

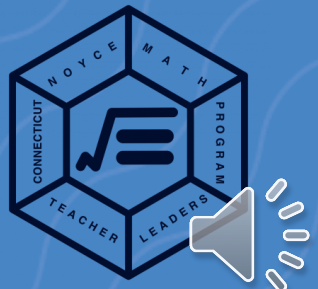
Reimagining Common High School Content



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



Topic Overview

Secondary math education is not clear on priority content and does not serve ALL students.

Why rethink high school math?

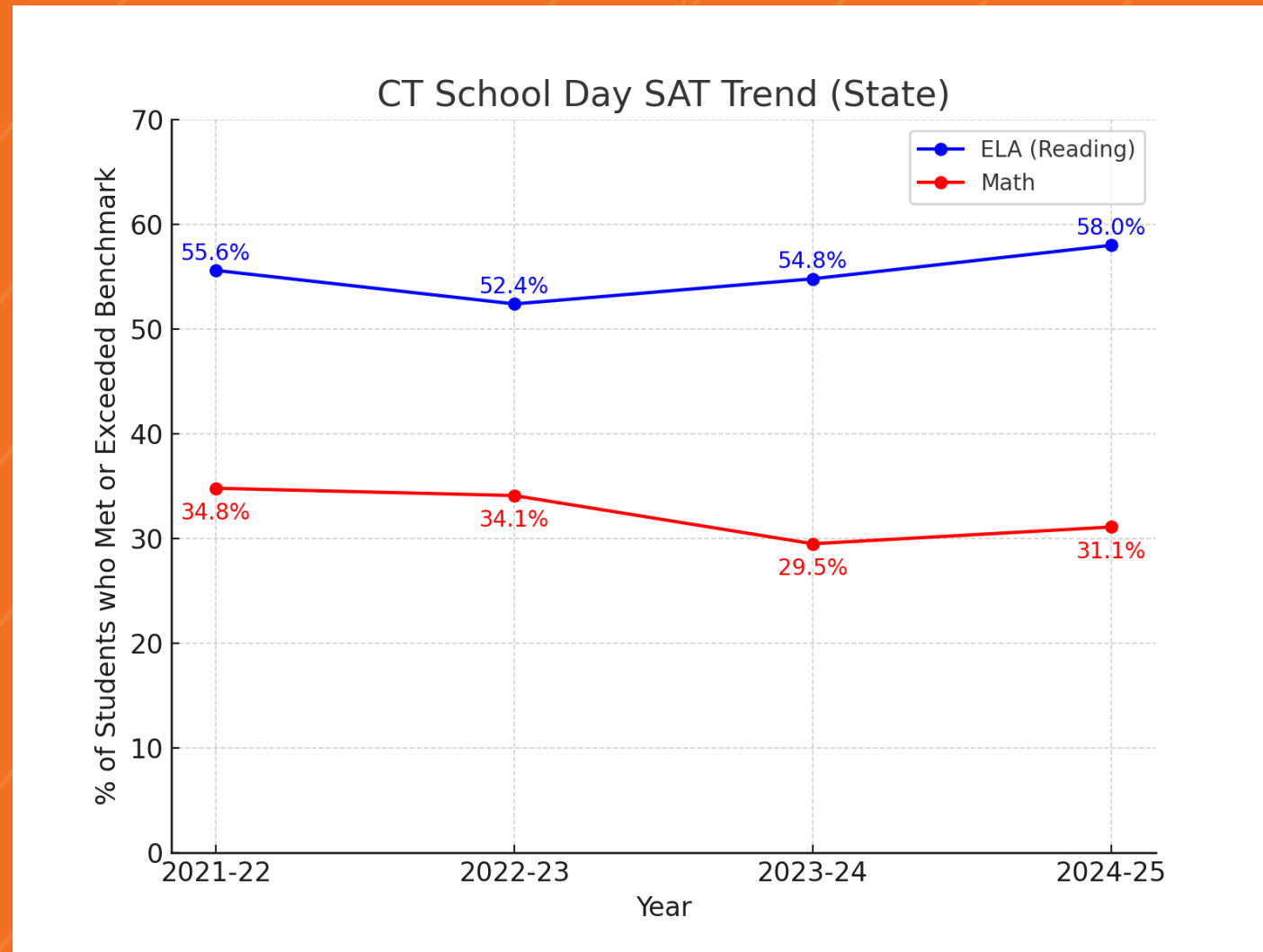
- Today's math still reflects 20th century priorities.
- The expectation do not serve all students.
- Student outcomes in CT reflect the disconnect.

