



The Possibilities in Front of Us

Early Childhood Math-Number Sense

What We Hear about Early Math

"Early Math is just counting"

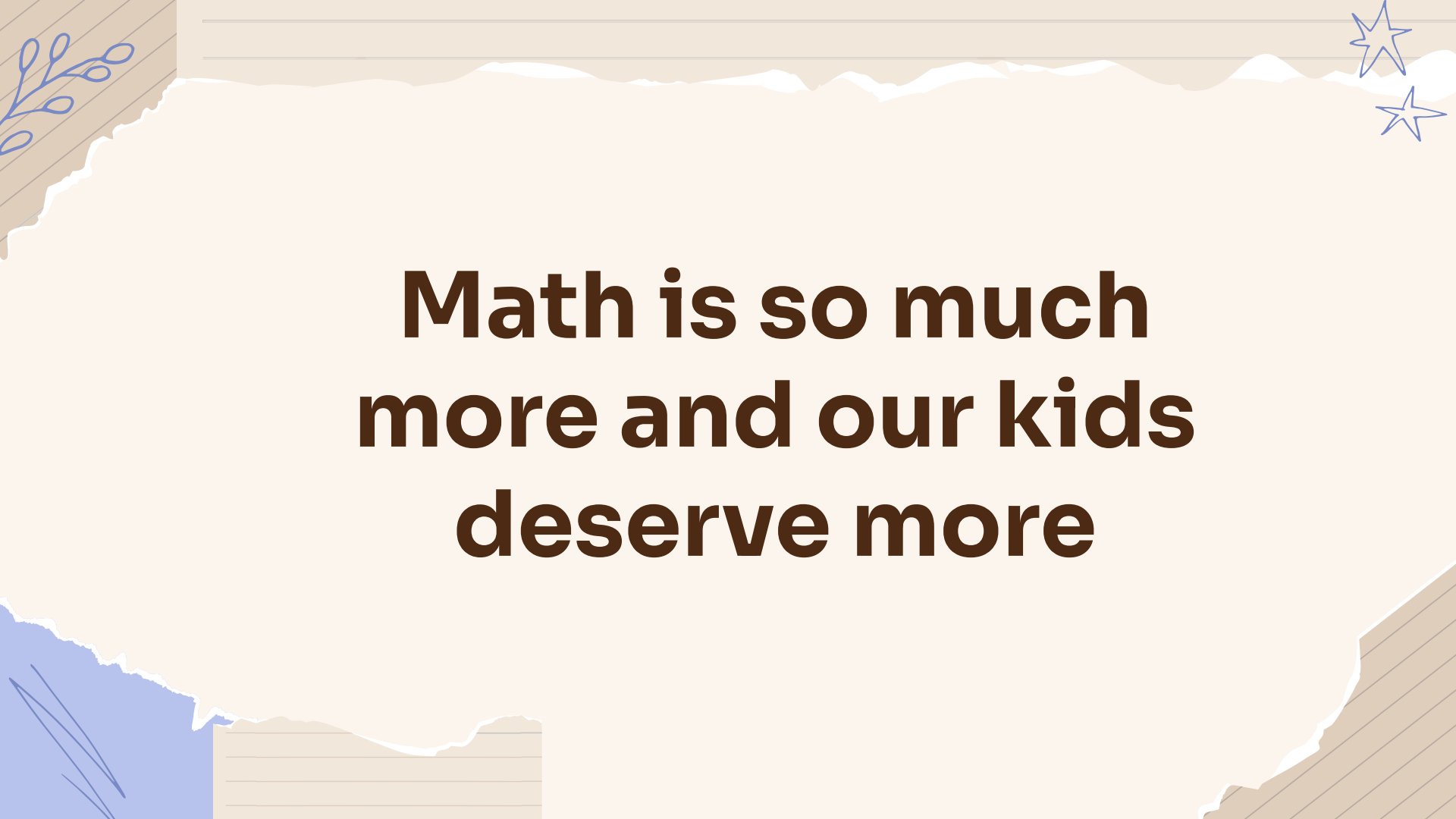
"We do math during calendar"

"They just need to write their numbers"

"Math takes away from play"

