



Welcome to **Zeno Essentials**





Love



$$y = \sin x$$
$$S = a^2 = \frac{d^2}{2}$$

$$(a+b)(a-b) = a^2 - b^2$$

$$A = F_s$$
$$Q = qm$$

$$F = mg$$

$$6 \pm \sqrt{10}$$

MATH IS A LIFE SKILL.

GARDENING

MAKING ART

**DEBATING
SPORTS**

DANCING

BAKING

**TIME
MANAGEMENT**

**DECORATING
YOUR HOME**

SEWING

COOKING

**EVENT
PLANNING**

**SHOPPING &
BARGAIN
HUNTING**

DRIVING

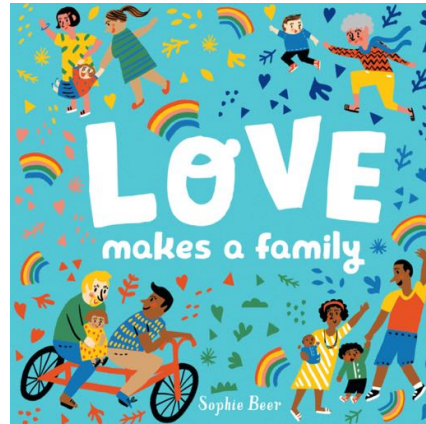
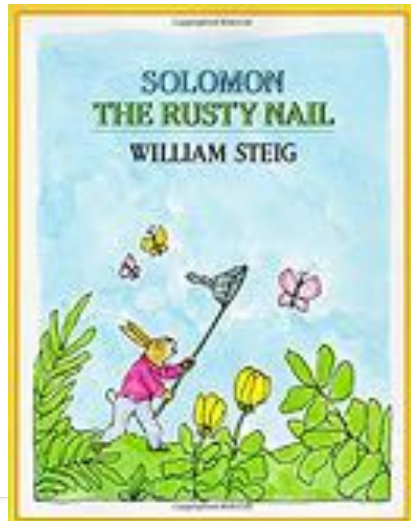
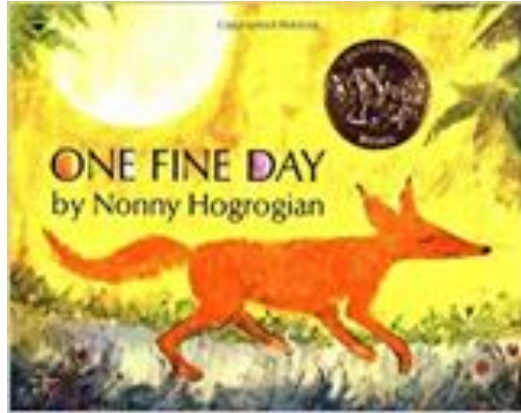
**TALKING ON
THE PHONE**

BANKING

TRAVELING

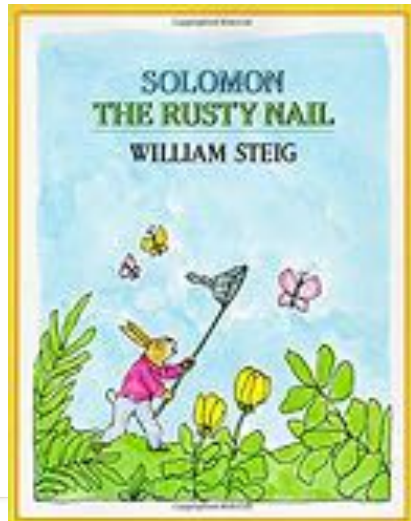
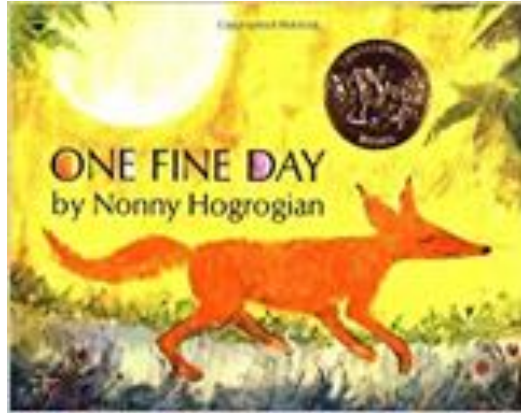
**BUILDING
FURNITURE**

Warm Up: Four Corners



Take turns sharing how the title of the book cover you chose relates to your early experiences learning math.