**Only 22% of students
earning bachelor's
degrees pursue STEM
careers.**

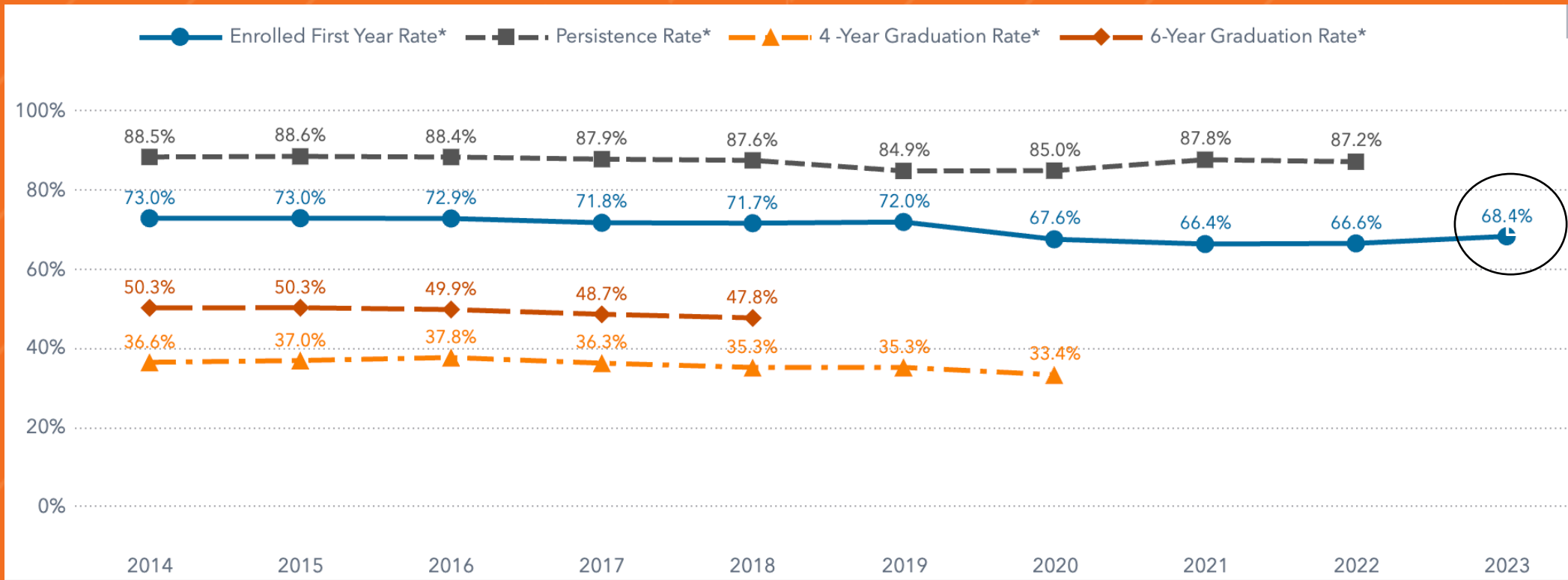
NCES Report in PD Playlist



CT Now: SAT Math Performance



CT Now: Post -Secondary



CT Now: State Math Requirements

High School Graduation Requirements

State law prescribes the minimum number of academic credits to be earned for high school graduation ([CGS § 10-221a](#)) as described in Table 3 below.

Table 3: High School Graduation Requirements

Subject	Number of Credits
Humanities	At least 9 credits, including civics and the arts
STEM (Science, Technology, Engineering, and Math)	At least 9 credits
Physical educational and wellness	At least 1 credit
Health and safety education	At least 1 credit
World languages	At least 1 credit
Mastery-based diploma assessment	1 credit
Total minimum credits required to graduate	25 credits





A National Movement

Connecticut is one of **28 states** participating in the **Launch Years Initiative**, a national effort led by the Dana Center at UT Austin to **modernize high school math** and its alignment to college and workforce needs. Other states are already leading this work:

