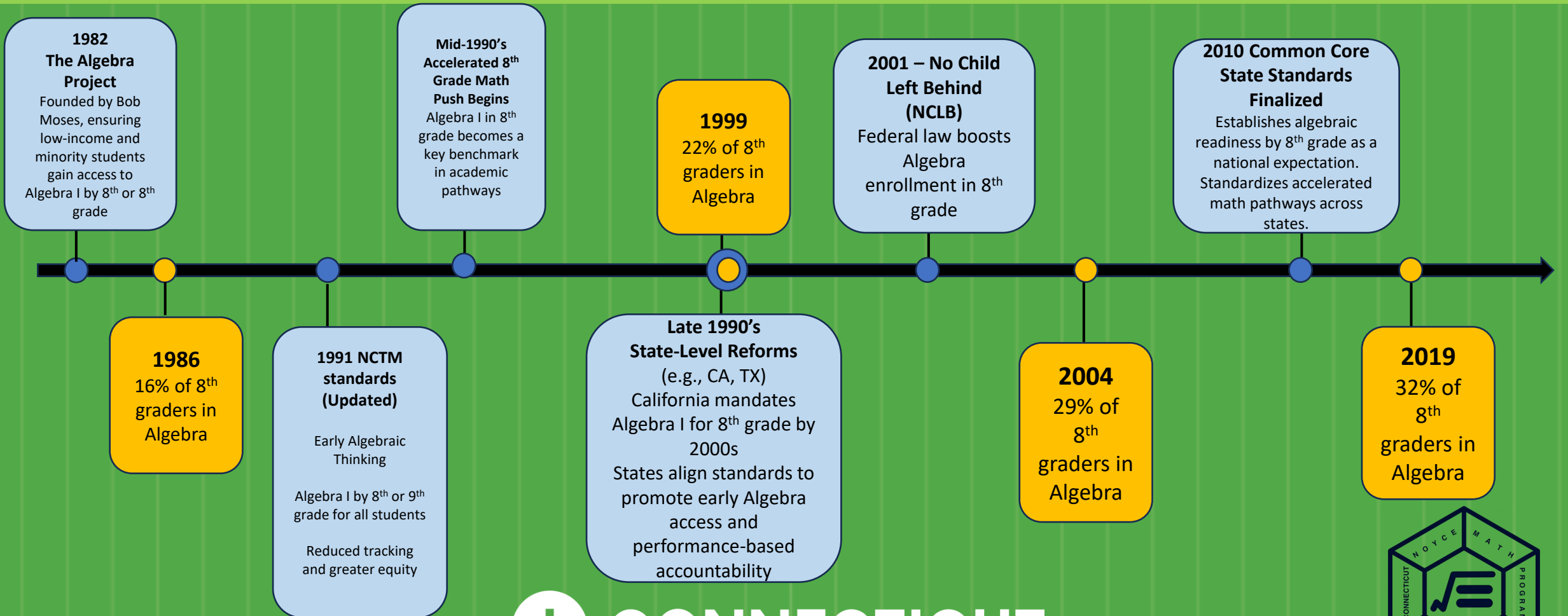
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# Topic Overview

