

# TK–5 Math Curriculum Adoption

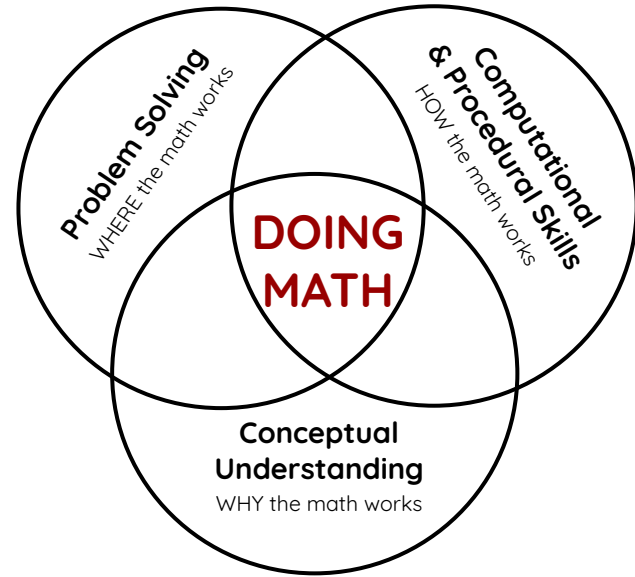


Rationale, Process,  
Recommendation, Overview,  
Supports, & Implementation

# RATIONALE

# WHY A NEW ADOPTION?

Prior to the pandemic, there was weak alignment around math instruction across grades and across schools. This leads to inconsistent student outcomes, especially for our students with the greatest needs.



# Recent Math Work

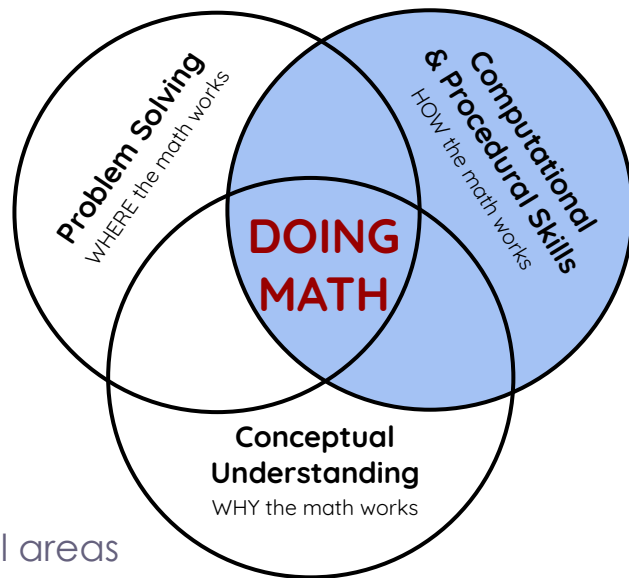
→ Math study in Curriculum Council  
2018-2020



Teachers spending significant time supplementing to build up other critical areas

