

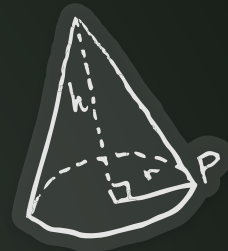
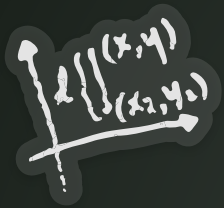
Updates on Mathematics in CVUSD

Dr. Jayna Suter

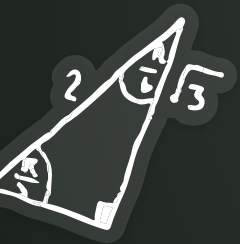
Assistant Director, Educational Technology & Student Performance

Ms. Kelsey Bartlett

Math Teacher on Special Assignment



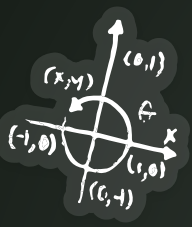
$$2ab + b^2$$



$$d, r, n-1$$

Objective

To provide the Conejo Valley Unified School District Board of Education with an update on the new CA Math Framework, actions taken, and next steps.



Handwritten text: $2x + 3y = 6$

Handwritten text: $(x+a)(x-a)$

$$\operatorname{sech}(z) = \sec(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \frac{z+1}{z-1}$$

$$\sum_{k=1}^{n-1} 2ab + b^2$$



Mathematical Mindsets

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

Focus on possibilities, not limitations. Don't
tell me why it won't work--show me how it
can work

New CA Math Framework: Key Takeaways

- Why a New Framework?
- Teaching Big Ideas
- Developing Number Sense
- Flexible Pathways
- Flexible Assessment

$$\frac{\sqrt{N^2 + (x_1 + x_2)^2}}{N}$$

$$(x+a)(x-a)$$



$$\tan(z) = -i \tan(i z)$$

$$\sec(z) = \frac{1}{\cos(z)}$$

$$\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}$$

$$(x+a)(x-a)$$

Why Do We Need a New Framework?



- US has long rated below the international average in Math
- Math instruction is not meeting the needs of all students



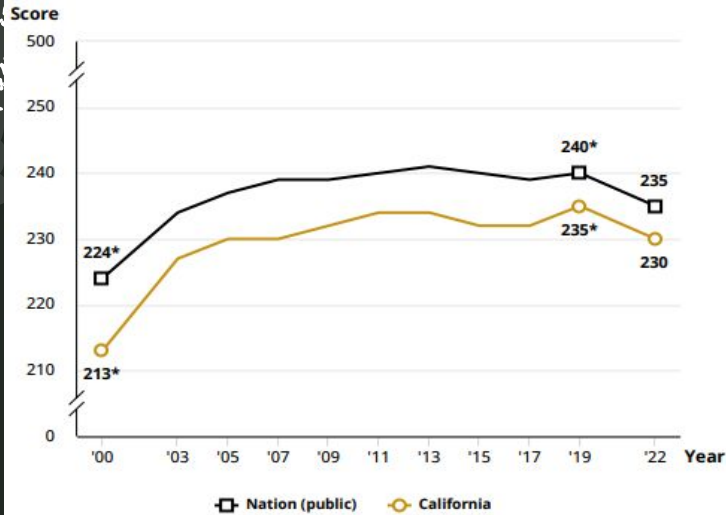
$$f(x) = 4x^2$$

Source: Programme for International Student Assessment (PISA)

Why Do We Need a New Framework?

Grade 4

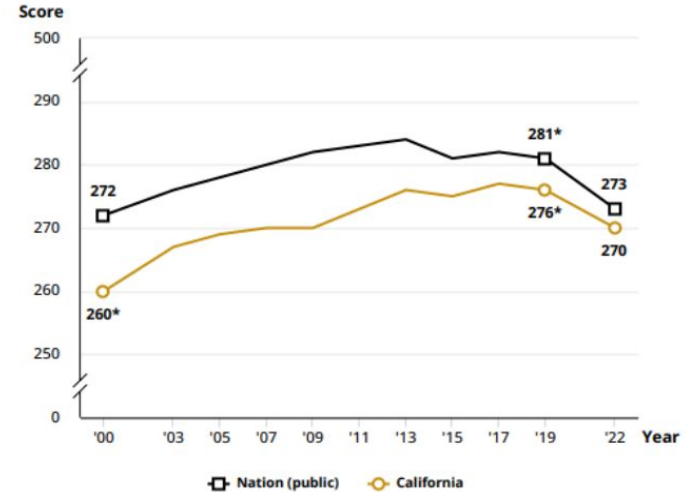
AVERAGE SCORES FOR STATE/JURISDICTION AND THE NATION (PUBLIC)



* Significantly different ($p < .05$) from 2022. Significance tests were performed using unrounded numbers.