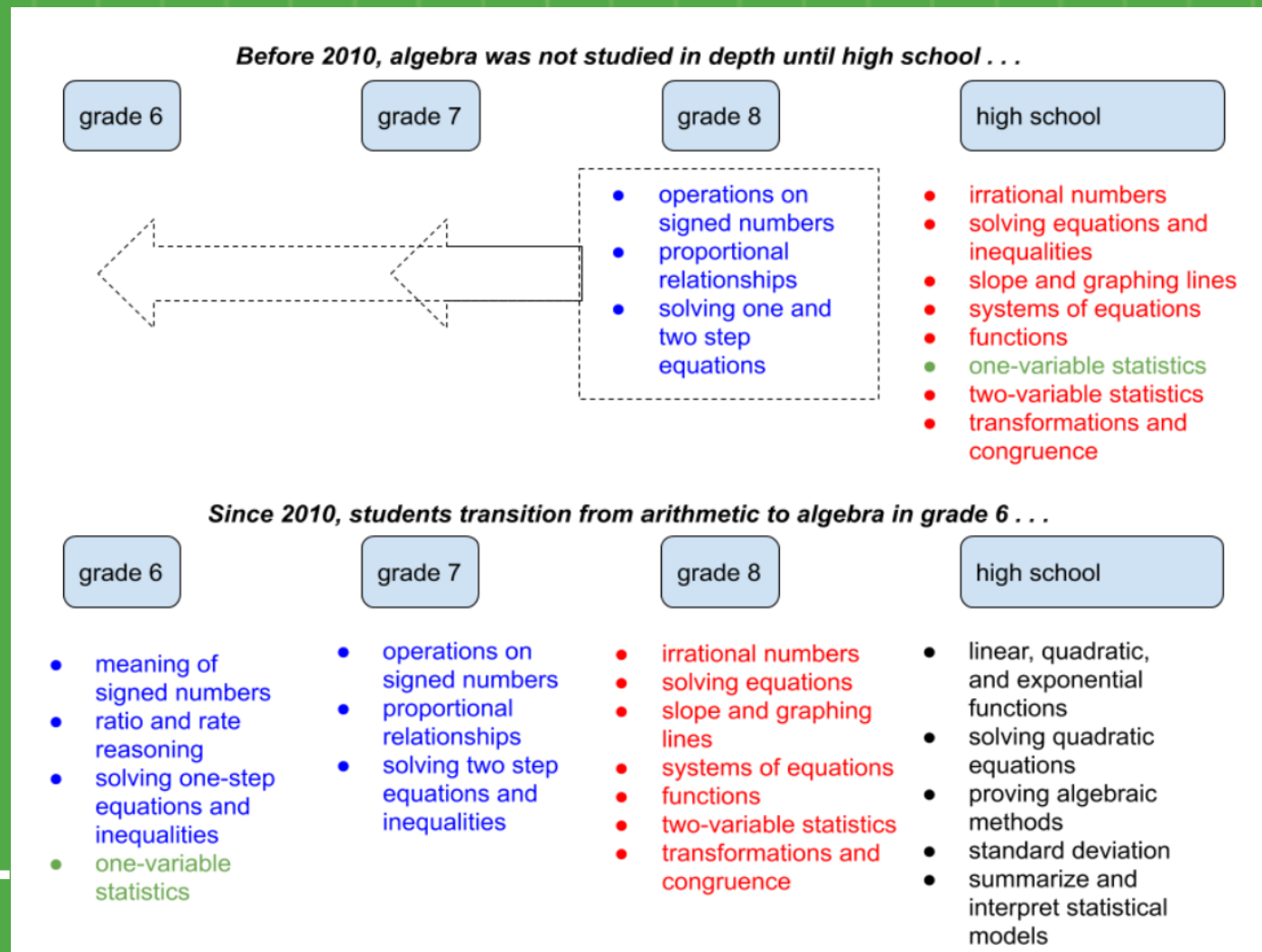
**Problem:** We need to rethink how, why, and for whom we accelerate mathematics.