Warm Up: Four Corners



Take turns sharing how the title of the book cover you chose relates to your early experiences learning math.

**LOVE OF MATH
STARTS WITH
CONFIDENCE**



**Zeno's
Equation
for Success**



**Start
Early**



**Make it
Fun**



**Include
Families**



**Work
Through
Partners**

Remembering Our Parents

Fold a sheet of paper into thirds and then draw a picture or share a story in response to the prompt.

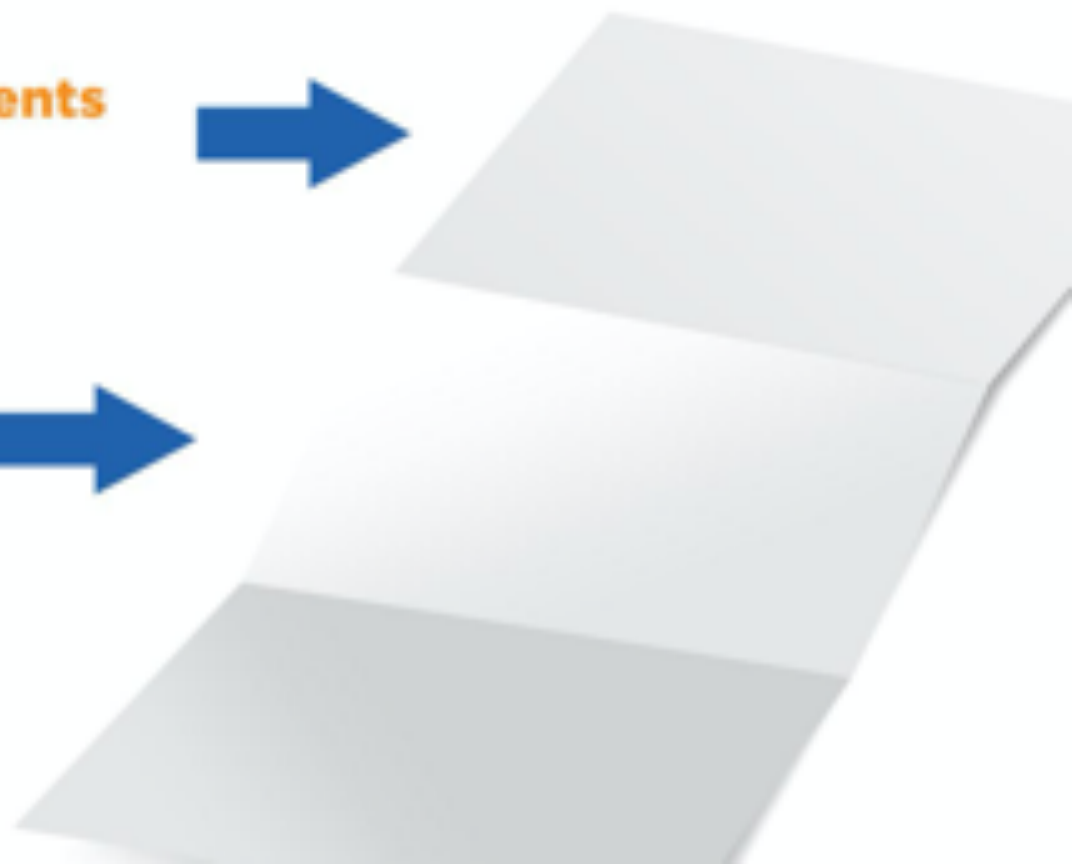
Remember a time your parents taught you something.




Remember a time your parents advocated for you or protected you.



How did these experiences make you feel?