Grade 8

AVERAGE SCORES FOR STATE/JURISDICTION AND THE NATION (PUBLIC)



* Significantly different ($p < .05$) from 2022. Significance tests were performed using unrounded numbers.

Source: National Assessment of Educational Progress (NAEP)

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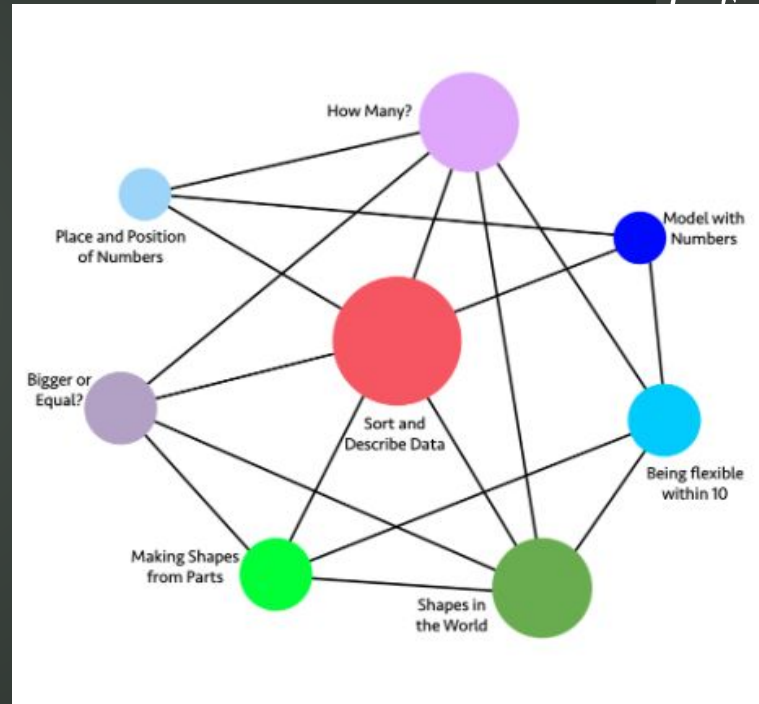
$$\binom{n}{1} r^{n-1} \quad 2ab + b^2$$



Teaching the Big Ideas

$$\frac{\frac{n}{2} - F}{F}$$

- Big ideas are considered connected to one another when they unfold two or more of the same standards
- A circle's size indicates the relative importance of the idea
- Big Ideas enable rigor, focus, and coherence across grade levels.



$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$a_1 r^{n-1} \quad 2ab + b^2$$



Developing Number Sense

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

“The operating definition of *number sense* for this chapter is a form of intuition that students develop about number (or quantity). As students increase their number sense, they can see relationships between numbers readily, think flexibly about numbers, and notice patterns that emerge as they work with numbers.” (Framework Ch 3 pg. 5)

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$a_1 r^{n-1} \quad 2ab + b^2$$



Flexible Assessment

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

“Allowing students to retake work sends an important growth-mindset message and encourages further learning. Just as career mathematicians constantly revise their work and conjectures, students should be allowed the same fluidity in their own learning process.”
(Framework Ch 12 pg. 50)

- Growth-mindset message
- Supports diverse learning needs and equitable outcomes
- Adaptable assessments aligned with instructional goals

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

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$$a_1 r^{n-1} \quad 2ab + b^2$$



Flexible Pathways

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

“Methods of teaching and coursework designs that can enable all students to be appropriately challenged and many more to reach advanced mathematics—without requiring that all students...be placed in inflexible course sequences that make it difficult for them to move between...pathways...the goal is to expand access to rigorous mathematics for all students, allowing each student to experience the joy and excitement of well taught mathematics in ways that stimulate their learning and engagement” (Framework Ch 9 pg. 1).