# History of Middle School Mathematics

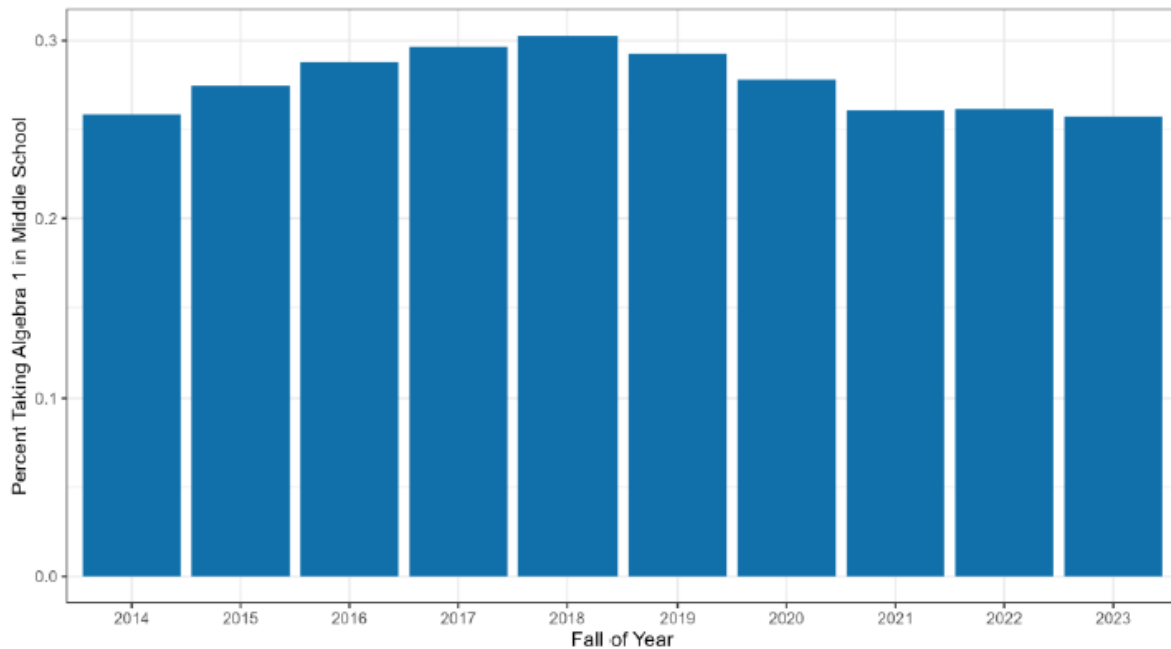


# Modern Day Considerations



# CT Now

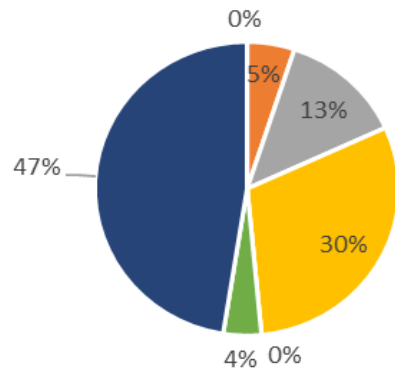
Percent of 8<sup>th</sup> grade students who took Algebra I in middle school



Overall pattern of increase up until 2018-2019 then decline

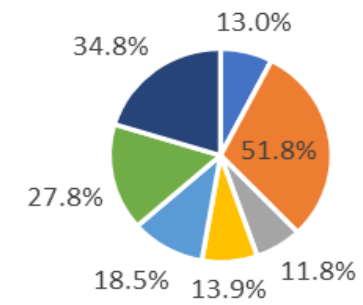
# CT Enrollment - Race/Ethnicity

Average % of Grade 8 Enrollment by Race/Ethnicity (2021-2023)



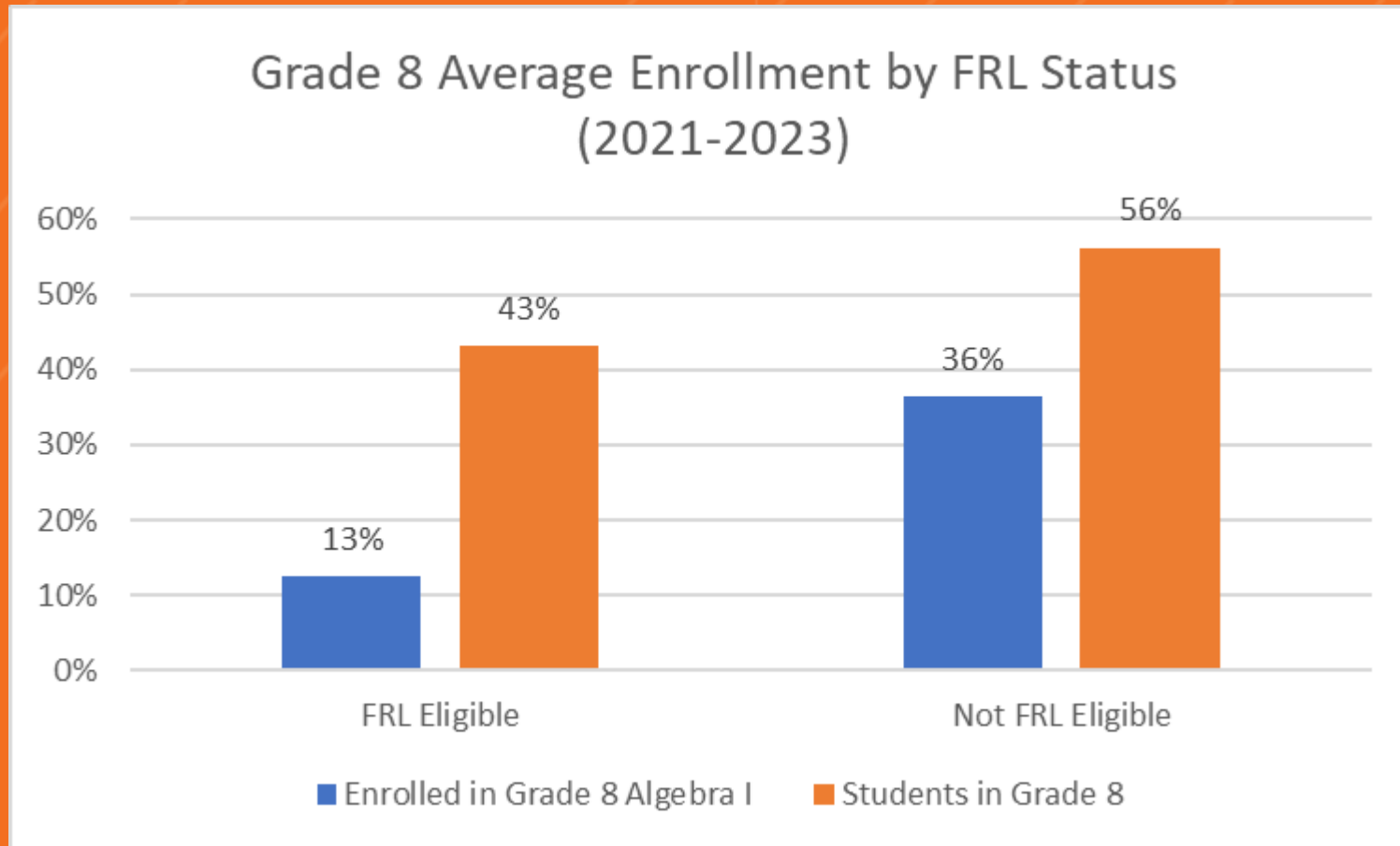
- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic/Latino of any race
- Native Hawaiian or Other Pacific Islander
- Two or More Races
- White

