## Welcome to our Spotlight Series

- Write your child/children's grade level in the chat. Escriba el nivel de grado de su hijo o hijos en el chat.
- What are you hoping to learn about in this session? Share in the chat.
¿Qué esperas aprender en esta sesión? Comparte en el chat.




## Recording/Grabación



## Spotlight Series \#3

Understanding Essential Math Standards and Ways to Support at Home

## Who are we? ¿Quiénes somos?



## Outcomes/Resultados

- Explain Math Essential Standards for each grade level
- Define Fact Fluency
- Explore ways to support your student at home

Parking Lot


## Sense Making



What do you notice?
"I see $\qquad$ ."

Sense Making


## Framework for Instruction

## Process Goals

## Content Strands

Standards of
Learning (SOL)

## Mathematical Process Goals for Students

- Mathematical Problem Solving
- Mathematical Communication
- Mathematical Reasoning
- Mathematical Connections
- Mathematical Representation



## Content Strands

- Number and Number Sense
- Computation and Estimation
- Measurement and Geometry
- Probability and Statistics
- Patterns, Functions, and Algebra




## Big Idea for Each Grade Level

| Kindergarten <br> - Understanding numbers by counting | 1st grade <br> - Understanding addition and subtraction for basic facts up to 10 | 2nd grade <br> - Understanding of place value concepts for two digit numbers to add and subtract | 3rd grade <br> - Apply place value understanding to add, subtract, multiply and divide |
| :---: | :---: | :---: | :---: |
| 4th grade <br> - Apply place value understanding to make connections between whole numbers, decimals and fractions | 5th grade <br> - Develop fluency between fractions and decimals in order to add, subtract, multiply and divide | 6th grade <br> - Understanding of the connection among ratios, fractions, decimals, and percents |  |

## New math standards

- New standards were approved in 2023
- Strong emphasis on process goals
- Students may see test item questions on this years SOL
- Fully implemented next year in the 2024-2025 school year
- More information to come


## Reflection

- Questions?
- Comments.
- Aha moments!


## Ways to Support at Home

## Part 1: <br> Supporting Fact Fluency

## What does fact fluency mean?



## Efficiency

The ability to produce answers relatively quickly and easily.

The ability to select and a apply a strategy that is appropriate for solving the given problem efficiently.


Flexibility
The ability to think about a problem in more than one way and to adapt or adjust thinking if necessary.

## Accupate

The ability to produce mathematically precise answers.

0

# The coppect answer may not be the whole story. 



## Student A

On a Fact Fluency Assessment answered 10/10 coprectly.

When asked how they solved 10-3, they showed how they counted down using their fingers.

## Student B

On a Fact Fluency Assessment answered 10/10 corpectly.

When asked how they solved 10-3, they said I know $7+3=10$, so $I$ used that to help me..

## Fluency Develops in Three hases

Phase 1: Counting
Counts with objects op mentally
Phase 2: Depiving op Reasoning Stpategies
Uses strategies based on known facts

Phase 3: Quick Recall op Mastery Efficiently produces answers

## The coppect answep may not be the whole story.



## Student A

On a Fact Fluency Assessment answered 10/10 corpectly.

When asked how they solved 10-3, they showed how they counted down using their fingers.

## Counting Phase

## Student B

On a Fact Fluency Assessment answered 10/10 coprectly.

When asked how they solved 10-3, they said I know $7+3=10$, so $I$ used that to help me..

## Memopization

When we ask students to memorize basic facts, we are asking them to commit the results of unrelated facts to memory so that thinking through a computation is unnecessary.

## VS

## From Memory

Automaticity of a strategy may appear to be memorization, but in fact if asked how they know, students may share a strategy that demonstrates flexible thinking.

## Fact Fluency Road Map

## Kindergarten

 subtract within 10.

3rd Grade
Fluently multiply and divide with foundational facts: 0's, 1's, 2's,
(3) 1,6 6th Grade

Apply knowledge of fact fluency to fraction decimal and integer
4th Grade
Fluently multiply and
divide with derived fact strategies within 100.

5th Grade
Apply knowledge of fact fluency to fraction and decimal computation.

## Fact Fluency with a deck of cards

## Kindergarten, 1st, and 2nd grade

- Pull a card from the deck and ask your child, "What number goes with $\qquad$ to make $\qquad$ (5,
10, or 20)
- Encourage your child to write an addition and/or subtraction sentence to represent the problem


## 3rd grade

- Pull out a 2 from the deck. Have students practice flipping over a card and multiplying it by 2 . Students can use the images on the card to help support their thinking. Continue with 5 s and 10s.
- Students can write down their multiplication sentences or use the deck of cards to create multiplication and division sentences.


## Fact Fluency with a deck of cards

## 4th grade



- Turn two cards over and have students multiply the cards together. All face cards will be worth 10.
- Students can practice writing both the multiplication and the division sentences.


## 5th grade

- Students turn over 4 cards and create their own two fractions. Students then practice adding or subtracting the fractions. Encourage students to try and make the biggest or smallest sum (difference)
- Students practice writing the addition/subtraction sentence


## 6th grade

- Practice integer operations by having all red cards represent a negative number and black cards are positive numbers. Turn over two cards and practice adding, subtracting, or multiplying.
- Students practice writing the equation that matches the cards


## Other ways to support mathematical thinking at home

- Count anything and everything!
- Count forward and backwards
- Skip count
- Count by fractions (baking)
- Count by decimals (coins/money)

» Detailed Forecast
Detailed Forecast
» Get Yahool Weather on your desktop
- Games
- Board games (1-1 correspondence)
- Dice (dot patterns)
- Card games (fact fluency, comparing and ordering numbers)
- Look for numbers in real life
- Speed limit signs
- Temperature
- Store prices
- Building/street numbers
- Telling time



# Literacy and Math Connection 



Again, Essie? By: Jenny Lacika


Dirt Cheap By: Mark Hoffman


How Old is Mr. Tortoise? By: Devorah Petty


Emmy Noether: The Most Important Mathematician You've Never Heard Of By: Helaine Becker


One Million Trees By: Kristen Balouch


Seven Golden Rings By: Rajani LaRocca


The Blunders: A Counting Catastrophe! By: Christina Soontornvat


## Literacy and Math Connection

Questions to Support Deep Mathematical Thinking:
$\star$ How are they the same? How are they different?
$\star$ Which has more? Which has fewer? How much more/less?
$\star$ How many ways can you make $\qquad$ ? (insert any number)

How many $\qquad$ do you see? How did you count them?
$\star$ What do you notice about $\qquad$ ?
$\star$ Can you show me how you know $\qquad$ ?
$\star$ Can you think of another way to represent your thinking?

## Questions?Preguntas?

## Upcoming Topics and Months

- Literacy: How does this look at school and at home
- February 21
- Family Math Night (Pi Day Celebration)
- March 14th
- Data Collection: Understanding your students' yearly growth
- April (Date TBD)
- Alfabetización: ¿Cómo se ve esto en la escuela y en el hogar?
- 21 de Febrero
- Noche de matemáticas en familia (celebración del Día de Pi)
- 14 de marzo
- Recopilación de datos: Comprender el crecimiento anual de sus estudiantes
- Abril (Fecha por determinar)



## Feedback

Please let us know your thoughts about tonight's session

## What the question?

- Structure to support problem solving

Carlos has 25 Pokemon cards...