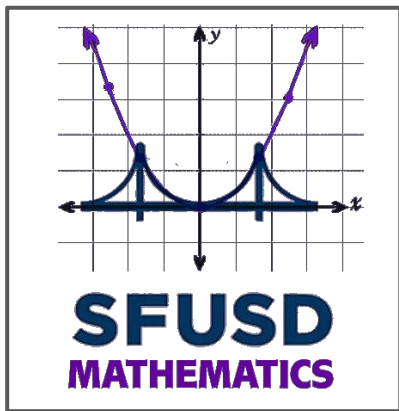


Lack of consistency in quality and type of additional instruction



# Recent Math Work

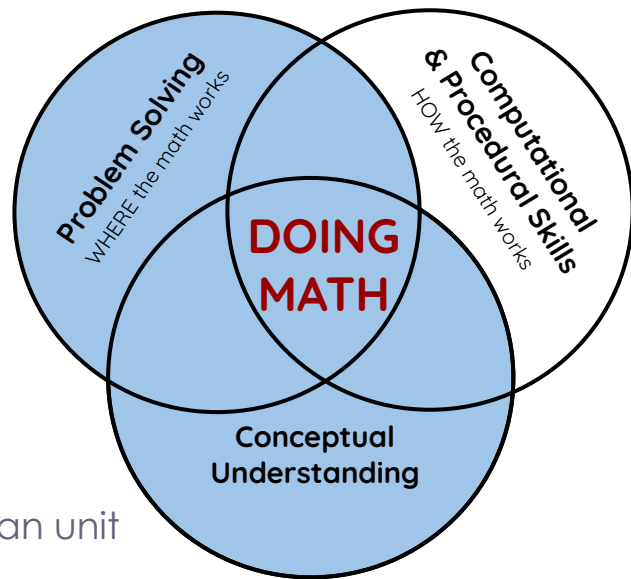
→ Math cohorts of teachers  
2019-2021



Teacher cohorts meet monthly to plan unit and discuss data based outcomes



Teachers easily supplement procedural practice



# Pandemic Response to K-5 Math Instruction

Need for alignment around one math curriculum

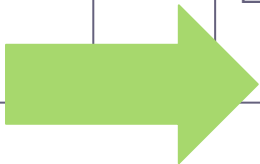
- ❑ Develop common learning plans
- ❑ Centrally printed materials for distribution

Wanted easy access to resources, materials, and lessons

Very few teachers wanted to align around EnVision

Selected to align around SFUSD math

Curriculum **adapted** for virtual learning and to support asynchronous days





Looking forward to next year, do we stay with currently adopted EnVision math curriculum or formally adopt SFUSD curriculum?

- Alignment is critical
- 2021 Revision of the Mathematics Framework
- Updated curriculum to follow

# CURRICULUM OVERVIEW



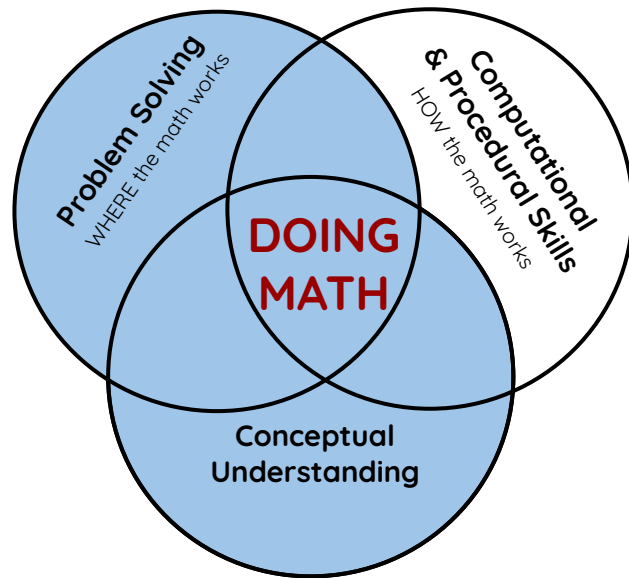
# Why SFUSD Math

Strong curriculum

Developed in partnership with math experts

Engaging for students

Loaded with real world tasks and application



## Curriculum

Grapple with complex and interesting mathematical tasks

Move from concrete modeling to abstract representations of mathematical situations