*Ed Code Section 51224.7, California Mathematics Placement Act of 2015,
CVUSD Board Policy BP 6152.1*

$$\frac{\sum_{i=1}^N (x_i + x_2)}{N}$$

$$(x+a)(x-a)$$



$$\tan^{-1} \left[\frac{y - p(x, y)}{x} \right] \tan^{-1}(z) = -i \tan^{-1}(iz)$$

$$\sec^{-1}(z) = \frac{1}{z} \left[\frac{z + \sqrt{z^2 - 1}}{z - \sqrt{z^2 - 1}} \right]$$

The Road So Far

- Data Conversations
- Interim Assessment Rollout
- Supplemental Resource Creation
- Best Practices
- Training for Teachers of Targeted Students (Elementary SAI/Resource Teachers)
- Framework Professional Learning (TK-2, 3-5, and 6-12)
- Math Vision for CVUSD
- Math Pathways Discussions

$$S^2 = \frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n}$$

$$(x+a)(x-a)$$

Making the Most of Math Training

- Training for Elementary SAI and Resource teachers
- Number sense games, estimation strategies, money games, fraction games, real-world application, math discourse.



*Q: Did the training meet your expectations?
Why or why not?*

**A: yes, it gave me tools/resources to
make life easier as a teacher.**

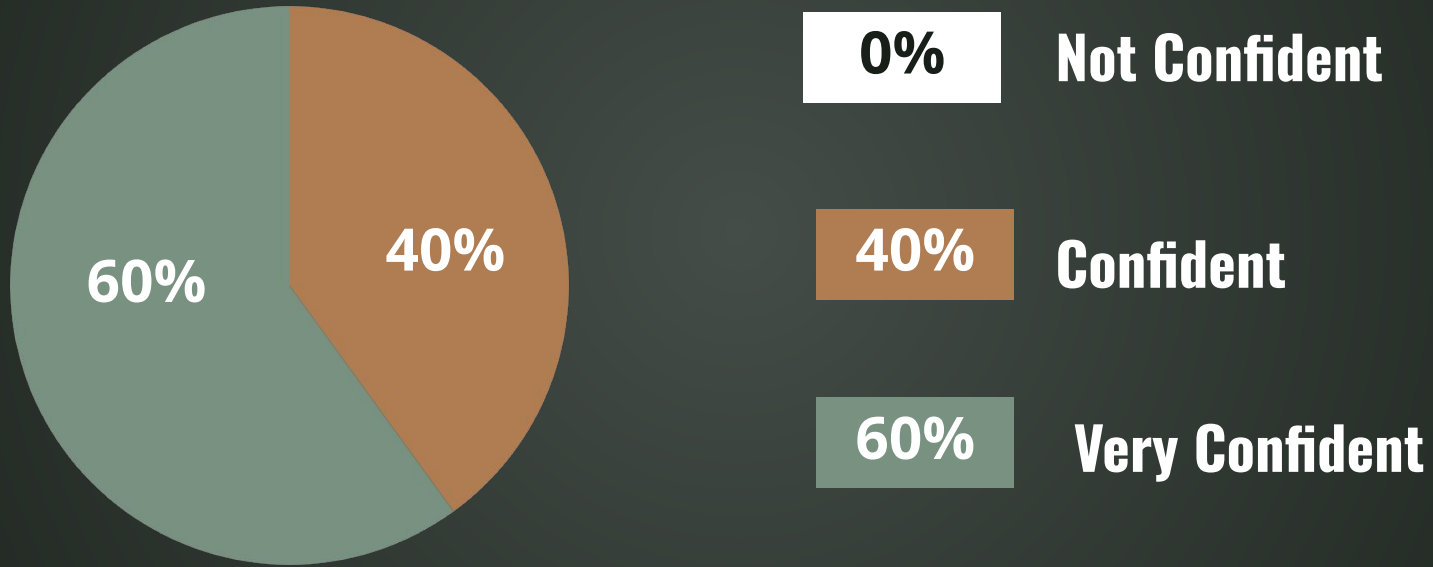


*Q: Did the training meet your expectations? Why
or why not?*

**A: Yes! The trainers are knowledgeable and
helpful. They make everything relatable
and user friendly.**



How Confident Do You Feel About Applying What You Learned In Your Classroom?