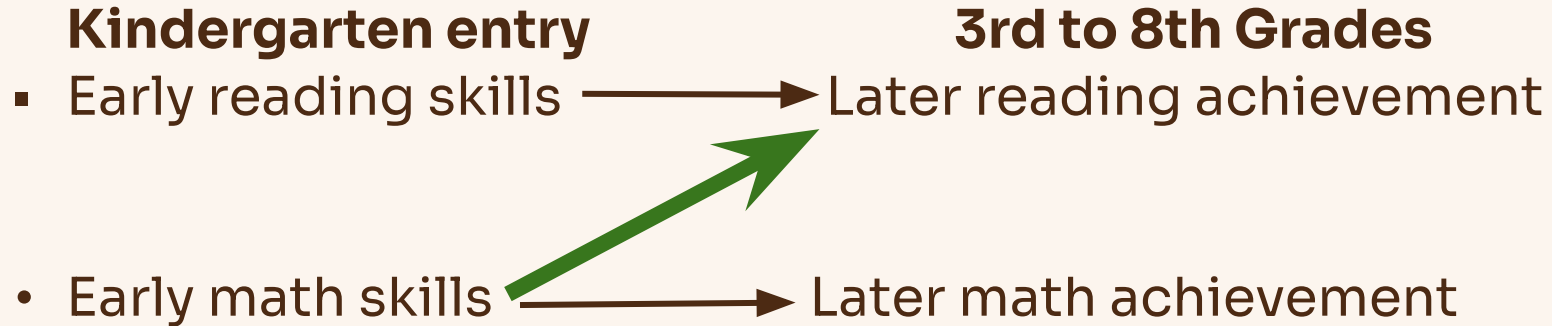
"Early math should be about developing skills"

"All you need is math centers"



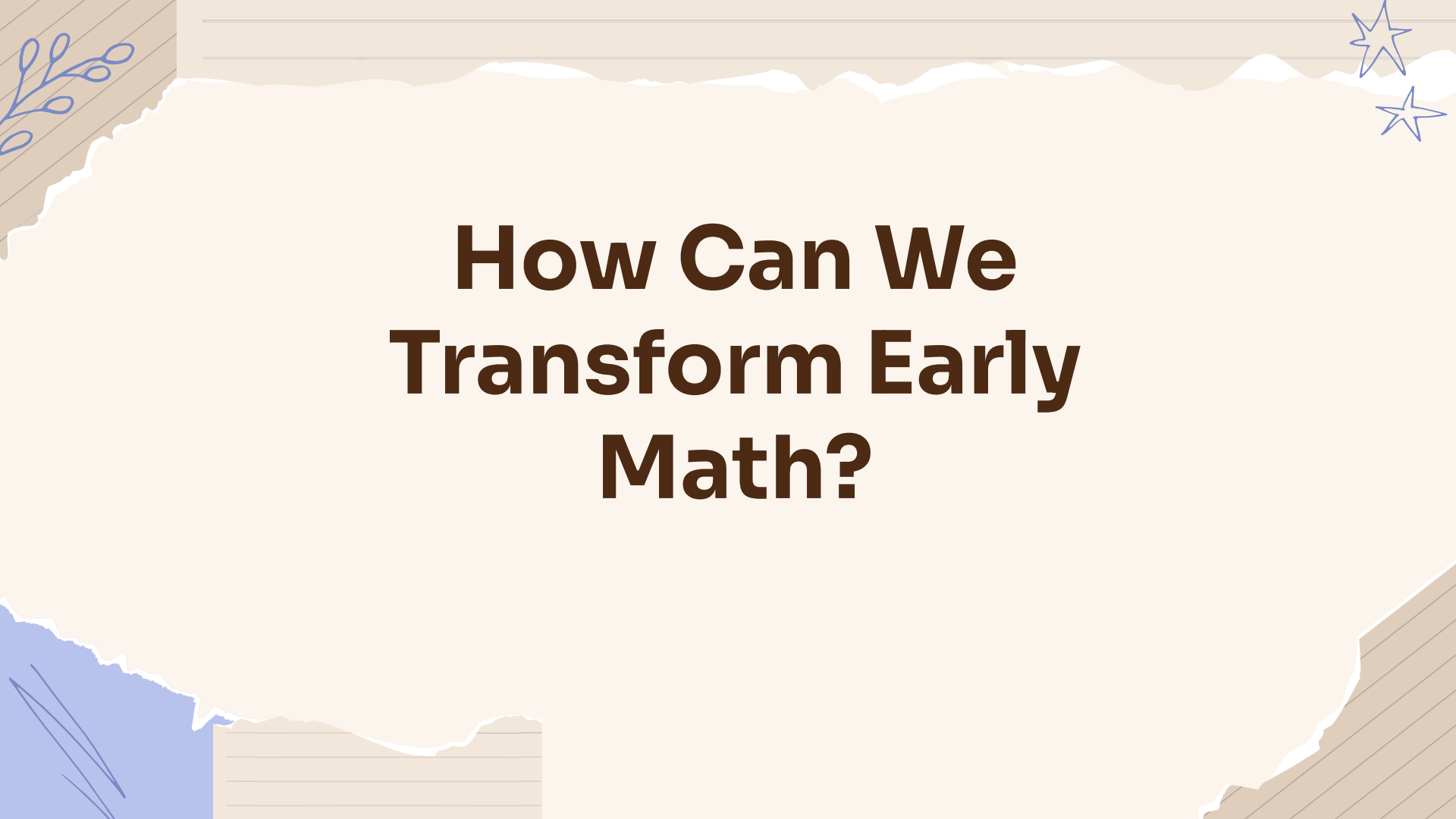
**Math is so much
more and our kids
deserve more**