Work collaboratively to problem solve

Construct viable arguments and critique the reasoning of others

## Unit Design

**Entry Task:** *What do you already know?*

**Apprentice Task:** *What sense are you making of what you are learning?*

**Expert Task:** *How can you apply what you have learned so far to a new situation?*

**Milestone Task:** *Did you learn what was expected of you from this unit?*



## Lesson Design

**MATH TALK**

**PROBLEM-SOLVING TASK**

LAUNCH

EXPLORE

SUMMARIZE

**SPIRALED HOMEWORK**

LEARNING  
STATIONS

# Critical Supports for Teachers



## Third Grade Family Letter Unit 8: Fractions

### Progression of Mathematical Ideas

Prior Supporting Mathematics	Current Essential Mathematics	Future Mathematics
<p>Since Kindergarten, students have been decomposing and recomposing numbers and developing an understanding that this does not change their value.</p> <p>In Grade 1, students developed mental fluency with addition within 10. They developed an understanding that addition is commutative - i.e. that the order in which you add two (or more) addends doesn't affect their sum.</p> <p>Students build their understanding of addition by using base-10 blocks, hundred charts, and open number lines to support their reasoning and development of a variety of strategies for addition.</p> <p>They solve Add To-Result Unknown and Put Together-Total Unknown problems in a variety of contexts, including money and length measurement.</p>	<p>In this unit, students build their understanding of addition with place value, working toward end-of-year fluency with paper-and-pencil addition within 100.</p> <p>They use base-10 blocks, hundred charts, and open number lines to support their reasoning and development of a variety of strategies for addition.</p> <p>They solve Add To-Result Unknown and Put Together-Total Unknown problems in a variety of contexts, including money and length measurement.</p>	<p>Later in Grade 2, students will work with subtraction within 100 in take apart, result unknown and compare, unknown difference addition and encounter both addition and subtraction situations where the change or start is unknown, and they will solve two-step word problems that may include addition and subtraction.</p> <p>Students will extend their place value understanding to 1000, and build on their strategies for adding and subtracting within 100 to add and subtract within 1000.</p> <p>On a number line, every mark represents a number. The number <math>\frac{1}{4}</math> is shown here with an arrow.</p>

ers between the whole numbers. For example, the number  $\frac{1}{2}$  :  
h part of a shape that has been cut into 2 equal pieces.  
exactly halfway between 0 and 1  
re of objects divided into 2 groups  
d in 4<sup>th</sup> grade and beyond  
s build on work they did in seco  
gies to understand, show, ar

**Learning Stations to continue from Unit 2.0 & 2.1.** See those units for necessary resources.

**Learning Stations from Unit 2.0**

#### Addition Clash

**Objective:** To review adding within 20 to build fluency

- Students practice addition within 20.
- See Unit 2.0 Day 2 for details of play.



#### Cross Out

**Objective:** To add and subtract within 20 to build fluency in a strategy game

- Students practice addition and subtraction



**Learning Stations from Unit 2.1**

#### Equal Groups and Repeated Addition

**Objective:** To divide objects into equal groups and write repeated addition equations for them

##### Directions:

- Students try to put a handful of equal groups and record an addition equation.

##### Variations:

- Students...

#### Notes

- Base-10 blocks are more abstract than linking cubes. It may not be obvious that there are 10 little cubes in one rod.
- Students may confuse the ones and tens digits.

**Vocabulary:** ones, tens, rods, cubes, place value

#### Universal Support

- Continue to emphasize that 10 cubes is equal to 1 rod.
- 2nd graders should continue to have access to **both linking cubes and base-10 blocks** as they develop their understanding of this important abstraction.
- Offer a [Place Value Recording Sheet](#) to students who would struggle unduly with making their own representation.

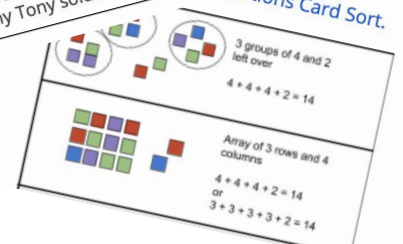
##### Sentence Frames:

There are \_\_\_ tens and \_\_\_ ones.  
There are \_\_\_ altogether.

#### Extension

Have students consider the problem as a division situation or a multiplicative comparison and write an expression for it. For example, if Trey's best friend Tony sold three more tickets, he would have sold twice as many tickets as Trey. Can you write an expression that shows how many Tony sold?

#### Extensions





What is the story about?

markers  
boxes  
Mr. Wood

quantities	units
84	markers in all
10	markers for each box

Math question

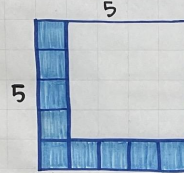
How many boxes does he need?