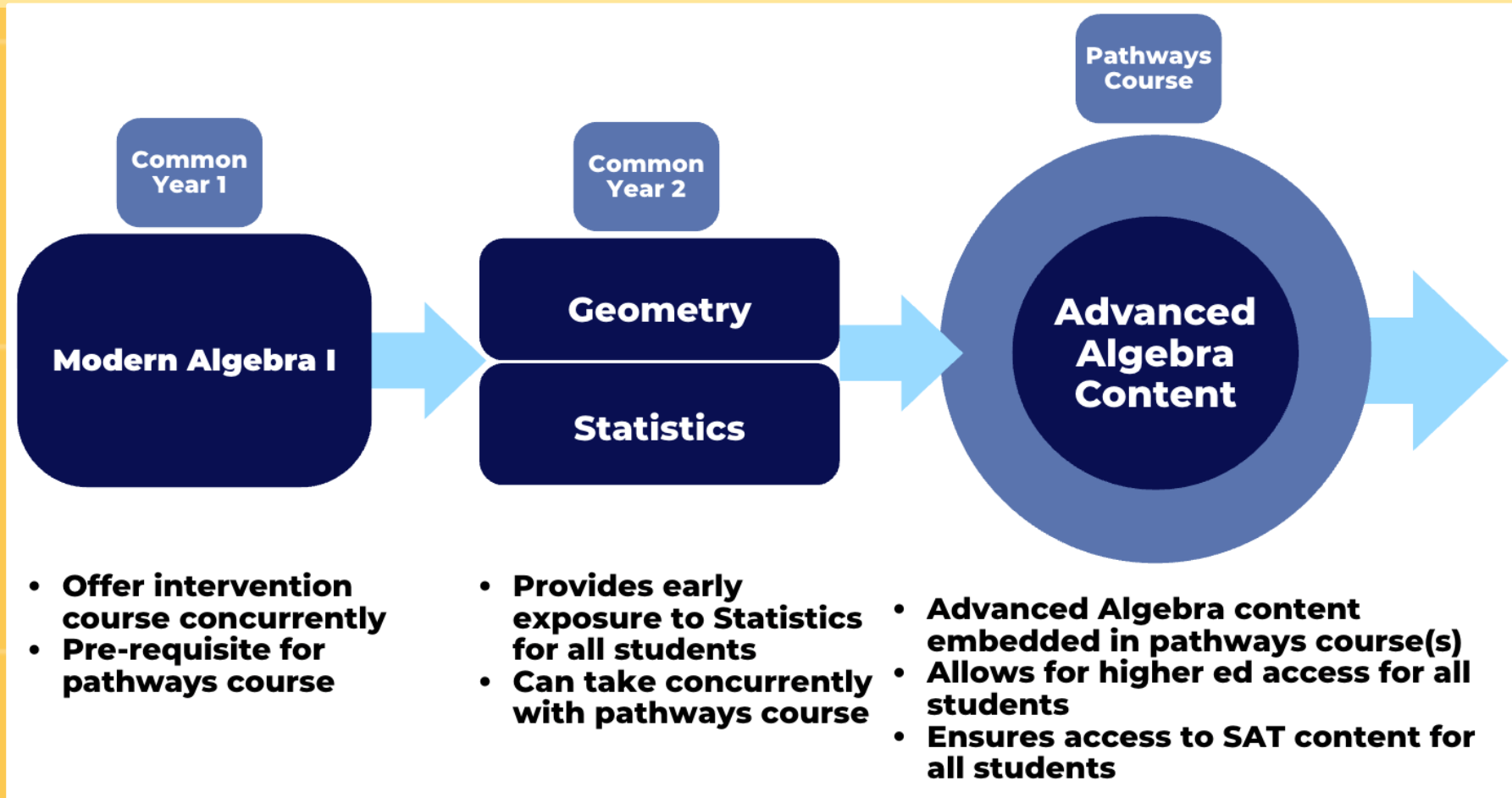
- **Rhode Island** revised its Algebra 2 course to focus on essential standards, align with actual college expectations, and reduce unnecessary content.
- **Oregon, Ohio, and Idaho** are also redefining Algebra 2 by removing outdated topics and emphasizing modeling, data, and reasoning.
- **Maryland** is transitioning to a 2 +1 Integrated Algebra approach and embedding essential Geometry concepts in each course.