Average % of Students Taking Algebra I in Middle School by Race/Ethnicity (2021-2023)



- American Indian or Alaska Native
- Asian
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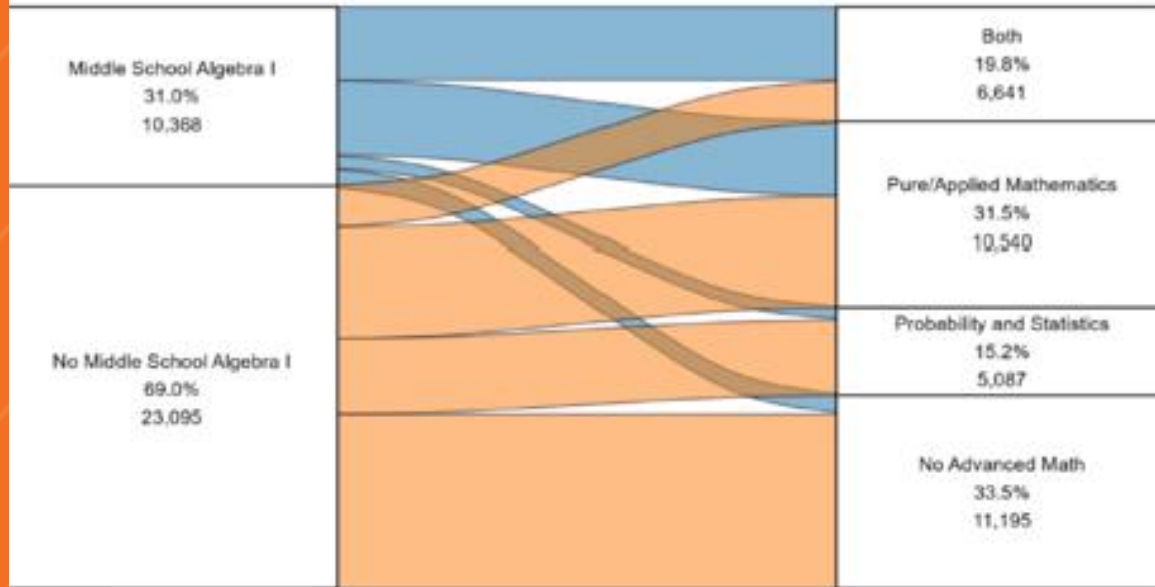
# CT Enrollment - FRL





# CT Opportunity for Advanced Math Course Enrollment

*Advanced courses include courses beyond Algebra II level in Pure/Applied Mathematics and/or Probability and Statistics*