# area

## THE AMOUNT OF SPACE



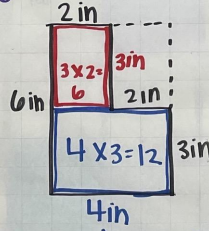
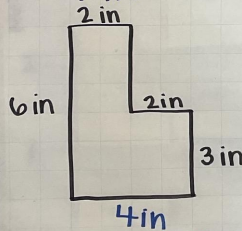
- ① Cover shape with tiles (sq in)
  - ② Count tiles
- 25 square inches



- ① count rows
- ② count columns
- ③ MULTIPLY!

$$5 \times 5 = 25 \text{ in}^2$$

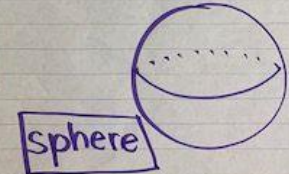
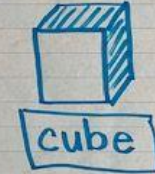
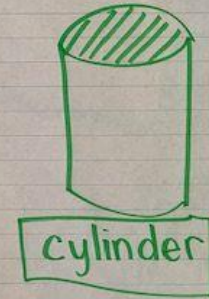
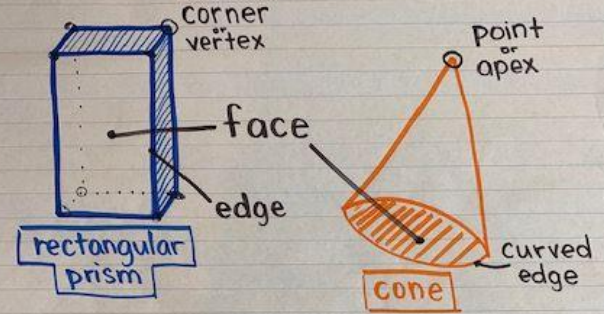
## → AREA OF COMPOSITE



$$\begin{array}{rcl} \text{Area 1} & + & \text{Area 2} = \text{Total} \\ 6 & + & 12 = 18 \text{ sq in} \end{array}$$

Embedded Language  
Supports and Signature  
Strategies

## Attributes of 3-D Shapes



# PROCESS

\*Pursuant to California *Education Code (EC)* Section 60210, a school district may utilize instructional materials not adopted by the SBE, so long as the **materials are aligned to state standards** and a **majority of the participants of any review process conducted by the district are classroom teachers** who are assigned to the subject area or grade level of the materials being reviewed.

# About the Process

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>❑ Consultation with Math Cohort pilot teachers<br/><b>Nov/Dec 2020</b></li><li>❑ Presentation to Curriculum Council on process<br/><b>1/28/21</b></li><li>❑ Grade level meetings for broad teacher input<br/><b>February 2021</b></li><li>❑ Evaluation of curriculum by pilot teachers using specified criteria <b>March 2021</b><ul style="list-style-type: none"><li>● Aligned to CA Common Core standards</li><li>● Consideration for teaching special populations</li><li>● Student engagement and rigor</li><li>● Family engagement</li></ul></li></ul> | <ul style="list-style-type: none"><li>❑ Evaluation of both curricula by parent members of Curriculum Council <b>March 2021</b></li><li>❑ Math cohort teachers pilot procedural practice tools and assessments <b>March/April 2021</b></li><li>❑ Curriculum Council receives update on teacher feedback <b>3/10/21</b></li><li>❑ Parent portal for input is released <b>April 2021</b></li><li>❑ Curriculum Council reviews parent input and makes recommendation <b>5/5/21</b></li></ul> |
|--|--|

# Teacher Feedback

*"I'm fully in support of adoption! I believe I share the same suggestions as many others: additional support for computational practice would be a great addition."*

*-4th grade teacher*

*"I think the SFUSD curriculum really challenged my students to be able to explain their mathematical thinking. In class, I was excited to hear so many students using academic vocabulary and using it in their journal responses as well. Additionally, students enjoyed the tasks and found them to be engaging."*