Our WHY...the Predictive Power of Early Math



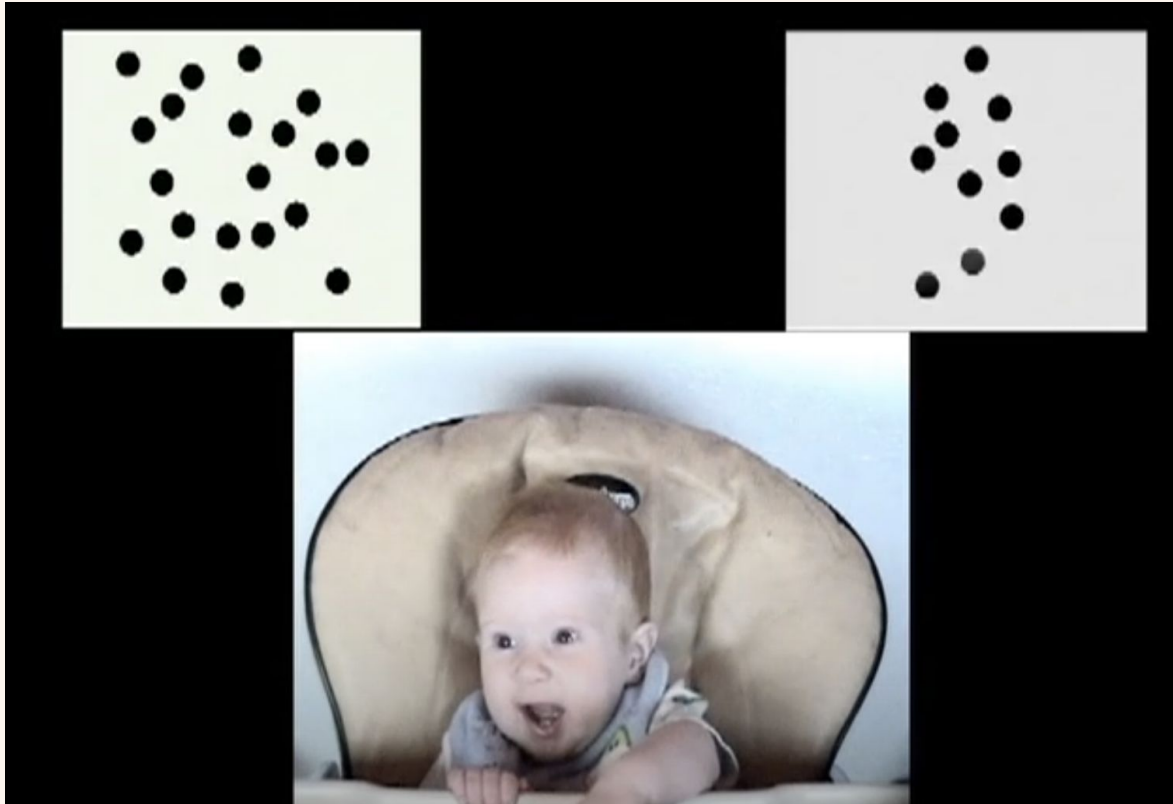
Key Competency—Meaningful counting
and subitizing

- Duncan, et al., 2007
- Nguyen et al., 2016



How Can We Transform Early Math?