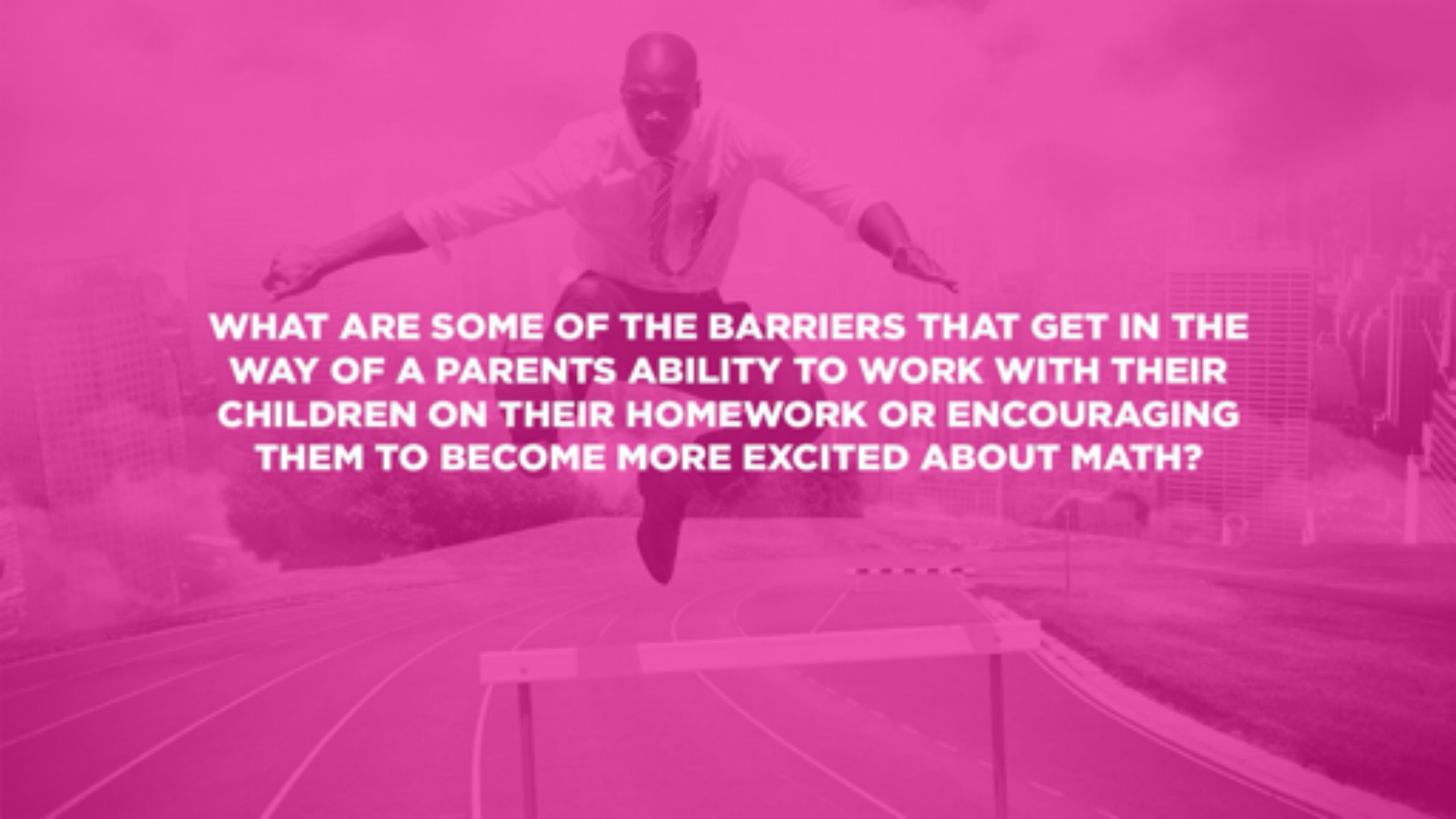
A photograph of a woman and two children sitting at a table, looking at a book. The woman is in the center, looking down at the book. To her left is a young girl, also looking at the book. To her right is a young boy, looking at the book with a smile. The entire image is overlaid with a semi-transparent green filter. The text "What do parents bring to the table?" is written in white, bold, sans-serif font across the lower half of the image.

**What do parents
bring to the table?**

A woman with long dark hair is sitting at a table, reading a book to two children. On the left, a young girl with dark hair is looking down at the book. On the right, a young boy with dark hair is looking up at the woman and smiling. The woman is also smiling and looking at the book. The background is blurred, showing what appears to be a library or a quiet reading area. The entire image has a green tint.