$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$\sum_{k=1}^{n-1} 2ab + b^2$$

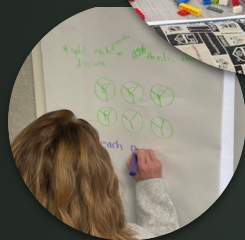


Math Framework Training TK-2

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$



"A lot of these ideas are simple enough to implement immediately. The shifts we need to make are small but mighty."



"[This training] exceeded my expectations because it modeled great strategies based on research."

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = 1/2 \ln((z+1)/(z-1))$$

$$a_1 r^{n-1} \quad 2ab + b^2$$



Math Framework Training 3-5

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$



"This has been one of the most engaging trainings I've been to in many years."

"I leave with so many great ideas to help my students dive deeper into their math thinking and hopefully create more positive, confident, brave mathematicians who are willing to take risks and grow."

"[This training] exceeded my expectations. I have been teaching for over 30 years and sometimes PDs are nothing new. This was the opposite, it strengthened me at the level I am at."

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = 1/2 \ln((z+1)/(z-1))$$

$$\sum_{k=1}^{n-1} 2ab + b^2$$



Math Framework Training 6-12

$$\left[\frac{\frac{n}{2} - f}{f} \right]$$



"The presenters were very knowledgeable and open to discussion."

"One key takeaway for me is to give students more time to play and say 'yes' to students' ideas."

"I got some good resources to use for engaging activities."

"I am looking forward to using more UDL tools that will help me implement action oriented feedback."

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$\binom{n}{1} r^{n-1} \quad 2ab + b^2$$



Math Vision Discussion

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

- Why does the Framework matter?
- CVUSD beliefs about Mathematics
- What Mathematics instruction looks like
- The path forward for CVUSD

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$a_1 r^{n-1} \quad 2ab + b^2$$



Math Vision Draft Excerpts

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

“High Expectations for All: Every student is capable of achieving deep and meaningful math learning, including Multilingual Learners and Students with Individualized Education Programs (IEPs).”

“Real-World Relevance: Mathematics learning must connect to authentic, real-world contexts of our diverse students that inspire curiosity, problem-solving, and engagement.”

$$\operatorname{sech}(z) = \sec(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$\binom{n}{r} r^{r-1} 2ab + b^2$$



Math Pathways Discussions

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

- Discussion occurring on re-imagining the CVUSD math pathways at the middle and high school levels to align with the new CA Math Framework.
- Considerations of increasing flexibility for students
- Focus on possibilities while considering the needs of the next level of math, CAASPP testing, etc.
- Review of data on student achievement in math coursework