Children are born mathematical



Math learning and teaching is...

Humanizing	Place children and their thinking at the center
Liberating	Children feel the freedom of being a doer, knower, and sense maker of mathematics
Healing	Children feel supported and cared for as they engage in deep mathematical thinking
Joyful	Children see themselves in the work and are eager and curious



Let's talk about counting

It is not simple!

Counting Principles

Ordered Sequence of Numbers

- Numbers are assigned to items in a collection in the same order starting with one.

1, 2, 3, 4, 5.....

26, 27, 28, 28, 29.... 100!



Counting Principles

One-to-One Principle

- Exactly one number word from the counting sequence is assigned to each item in a collection.



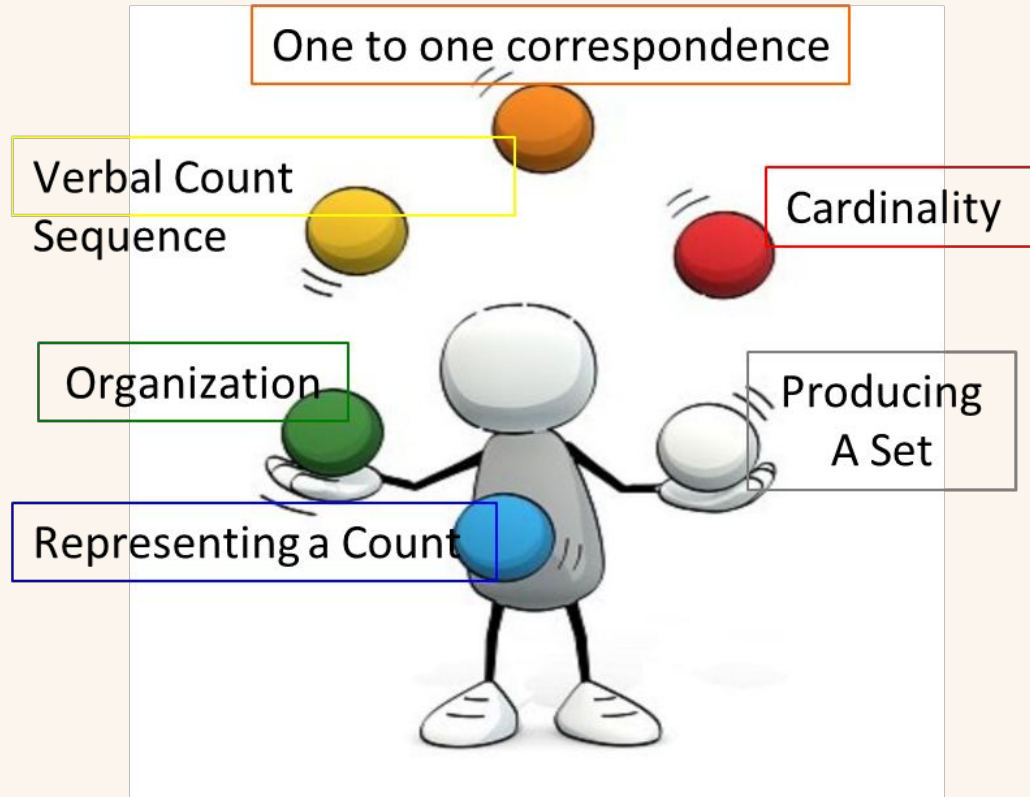
Counting Principles

Cardinality Principle

- The last number word in the counting sequence assigned to the collection represents the number of objects in the collection.