*-2nd grade teacher*





# Parent Input



*"I have been pleased with the SFUSD math curriculum that my children have used in virtual learning this year. When learning at home, I've spent a good deal of time working with these units for both my 4th grader and 1st grader. I think the concrete examples of math in the "real world" have really helped my 4th grader access the material and get past the barrier of "I don't like math." The challenging area for both kids is to explain their mathematical thinking in words - I think using this curriculum with their teacher and fellow students in the classroom will help them master this skill. I also appreciate the "spiral" homework approach. While my students don't like doing something they "already know," I think it is vitally important for them to keep their skills fresh and current from unit to unit."*

*"The SFUSD math curriculum lacks rigor and depth and should NOT be adopted by LASD. It focuses primarily on low level thinking. It is overly focused on teaching via visuals, drawings/diagrams, number lines, and manipulatives. Although use of such aids is generally helpful, it is even over done for lower grades. For 3rd grade and up, it is excessive. It dedicates insufficient time and provides inadequate problems to practice math skills on a variety of pure math problems."*

# Common themes (parents)...

- LASD should provide more differentiation or level classes starting earlier
- Virtual experience less than ideal - too much reading
- Clarity around use of Freckle - needs for additional practice and/or homework
- Support for the adoption and acknowledgement that it leads to deeper thinking in math

# Challenges

- ❑ Families may have an incomplete picture of the SFUSD curriculum because the pandemic limited ability to implement with fidelity
- ❑ The latest research in math instruction is at odds with the beliefs around math from some in our parent community
- ❑ No curriculum exists that has it all - SFUSD needs supplemental work in procedural practice

# Summary of Input

- ❑ We've met with every grade level group to discuss question of whether to align around SFUSD or around Envision: SFUSD
- ❑ Teachers who have implemented curriculum in person feel confident in efficacy
- ❑ Parent input mostly positive
- ❑ LASD should be mindful of differentiating curriculum

# RECOMMENDATION

The Curriculum Council voted 16-1 to  
recommend the SFUSD curriculum to the Board

13 teachers - 13 YES votes

4 parents - 3 yes votes and 1 no vote



# SUPPORTS

To address the challenges, the Council wanted to ensure that we brought forward a comprehensive plan. Details of a supplemental toolkit follow.

# The Whole Package

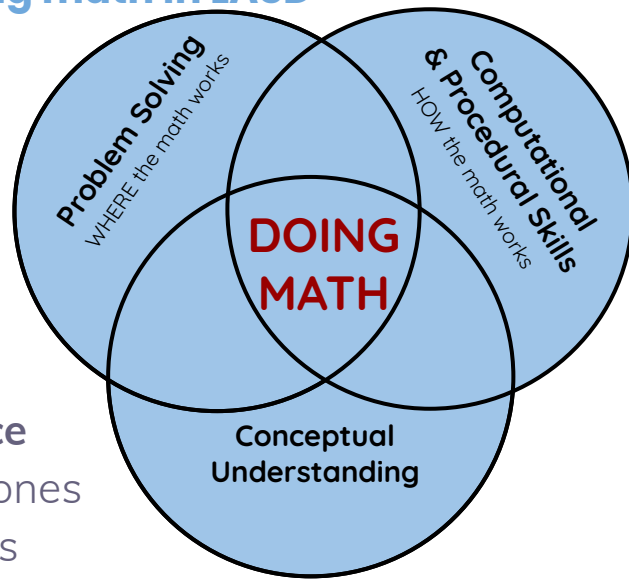
High quality curriculum + a supplemental toolkit for teaching math in LASD

Recommendation to  
adopt SFUSD TK-5 Math  
Curriculum



Supplemental toolkit includes a **district-wide procedural practice tool** and a **fluency toolkit** that hones in on **key procedural skills** across grade levels.

**Freckle**, a free online practice tool, is the tool our cohort teachers recommend. ISTs are creating short, grade level common assessments.