$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

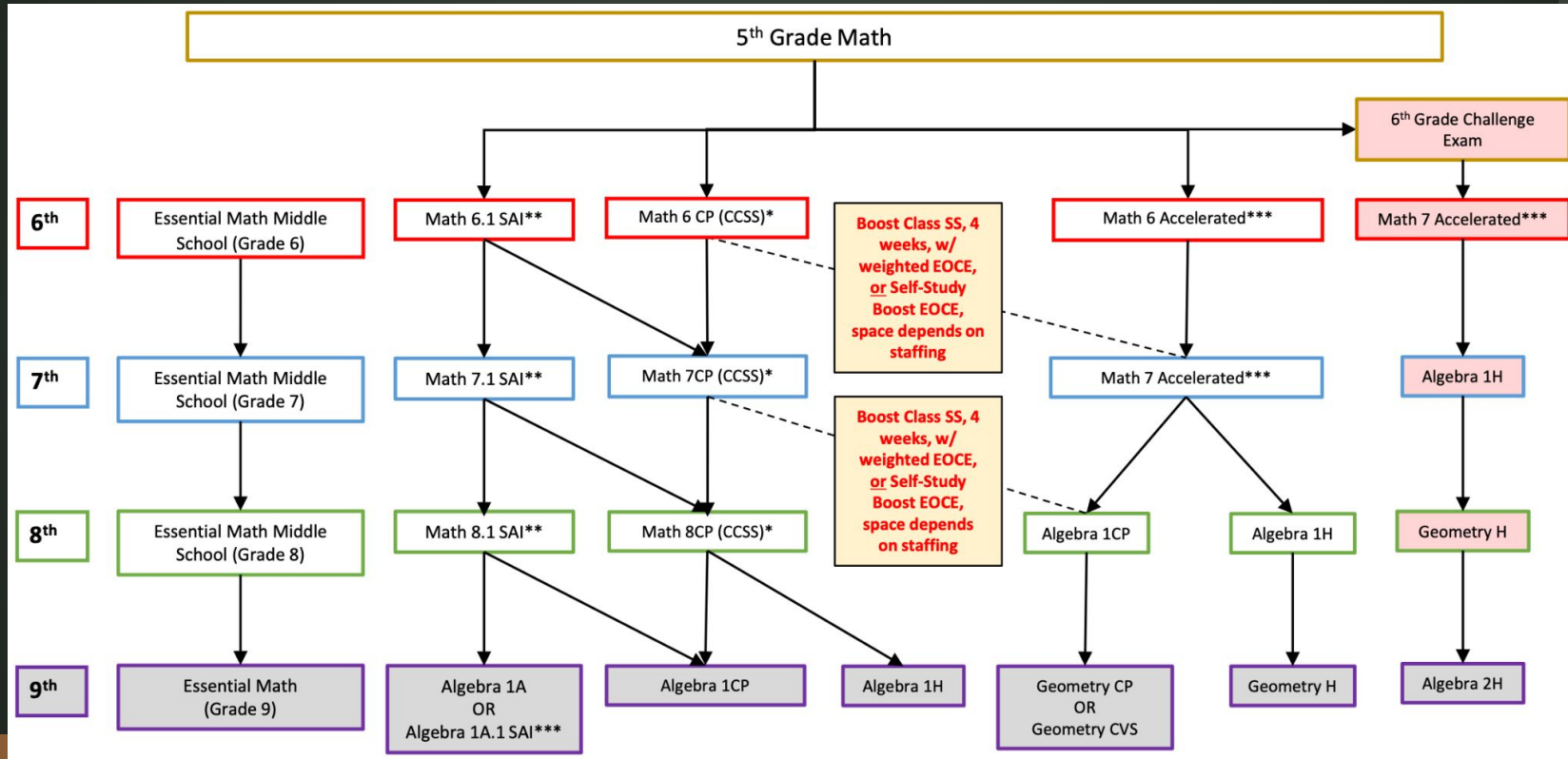
$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$a_1 r^{n-1} \quad 2ab + b^2$$



