




# Building Number Sense with Subitizing

We will begin momentarily.

# Your Webinar Presenter & Objectives

-  Define *subitizing* and identify how the two stages of subitizing are linked to counting and numeracy.
-  Describe how subitizing in early childhood lays the foundation for later success in mathematics.
-  Identify simple ways to incorporate subitizing exercises into the early childhood and elementary classrooms.



Lindsey Herlehy, NBCT

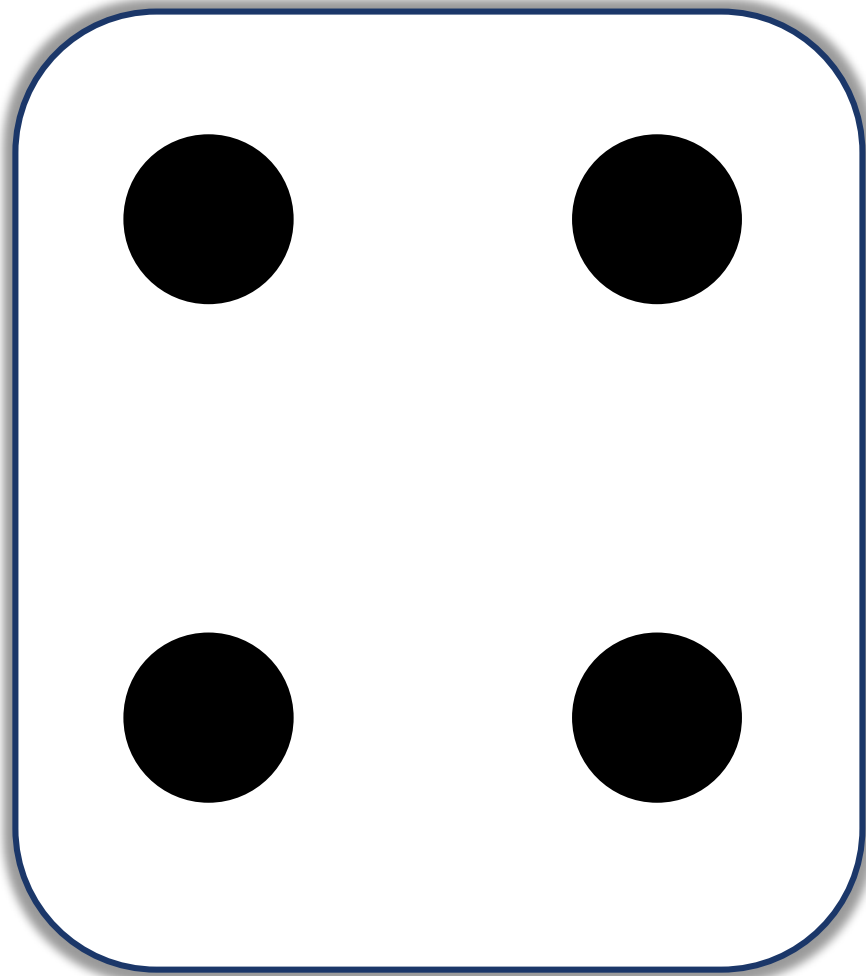
[lherlehy@imsa.edu](mailto:lherlehy@imsa.edu)