**An Invaluable
Resource!**



A man in a white shirt and tie is captured mid-jump over a hurdle on a running track. He is leaning forward with his arms outstretched, clearing the hurdle. The background shows a city skyline with several tall buildings under a clear sky. The entire image has a magenta/pink color overlay.

WHAT ARE SOME OF THE BARRIERS THAT GET IN THE WAY OF A PARENTS ABILITY TO WORK WITH THEIR CHILDREN ON THEIR HOMEWORK OR ENCOURAGING THEM TO BECOME MORE EXCITED ABOUT MATH?

**PERCENT OF 4TH GRADERS
MEETING MATH STANDARDS**

34% AFRICAN AMERICAN
27% - NATIVE AMERICAN
37% - LATINX



WASHINGTON

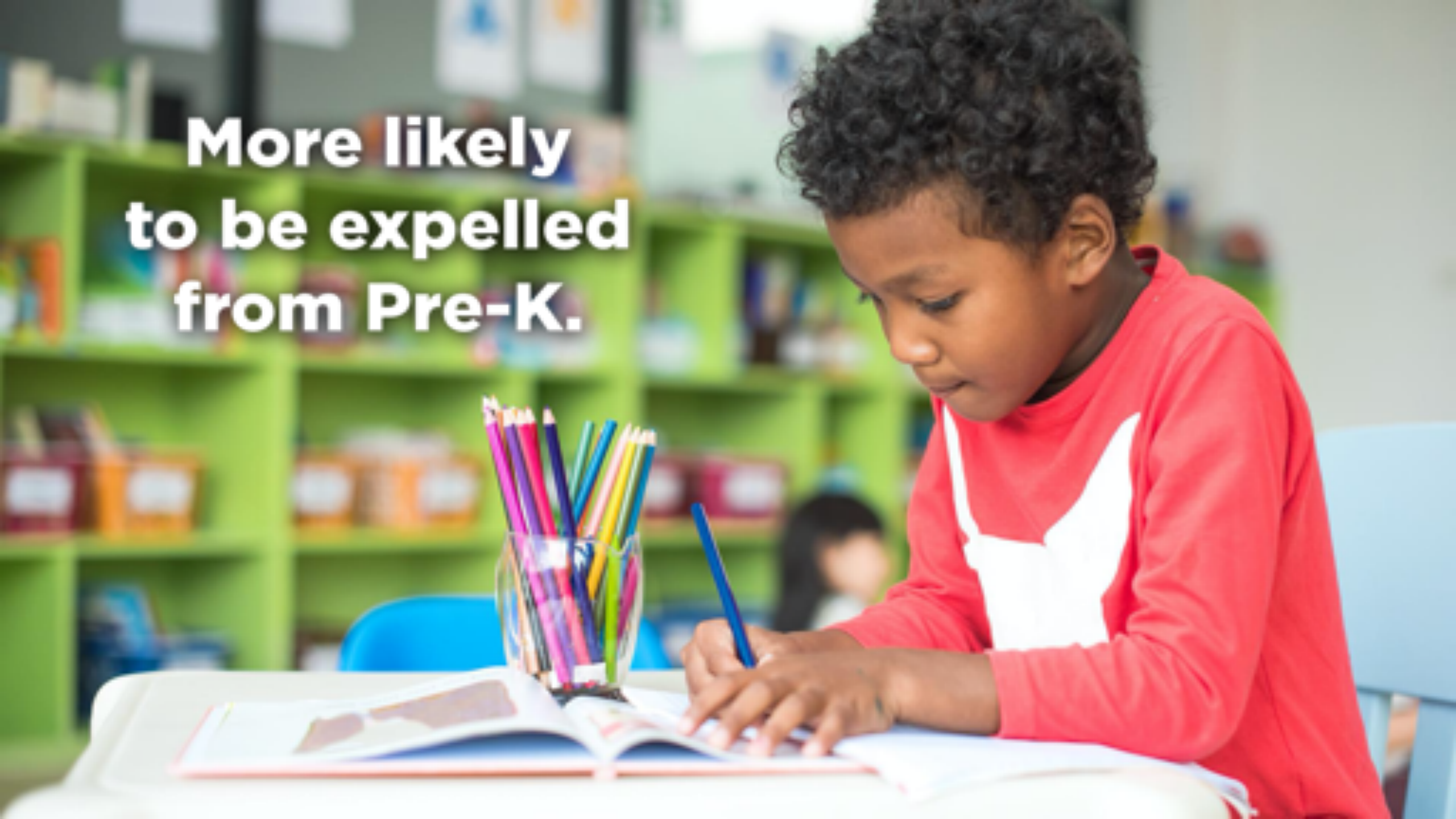
**“WHAT IS STRIPPING
OUR CHILDREN OF
THEIR RIGHT TO FEEL
CONFIDENT IN THEIR
MATH ABILITIES?”**