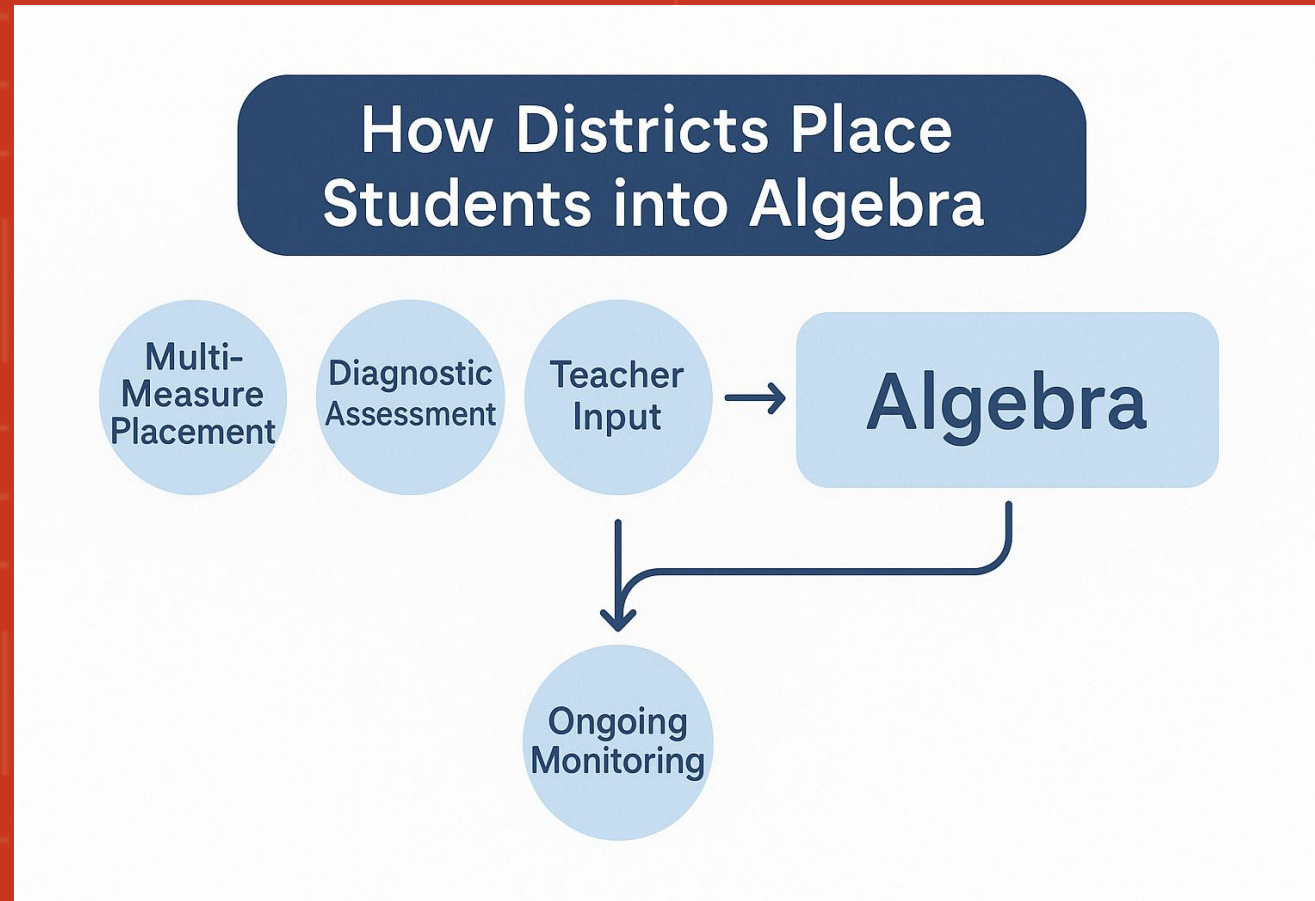


\*8<sup>th</sup> grade students in 2019-20

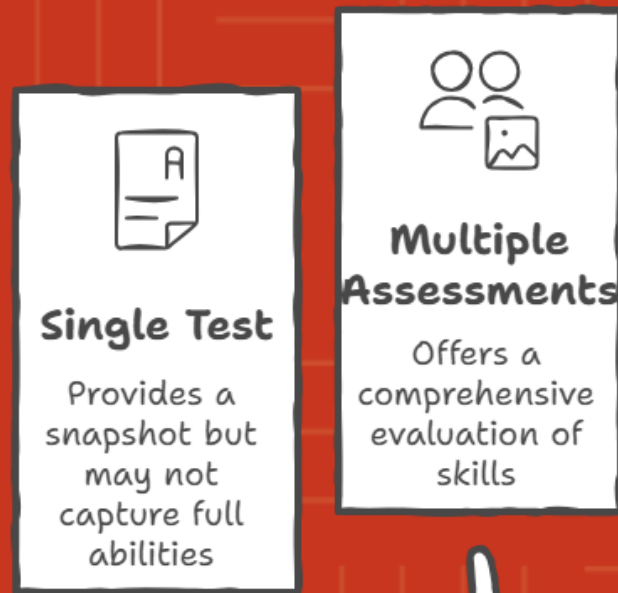
- 41.0% of students who take Algebra I in the middle school ended up taking both and advanced pure/applied course and a probability/statistics course
- Of the students who did not take Algebra I in the middle school, 27.0% took a pure/applied math course, 18.9% took a probability/statistics course, and 10.3% took both
- Of the students who took Algebra I in the middle school, 20.4% took Algebra I again in high school