Freckle  
Education

Target standards-based skills with dynamic  
practice and assessments

 common sense education™

# LASD Fluency Toolkit

## TYPES OF FLUENCY RUNNING RECORDS

Formative Check In (above):

4 x 5 = \_\_ Check one: \_\_\_\_ I used this strategy: \_\_\_\_

\_\_\_\_ I just knew

6 x 2 = \_\_ Check one: \_\_\_\_ I used this strategy: \_\_\_\_

\_\_\_\_ I just knew

5 x 3 = \_\_ Check one: \_\_\_\_ I used this strategy: \_\_\_\_

\_\_\_\_ I just knew

2 x 9 = \_\_ Check one: \_\_\_\_ I used this strategy: \_\_\_\_

\_\_\_\_ I just knew

1 x 8 = \_\_ Check one: \_\_\_\_ I used this strategy: \_\_\_\_

\_\_\_\_ I just knew

Journal Prompt:

If your friend didn't know the answer to 5x4, how could he figure it

## SUPPORTS FOR FLUENCY RUNNING RECORDS

Questions to assess **fluency**

- What does \_\_ x \_\_ mean?
- What is the answer to \_\_ x \_\_?
- How did you find the answer to \_\_ x \_\_?
- Could you find it another way?
- If your friend was having trouble remembering this fact, what strategy might you suggest to him or her?

Questions to assess **flexibility** and **strategy selection**

- What is 4 x 7?
- How could you use 2 x 7 to solve 4 x 7?

Questions to assess use of **appropriate strategy**

- What is \_\_ x \_\_
- What strategy did you use?

**Codes**

R= Recall

A= Automatic (3 seconds)

M10= Make 10

Student Name		x1			x2			x3		
Sarah	x	1	2	3	1	2	3	1	2	3
Jill	MCA									
Laura	R/A									
	ND									

ie time  
e it ou  
cumen

4 x 5 = __	6 x 2 = __	5 x 3 = __
2 x 9 = __	1 x 8 = __	Create your own



# Math Readiness

- ❑ Students will be well prepared for junior high school math courses and beyond
- ❑ Return to LASD course pathways for next year:
  - ❑ CC7, CC7/8, Algebra
  - ❑ CC8, Algebra, Geometry Honors

# IMPLEMENTATION PLANS

In anticipation of adoption, plans are being developed to ensure a thoughtful, effective, and responsive implementation

## Professional Learning to Support SFUSD Math Implementation

PRINCIPALS	COACHES	TK-5 TEACHERS
<p><b>Principal Summer Launch</b>  <i>August 11</i>  Principals prepare to lead the implementation of SFUSD curriculum at their sites. (SVMI)</p> <p><b>Teacher Summer Launch</b>  <i>August 12 &amp; 13</i>  Principals attend and participate as if they were teachers. (SVMI/LASD)</p> <p><b>Facilitated Walkthroughs</b>  <i>September-May</i>  Monthly-ish structured classroom walkthroughs in triads using critical friends protocol. (SVMI)</p>	<p><b>Spring 2X-Weekly Math Learning</b>  Coaches learn about math workshop, SFUSD math, and math ideas progression from grade to grade. (LASD/SVMI)</p> <p><b>Spring Classroom Adoption</b>  Coaches adopt a classroom to partner with a teacher to teach and learn together about math workshop and the SFUSD math curriculum. Create video content for internal PD and summer launch. (LASD)</p> <p><b>Prepare for 2021-22 PD</b>  Familiarize with curriculum and math ideas from assigned grade levels. (LASD/SVMI)</p>	<p><b>Teacher Summer Launch</b>  <i>August 12 (3-5) &amp; August 13 (TK-2)</i>  Teachers learn about signature strategies and prepare for the first unit. (SVMI/LASD)</p> <p><b>Just-in-Time Times</b>  <i>Approx 2 weeks before each unit begins</i>  Optional grade-level meetings to prepare for <a href="#">upcoming math units</a>. (LASD)</p> <p><b>September PD Day</b>  <i>September 24</i>  (SVMI/LASD)</p> <p><b>January PD Day</b>  <i>January 18</i>  (LASD)</p>

# Tonight

- ❏ Information for the Board - Discussion
- ❏ Next week: Public Hearing and Action

CREDITS: Special thanks to all the people who made and released these awesome resources for free:

- Presentation template by [SlidesCarnival](#)
- Photographs by [Unsplash](#)
- Illustrations by [Undraw.co](#)