Current MS Pathway

$$\left[\frac{\frac{n}{2} - F}{F} \right]$$

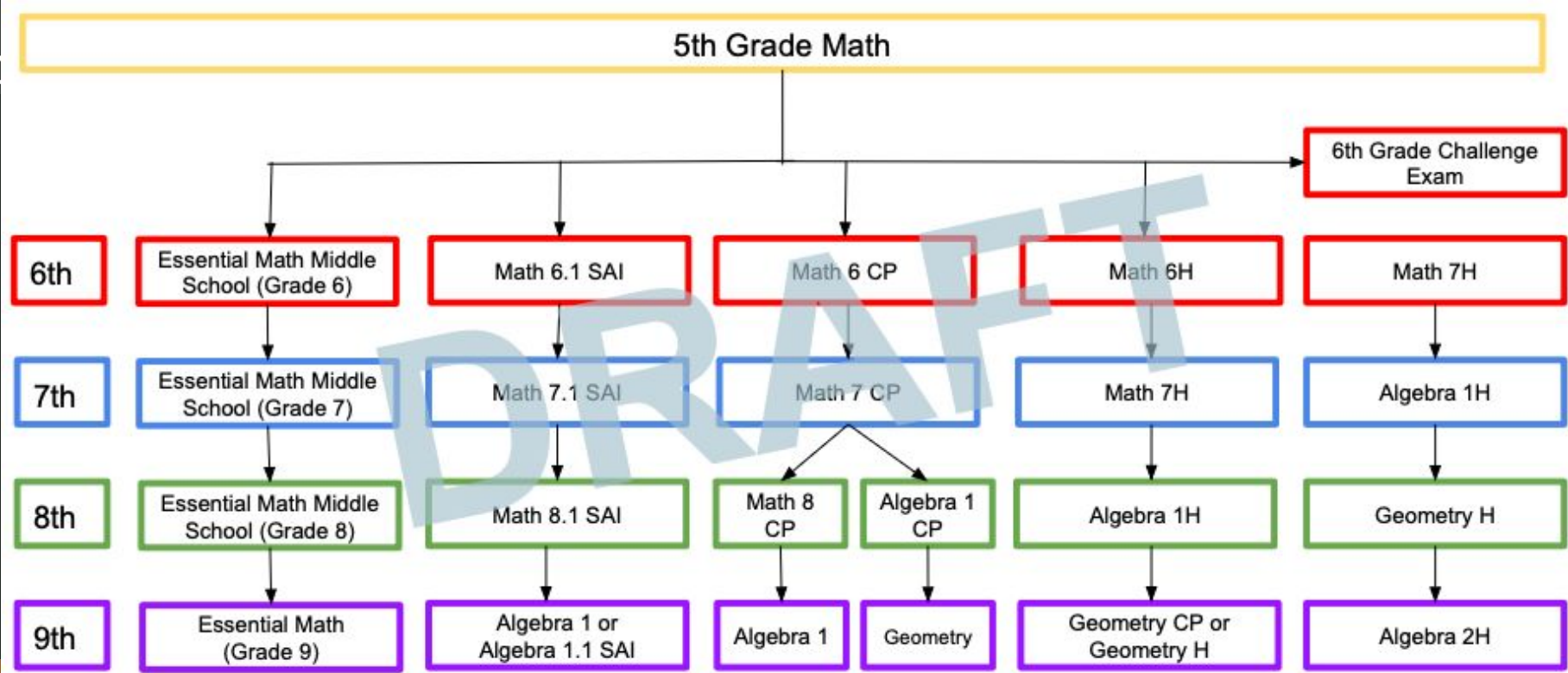


$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$a_1 r^{n-1} \quad 2ab + b^2$$