# Placement Decisions



# Decision Making



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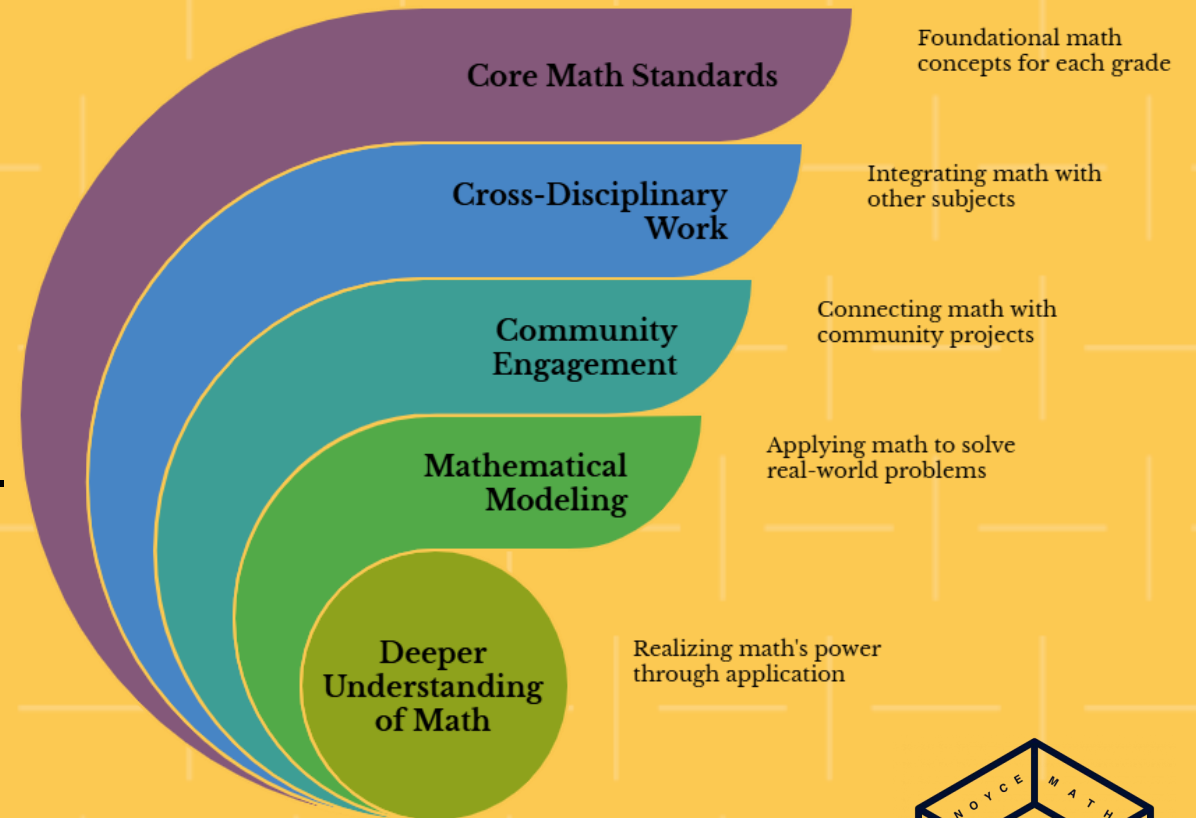
Made with Napkin



# Examples of Possibilities

## Exploration vs. Acceleration-

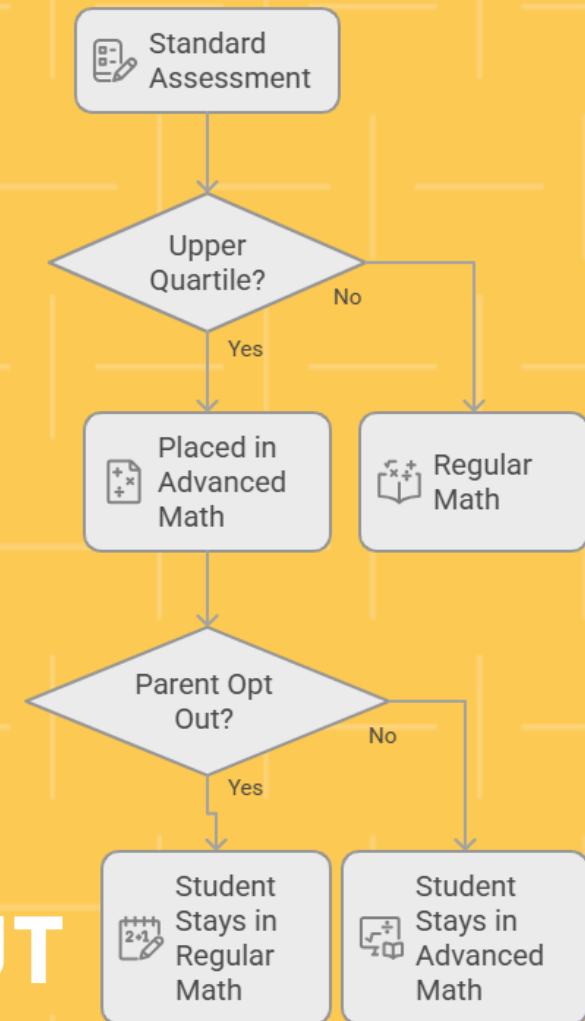
- Two options to consider:
  - a separate "plus" or "extended" course
  - projects or extensions offered within the classroom
- Develops a deeper understanding of how math is used and applied across disciplines.
- Easier to move between courses.
- Pathways at the high school should still be designed to allow for advanced math/calculus before graduation