WASHINGTON



**More likely
to be expelled
from Pre-K.**



**Less likely
to be identified
as gifted.**



\$23,000,000,000
FUNDING DEFICIT



GENERATIONAL CHALLENGES



**WE MUST BREAK
THE CYCLE**





PARTNERING WITH PARENTS





ZENO 5 PRACTICES

Explore



Children need time to freely explore without our direction.

Explore time is time for us to follow the child's lead and let them take control of their learning.

Providing this time builds a child confidence that they can and already are doing math!

Play

Children learn best through play and hands-on experiences.

Playing *with* children encourages them and demonstrates our support for their learning.

Play creates positive, hands-on learning experiences so that children do not grow up with math-anxiety and so they are able to move beyond rote learning.



Build

We always start with where the child is ready and comfortable. Then, we slowly increase challenge to encourage growth. Challenge should be increased in small doses to ensure that a child does not lose confidence. If you increase the challenge and it becomes too difficult, then go back down a level until the child is ready.

This practice is built in to all of our games through leveled game play:

Seed: Game 1 - suited for ages 2-3 years old

Sprout: Game 2 - suited for ages 3-4 years old

Bloom: Game 3 - suited for ages 4-5 years old

- **Scaffold:** Tools and techniques that provide support to children in their learning.

Example:

Sorting Mats Pattern

Strips

5 and 10 frames

- **Saturation:** Repetition– once is not enough!



Talk

Talking can be used to support and guide play and learning. It is a great way to build confidence, vocabulary, and to keep play focused.

- **Math Vocabulary:** Provide a quick, age-appropriate definition along with a hand motion.

Example: 2-dimensional— flat (clap hands together)

- **Parallel-talk:** Narrating the child's actions using non-judgmental **"I see..."** and **"I notice..."** sentences.

Example: "I see that you put the red octagon on top of the green triangle."

- **Self-Talk:** Narrating your thinking process or saying your thoughts out loud. **Example:** *"We need 4 potatoes for dinner, one for each family member. I am going to count out 4 potatoes: 1, 2, 3, 4! Now I have 4 potatoes."*

- **Open-ended questions:** Questions that have no one "right" answer and that prompts children to explain their thinking.

Examples:

"How did you figure that out?"

"What else could you do with...?"

"How do you know?"

"Why did you do that?"

"What would happen if...?"



Connect

We connect math to the child's everyday surroundings and interactions, and their interests.

- **Connecting to everyday environment/interactions examples:**
Finding shapes in street signs, food, toys, etc. Looking for numbers at the grocery store Looking for patterns on clothing Measuring ingredients when cooking Counting steps up the stairs
- **Connecting to child's interest examples:**
Comparing the size of stuffed animals Seeing which ball bounces the highest Finding shapes in drawings



Zeno 5 Practices

Explore

Allow children to explore freely without adult direction

- Follow the child's lead and let them take control of their learning

- Builds a child's confidence that they can and already are doing math

Play

Create playful, positive, and hands-on math experiences

- Playing with children encourages them and demonstrates our support for their learning

- Move beyond rote learning

Talk

Build vocabulary and understanding

- Supports and guides play and learning

- Builds confidence, vocabulary, and keeps play focused

Build

Encourage growth through challenges

- Start with where the child is comfortable to build confidence and then build on current understanding to encourage growth

- Helps a child move along the continuum

Connect

Connect math to everyday things

- Shows children that math is all around them and in their daily lives

- Helps make math fun and playful



Head
What have
I LEARNED?

Heart ♥

How do I feel
ABOUT THIS?

Feet →

What ACTION
STEPS WILL
I TAKE?



Thank