Draft New MS Pathway

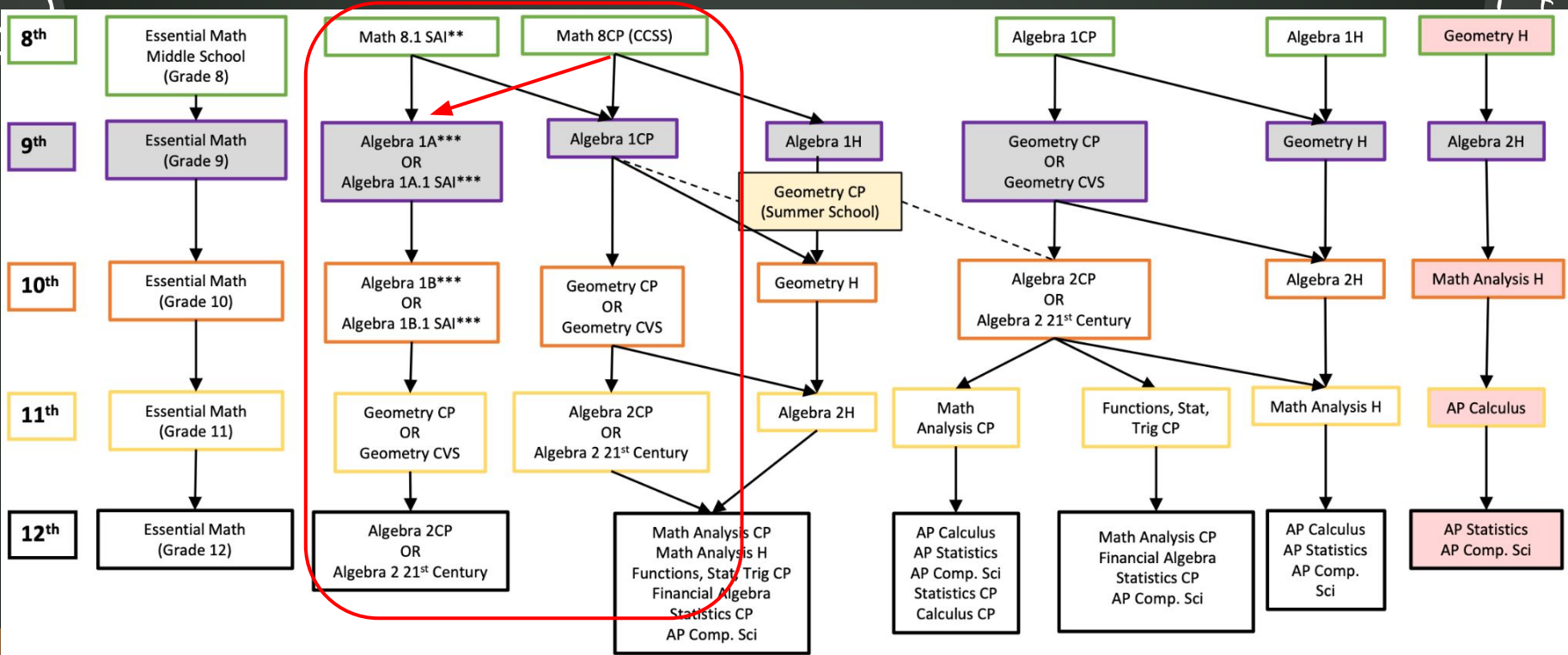


$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

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$$a_1 r^{n-1} \quad 2ab + b^2$$

Current HS Pathway

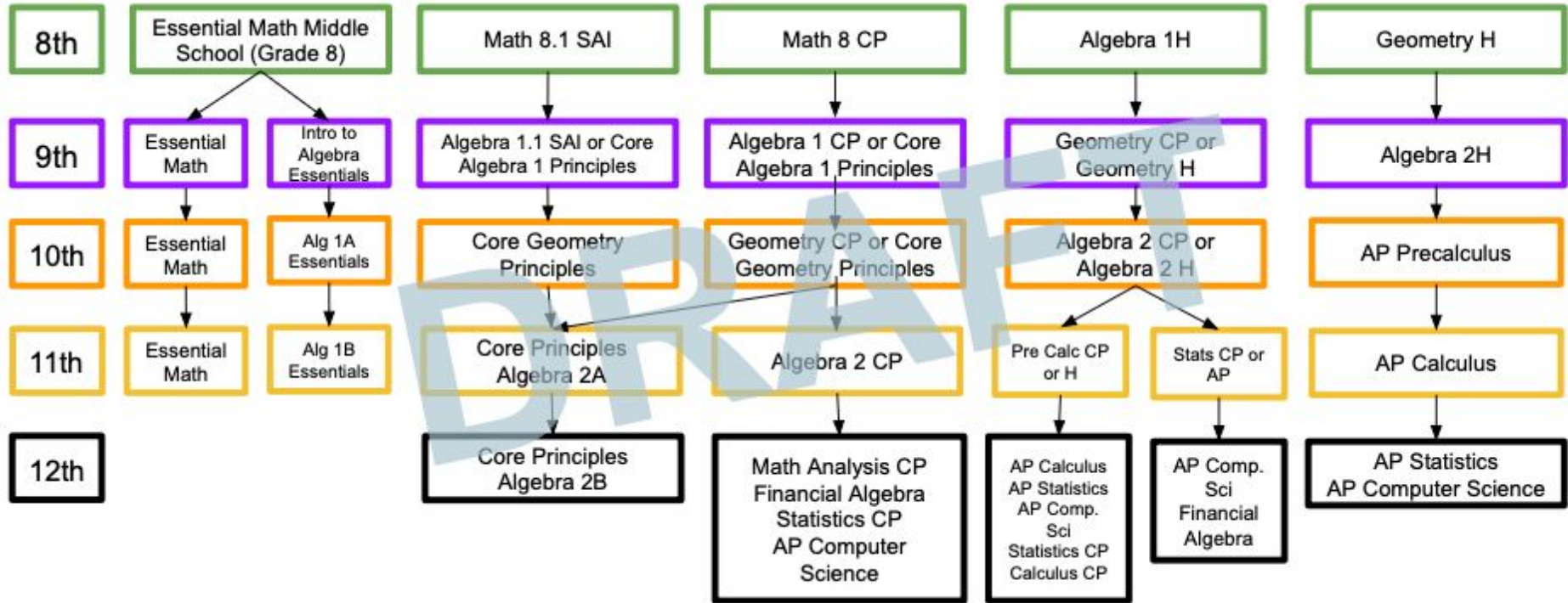


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$$\operatorname{arccoth}(z) = 1/2 \ln(z+1)/(z-1)$$