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Our Vision for CT



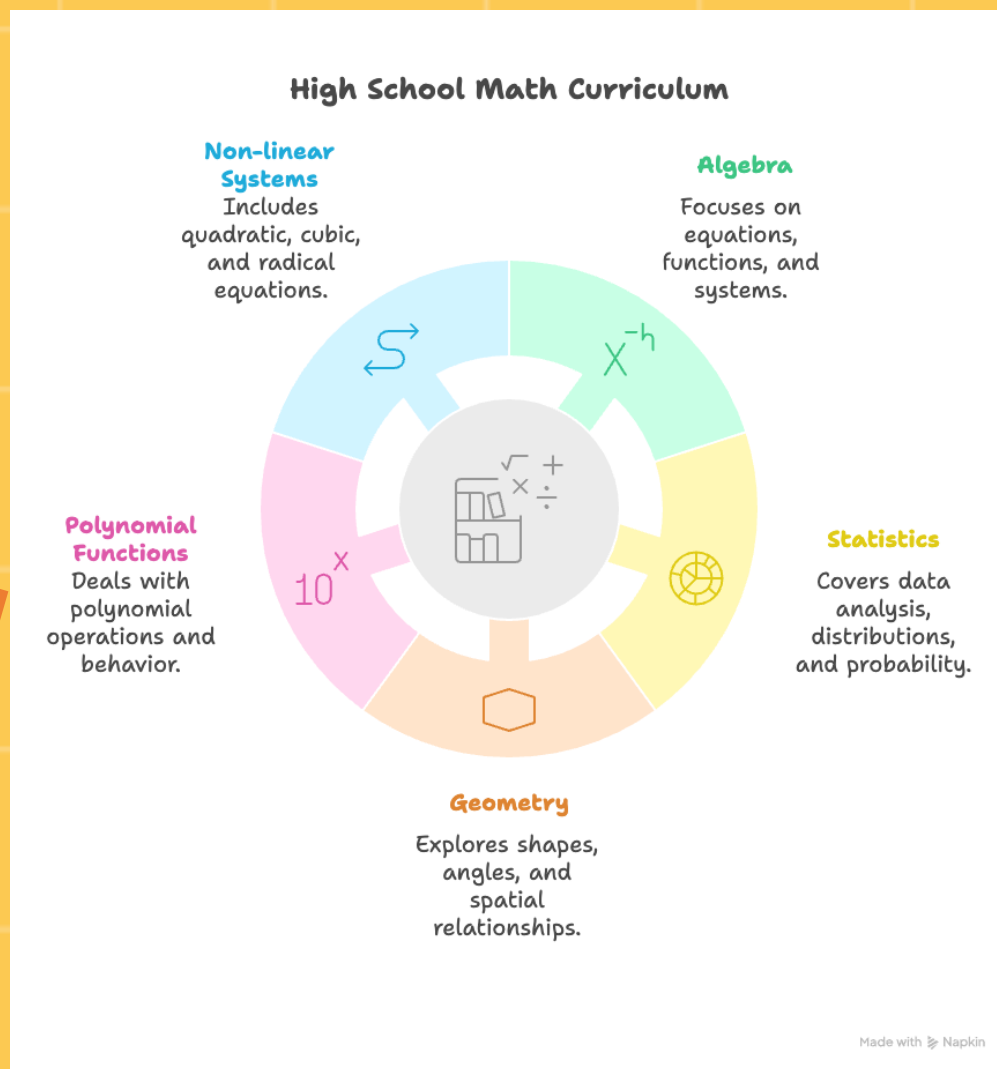
What does this look like?

[Link](#) to more
detailed description
of topics covered

Content removed from full
year Geometry may include:

- Proofs
- Circles

These topics can be moved to
other future elective math
courses.