Counting Skill and Understanding Develops Concurrently

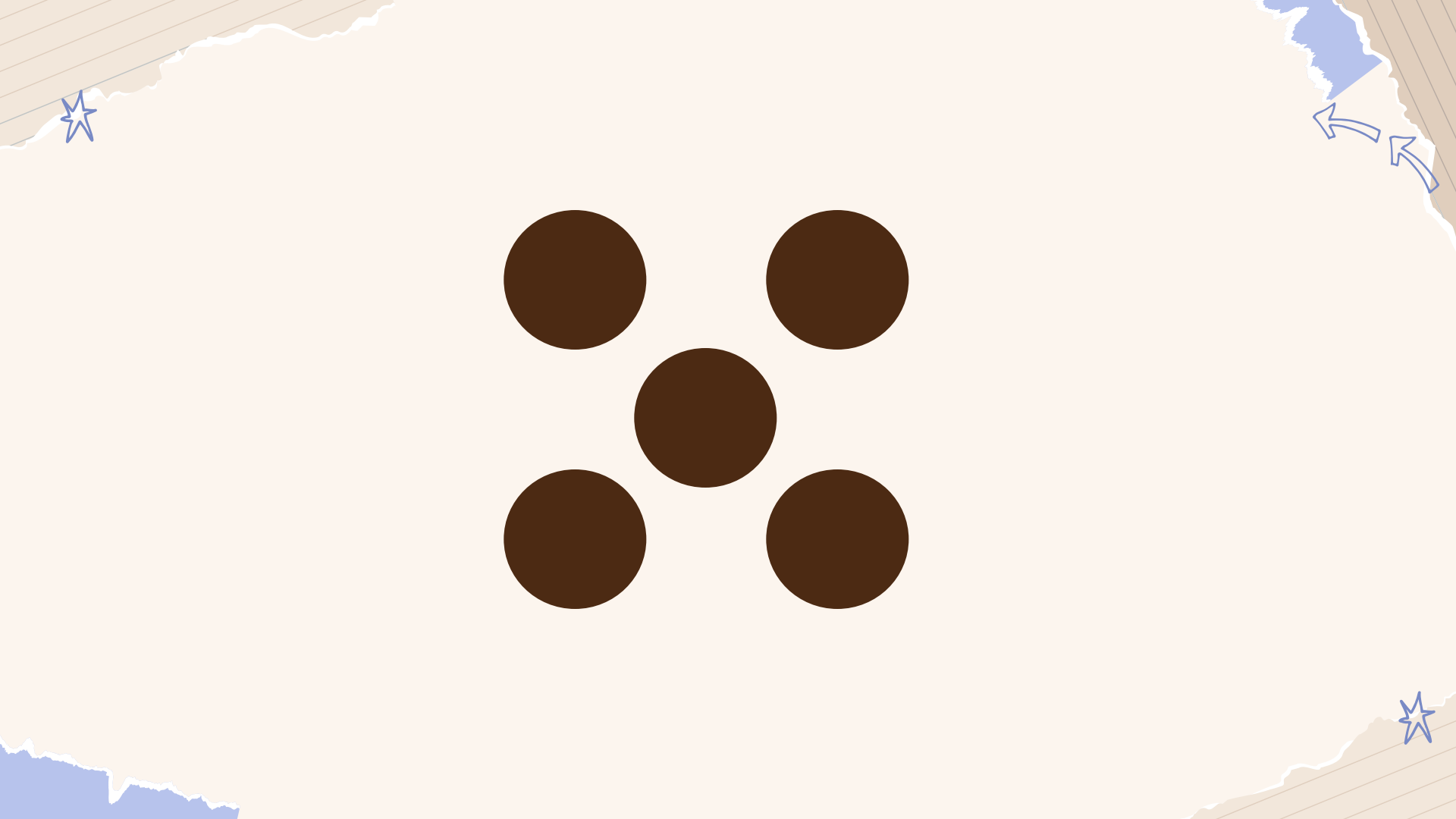


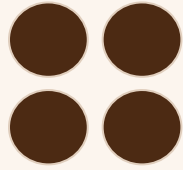
As children extend their counting skill and ability they explore and deepen their understanding of

- place value (unitizing)
- number relationships
- part whole reasoning
- additive and multiplicative thinking