$$\sum_{i=1}^{n-1} 2ab + b^2$$

HS Pathway Discussion



$$\operatorname{sech}(z) = \operatorname{sec}(iz)$$

$$\operatorname{arccoth}(z) = \frac{1}{2} \ln \left(\frac{z+1}{z-1} \right)$$

$$a_1 r^{n-1} \quad 2ab + b^2$$

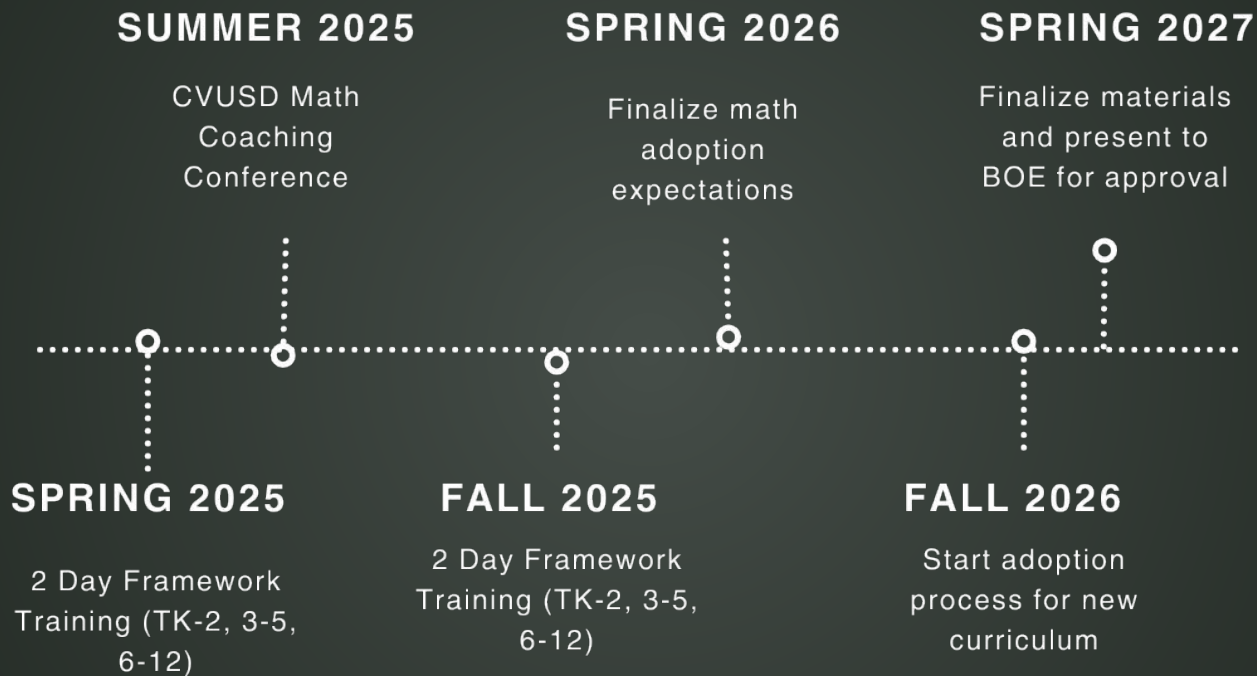
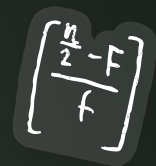


Next Steps

$$\left[\frac{\frac{n}{2} - F}{f} \right]$$

- Refine and finalize the Math Vision for CVUSD
- Continue work on secondary pathways
- Continue professional learning
- Begin identifying CVUSD teachers as math coaches, supported through a PLC
- Prepare for the teachers' math pilot
- Adopt new instructional materials and provide training

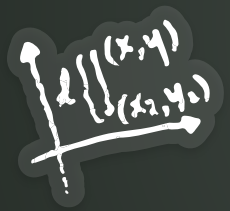
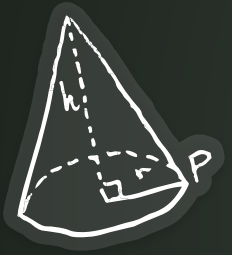
Timeline and Next Steps



Tentative Date for California List of Approved Materials



$d_{1, r, n-1}$



$$2ab + b^2$$

$$\exists x, y \in \mathbb{R} \text{ such that } \tanh(z) = -i \tan(iz)$$

Questions?