# Opt - Out Possibility

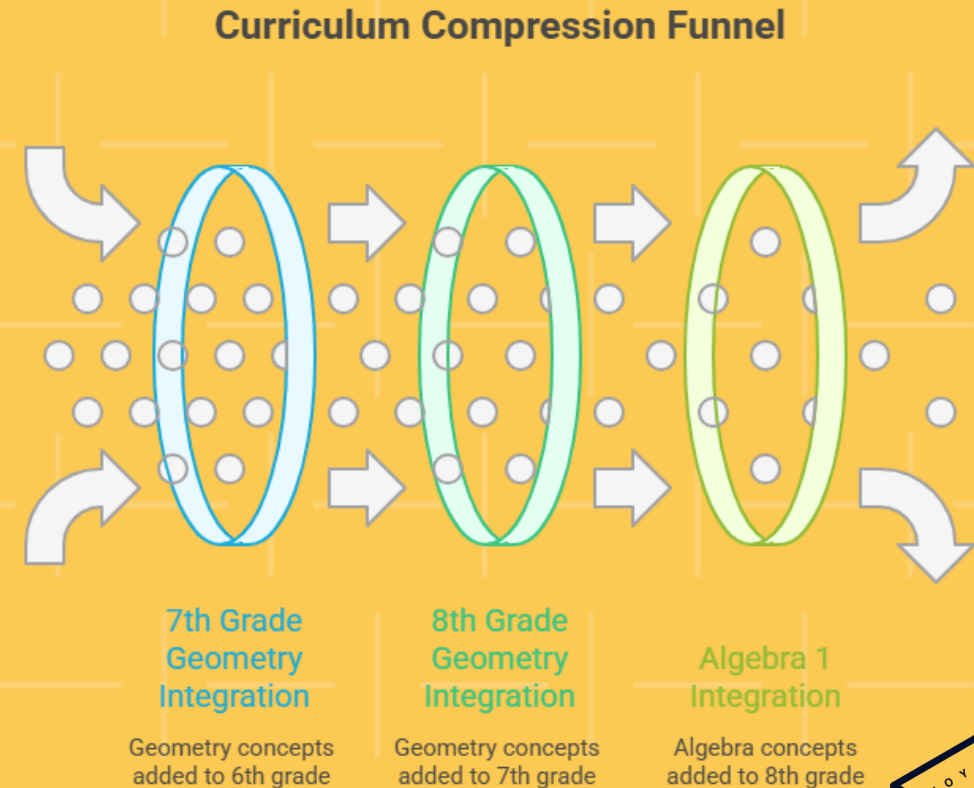
Opt-out or "auto enrollment" policies-

- Removes teacher bias
- Involves students and their families in the choice.
- Some states have proposed legislation to mandate protocols for acceleration.
- This process is repeated each year to continue to address the needs of all students.



# Compression Strategy

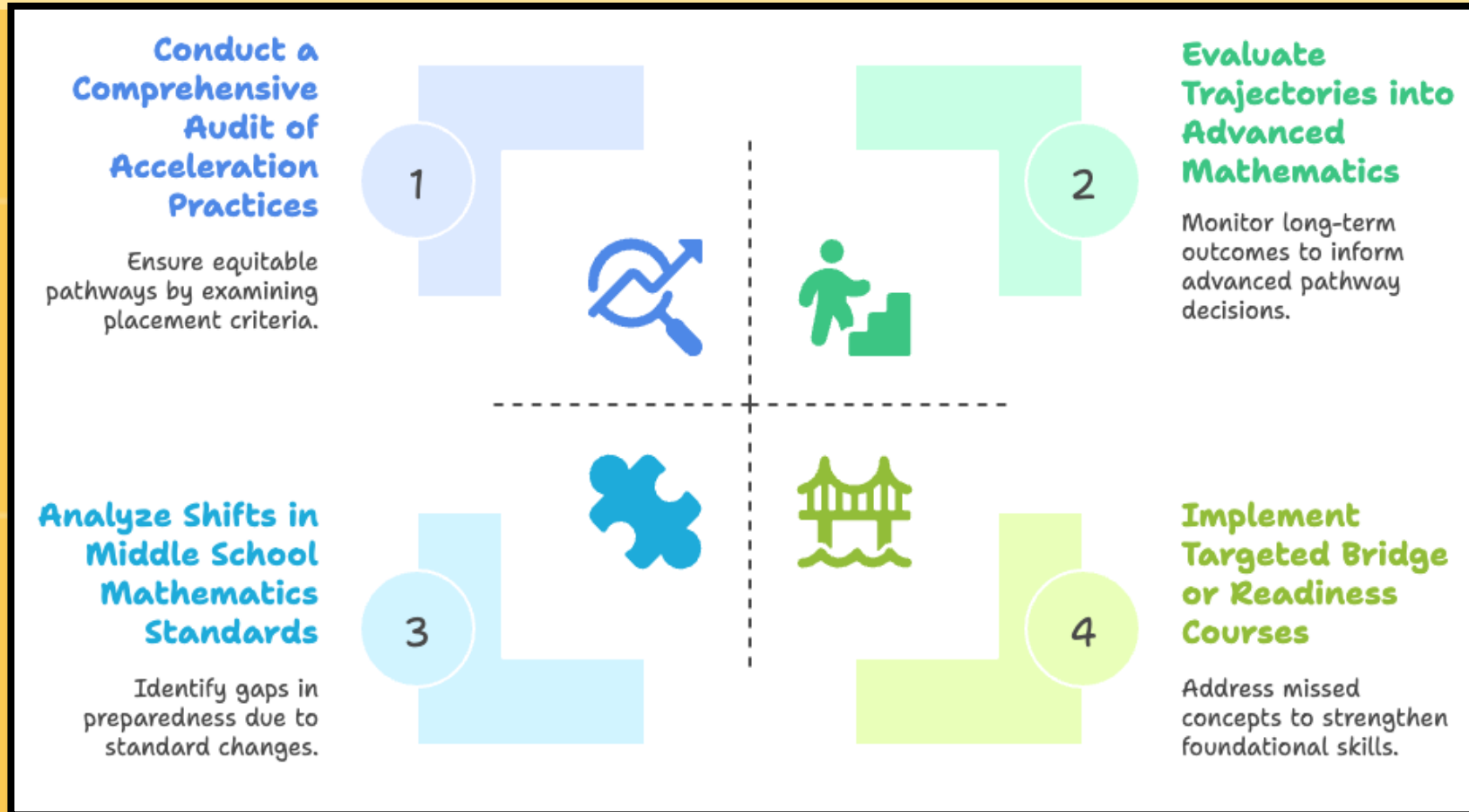
- Compression
- All middle school content is included and not skipped
- Could offer the compression as an additional boost class or in a class that moves more quickly so all content is addressed