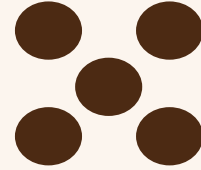


**Let's do
Some Math!**



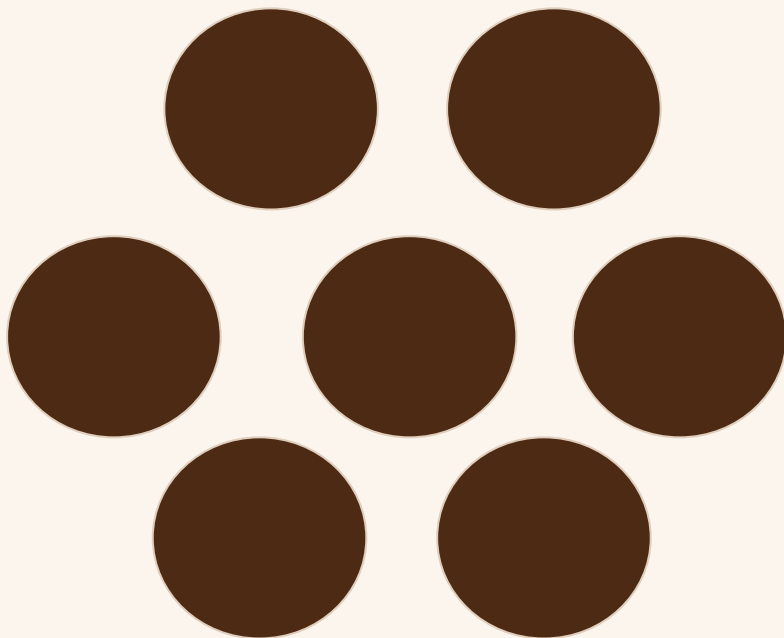


What is Subitizing?

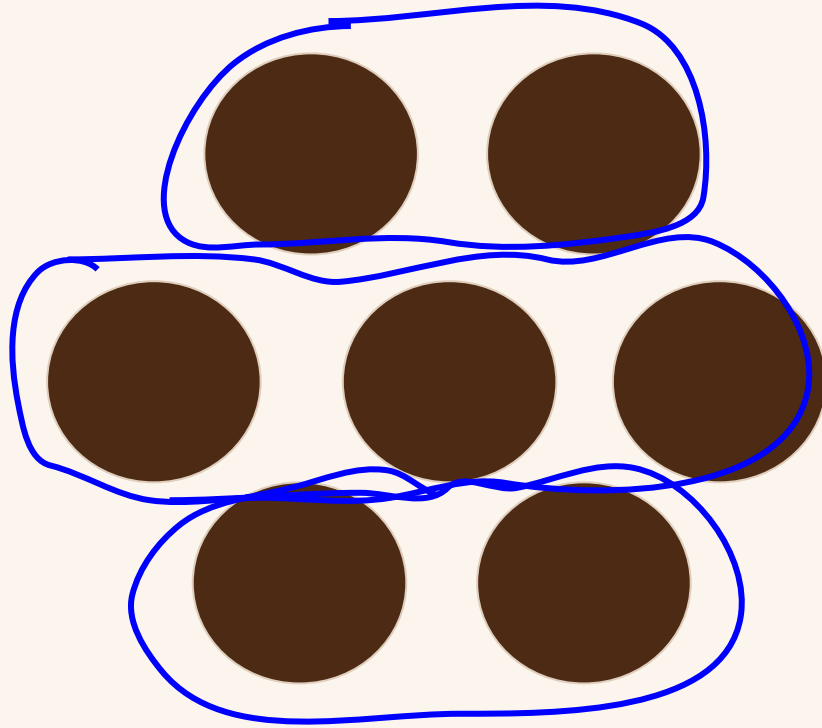


The ability to perceive the number of objects in a collection without having to count.