Start Here

1 Semester of
Statistics for all
students.

- Early exposure to different types of math.
- Helpful for SAT's



High School Mathematics Concepts

Modern Algebra 1	Statistics	Geometry	Advanced SAT/ACT Math Content
<p>Functions</p> <ul style="list-style-type: none"> • Function Families • Domain/Range • Function Notation • Transformations <p>Linear Equations</p> <ul style="list-style-type: none"> • Multi-Step Solving • Point-Slope • Standard Form • Modeling with Systems • Regressions • Interpretation <p>Exponential Functions</p> <ul style="list-style-type: none"> • Growth/Decay • Understanding Graphs <p>Quadratic Functions</p> <ul style="list-style-type: none"> • Graphs • Solving (All ways) • Polynomial Operations • Systems 	<p><u>Statistics - Semester 1</u></p> <p>Statistics</p> <ul style="list-style-type: none"> • Mean, median, mode • Analysis of data representation • Box & whisker plots w/ 5 number summaries • Histograms • Normal Distribution • Z-scores <p>Probability</p> <ul style="list-style-type: none"> • Sample space • Basic probability • Visual representations - venn diagrams, tree diagrams, two-way tables • Conditional probability • Theoretical vs. Experimental Probability 	<p><u>Geometry - Semester 2</u></p> <p>Angle Relationships</p> <ul style="list-style-type: none"> • Points, lines, planes - not explicitly. notation incorporated into questions. • Segment addition • Complementary, supplementary, right angles, angle addition, angle bisectors, linear pairs, vertical angles • Classifying Triangles <p>Parallel Lines & Quadrilaterals</p> <ul style="list-style-type: none"> • Parallel lines cut by a transversal • Properties of quadrilaterals <p>Triangle Similarity & Right Triangles</p> <ul style="list-style-type: none"> • Dilation, Triangle Similarity "postulates" • Pythagorean theorem • Special Right Triangles • Right Triangle Trig <p>Volume</p> <ul style="list-style-type: none"> • Review area formulas • Basic Volume • Composite Volume • Some rotations 	<p>Polynomial Functions</p> <ul style="list-style-type: none"> • Zeroes, roots, multiplicity, end behavior • Composites <p>Non-linear Systems</p> <ul style="list-style-type: none"> • In addition to linear equations, include quadratic, cubic, & radical equations • Prioritize technology

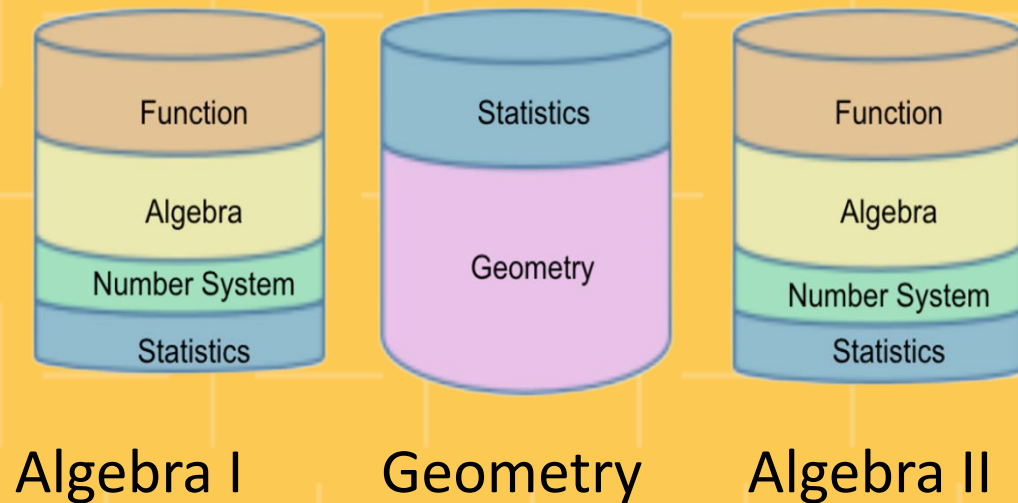
Each unit should include multiple representations - graphs, tables, and equations.

Each unit should support learning using current technology.