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# Considerations for acceleration



# Accelerated Math Done Right:



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# Exploring Next Steps

- How are students currently identified for accelerated pathways, and what implicit or structural biases might influence these decisions?
- In what ways do our selection criteria for accelerated learning reflect our values—and how might they unintentionally limit equitable access?
- What assumptions underlie our acceleration processes, and how can we make them more fair and accessible to all students?
- How does our current math placement system affect access to advanced courses, and how could later entry points expand opportunities for more students?



# For More Information

Middle School  
Acceleration Fast Facts

Middle School Math  
Acceleration PD Playlist

**CONNECTICUT Education**

### Middle School Math Acceleration

**Directions:** Explore resources, read one article, watch one video, and listen to a recording of your choice from the list below. Feel free to go big and read them all to support planning, learning, and teaching.

**READ**  
Read one or more articles

- 4 Questions to Boost Algebra Gains for Middle Schoolers
- Unlocking Algebra
- Research reveals the joys and ease of algebra in eighth grade - Teach, Learn, Grow
- Guidance for accelerating students in math from Illustrative Math, 2020
- Is What Grade Should You Take Algebra 1? (Updated, May 2023)
- On Track or Derailed? Race, Advanced Math, and the Transition to High School
- Which Ready for Algebra 1
- Eighth Grade Algebra Course Placement and Student Motivation for Mathematics

**WATCH**  
Watch one or more videos

- Algebra and Middle School, Advanced Math in Eighth Grade (6:03)
- On Course Acceleration of Math Courses in Secondary Mathematics (8:23)
- Advanced Math in Eighth Grade (6:04)

**LISTEN**  
Listen to one or more recordings/podcasts

- The Calculus Project with Action Items
- Assessing Student Readiness for Accelerated Math in Middle School
- Zero to Sixty - The Case for Acceleration

### Middle School Acceleration

**CHALLENGE**  
In Connecticut's locally controlled education system, decisions about accelerating students into Algebra 1 in Grade 8 vary widely and often reflect disparities in race, income, and access to resources. While early Algebra 2 is seen by some as the only route to Calculus and college readiness, research shows this path may not benefit all students equally—especially without proper preparation and support. A more equitable, evidence-based approach is needed to ensure all students have meaningful access to advanced math opportunities.

**CONNECTICUT'S DATA**

Percent of Students Taking Algebra 1 in the Middle School

Year	All Students	Black	Hispanic	White
2019	~15%	~10%	~12%	~18%
2020	~18%	~12%	~15%	~22%
2021	~20%	~14%	~18%	~25%

**FROM THEN TO NOW**  
Common Core Grade 8 standards were intentionally designed to include foundational Algebra 1 content.

Grade 8 Standard	2010	2015	2020
Linear Equations	✓	✓	✓
Exponential Functions	✓	✓	✓
Functions & Statistics	✓	✓	✓
Geometry & Statistics	✓	✓	✓
Statistics & Data	✓	✓	✓



# From Foundations to Futures

NEXT