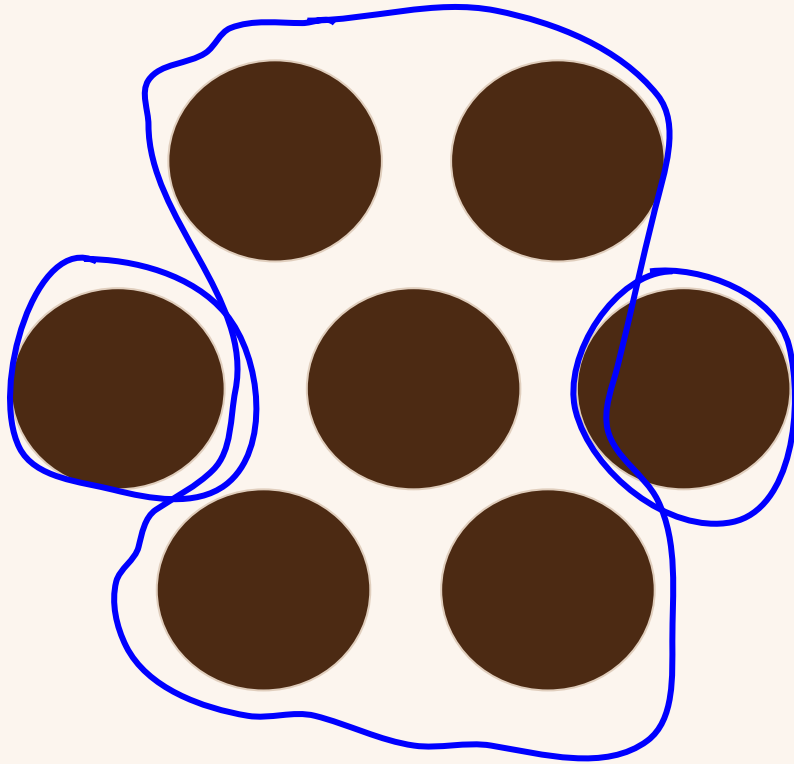
- **Perceptual Subitizing:** recognizing the quantity of a small group (1-5 or 6) without counting (e.g., patterns on dice)



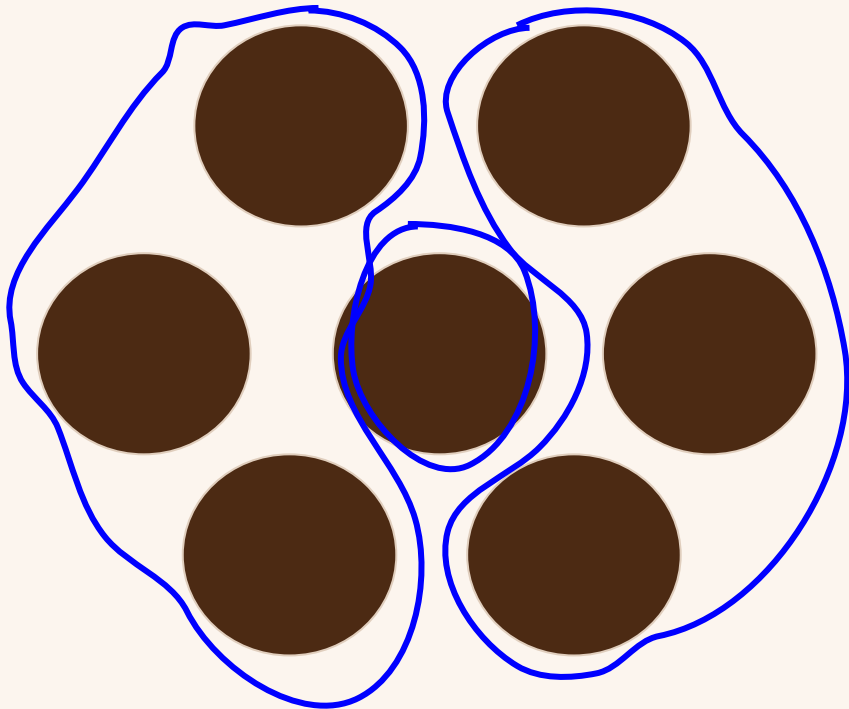
2 and 3 and 2 make 7



5 and 2 make 7




3 and 3 and 1 make 7





What is Subitizing?

The ability to perceive the number of objects in a collection without having to count.

- **Perceptual Subitizing:** recognizing the quantity of a small group (1-5 or 6) without counting (e.g., patterns on dice)
 - **Conceptual Subitizing:** combining smaller quantities recognized visually to find the total
- 



How do we move forward?



- What does early childhood math look like in your local context?
- How the local school district specifically support early math learning?
- What do teachers know about Learning trajectories (Clements and Sarama)?
- How does your local school districts support the learning trajectories?
- What do teachers know about counting collections?
- How do teachers incorporate subitizing in their classrooms?





**Our children are
the possibilities**



"To love through and because of mathematics is to build community for the isolated, to seek justice for the oppressed, to help one another grow through struggle, even in mathematical ways"

-Francis Su (2020) *Mathematics for Human Flourishing*