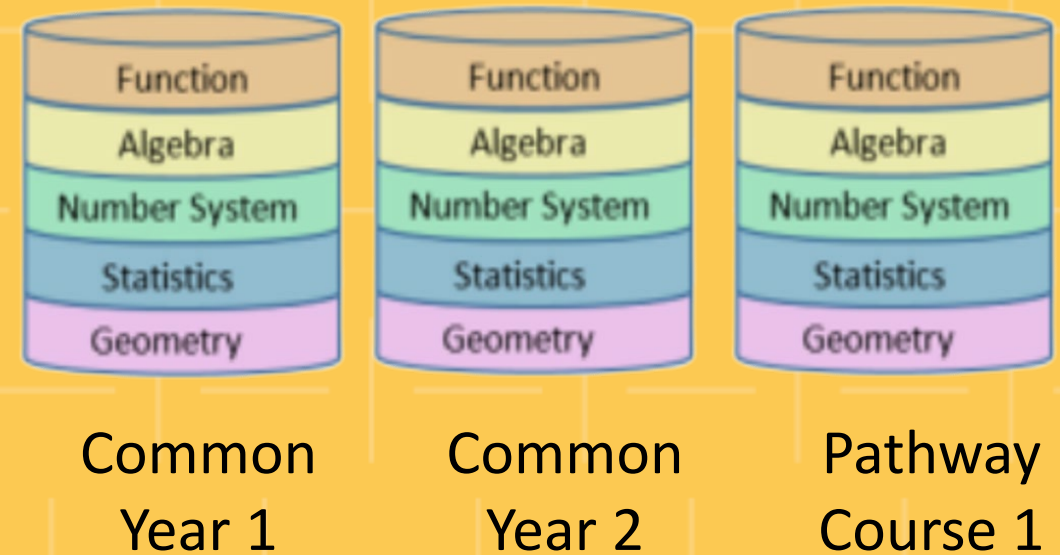


Multiple Possibilities

Traditional Distribution of Concepts



Integrated Approach



Example SAT Question

Question selected from the [College Board SAT Question Bank](#)

$$-x + y = -3.5$$

$$x + 3y = 9.5$$

If (x,y) satisfies the system of equations above, what is the value of y ?





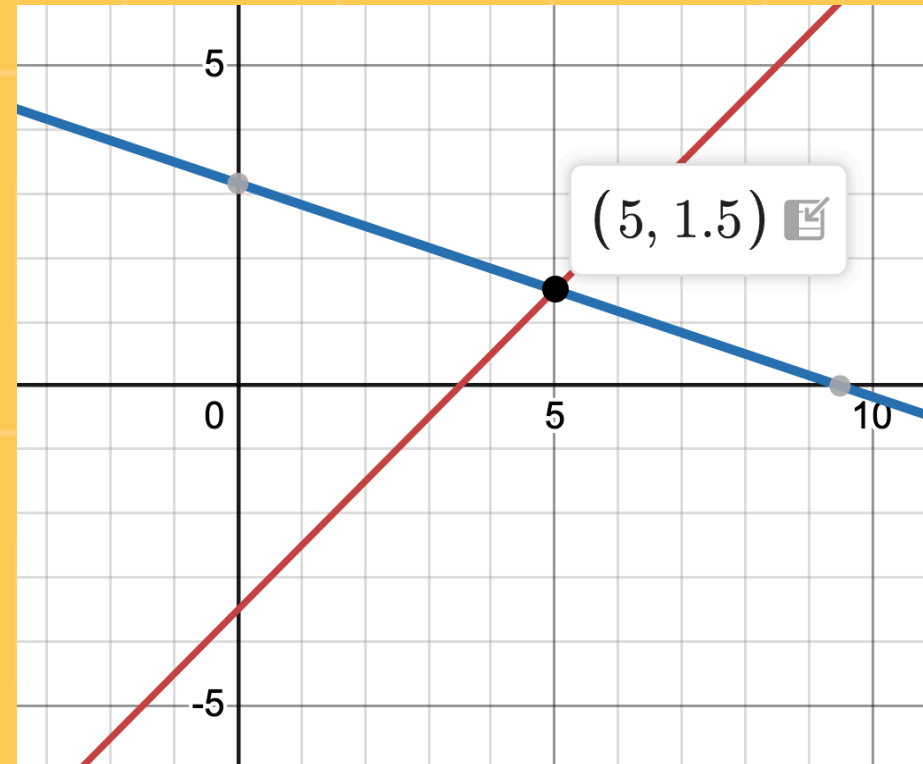
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Example SAT Question – Modern Solution

- Sat Question directly from SAT

1		$-x + y = -3.5$
2		$x + 3y = 9.5$



Example SAT Question – By-hand Solution

Step 1: Solve Equation (1) for x

From $-x + y = -3.5$:

$$\begin{aligned} -x &= -3.5 - y \\ x &= 3.5 + y \end{aligned}$$

Step 3: Solve for x

Use $x = 3.5 + y$:

$$x = 3.5 + 1.5 = 5$$

Step 2: Substitute into Equation (2)

Substitute $x = 3.5 + y$ into $x + 3y = 9.5$:

$$\begin{aligned} (3.5 + y) + 3y &= 9.5 \\ 3.5 + 4y &= 9.5 \end{aligned}$$

$$x = 5, \quad y = 1.5$$

Subtract 3.5 from both sides:

$$\begin{aligned} 4y &= 6 \\ y &= \frac{6}{4} = 1.5 \end{aligned}$$

Final Answer:



Exploring Next Steps

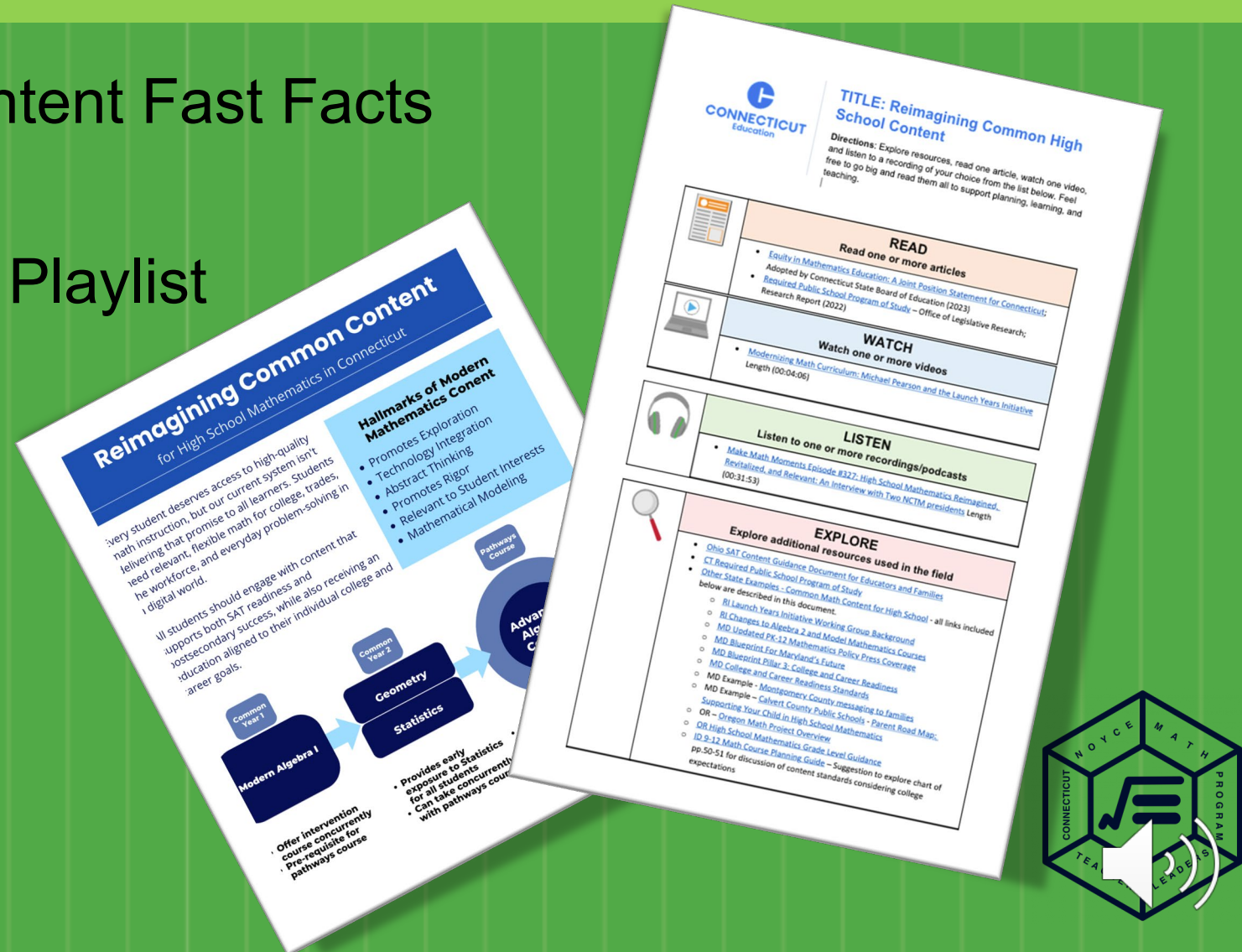
- How does your school's current math scope and sequence already support these recommendations?
- What challenges might your school face?
- How might your school(s) work to coordinate with local industry or institutions of higher education to identify mathematics content for your students after high school?



For More Information

Common High School Content Fast Facts

Common High School PD Playlist



The Next From Foundations to Futures: Series on Readiness, Access, and Alignment

A PD