Curriculum Writer & Professional Development Specialist

Illinois Mathematics and Science Academy



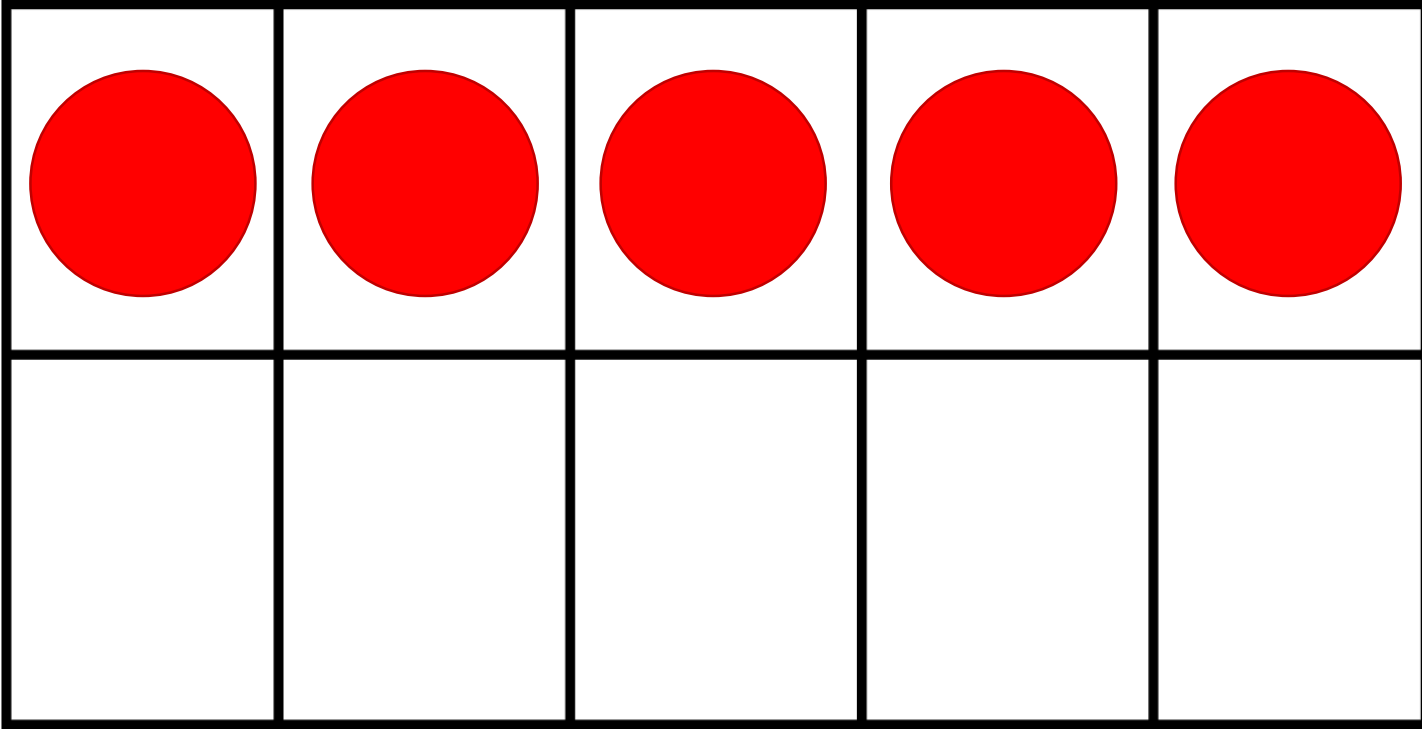
What is *subitizing*?

















# How did you know how many?

Share your thoughts with the group using the Chat feature on your Zoom toolbar.

# Subitizing:



Coined in 1949 by E.L. Kaufman and supported by the work of theorist Jean Piaget



From the Latin adjective *subitus* meaning “sudden”



Defined as “instantly seeing how many”

Source: Wikipedia, Clements 1999

# The History of Subitizing:

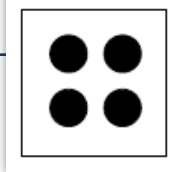
The in the first half of the century...	In the second half of the century...
<p>...researchers believed that counting did not imply a true understanding of number, but that subitizing did.</p> <p>...many saw the role of subitizing as a developmental prerequisite to counting.</p> <p>...it was suggested that whereas measurement focused on the whole and counting focused on the unit, subitizing focused on the whole and the unit; therefore, subitizing underlay number ideas.</p>	<p>...educators began developing models of subitizing and counting.</p> <p>...researchers found that young children could subitize sets of one or two but were not able to count them.</p> <p>...yet, other researchers have agreed that subitizing is developed later, as a shortcut to counting.</p>

# Types of Subitizing:

## Perceptual Subitizing

Recognizing a number without using other mathematical processes.

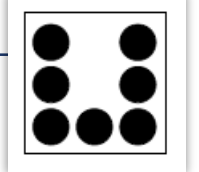
Many children will instantly recognize and verbally label sets of items made of five or fewer before leaving preschool.



## Conceptual Subitizing

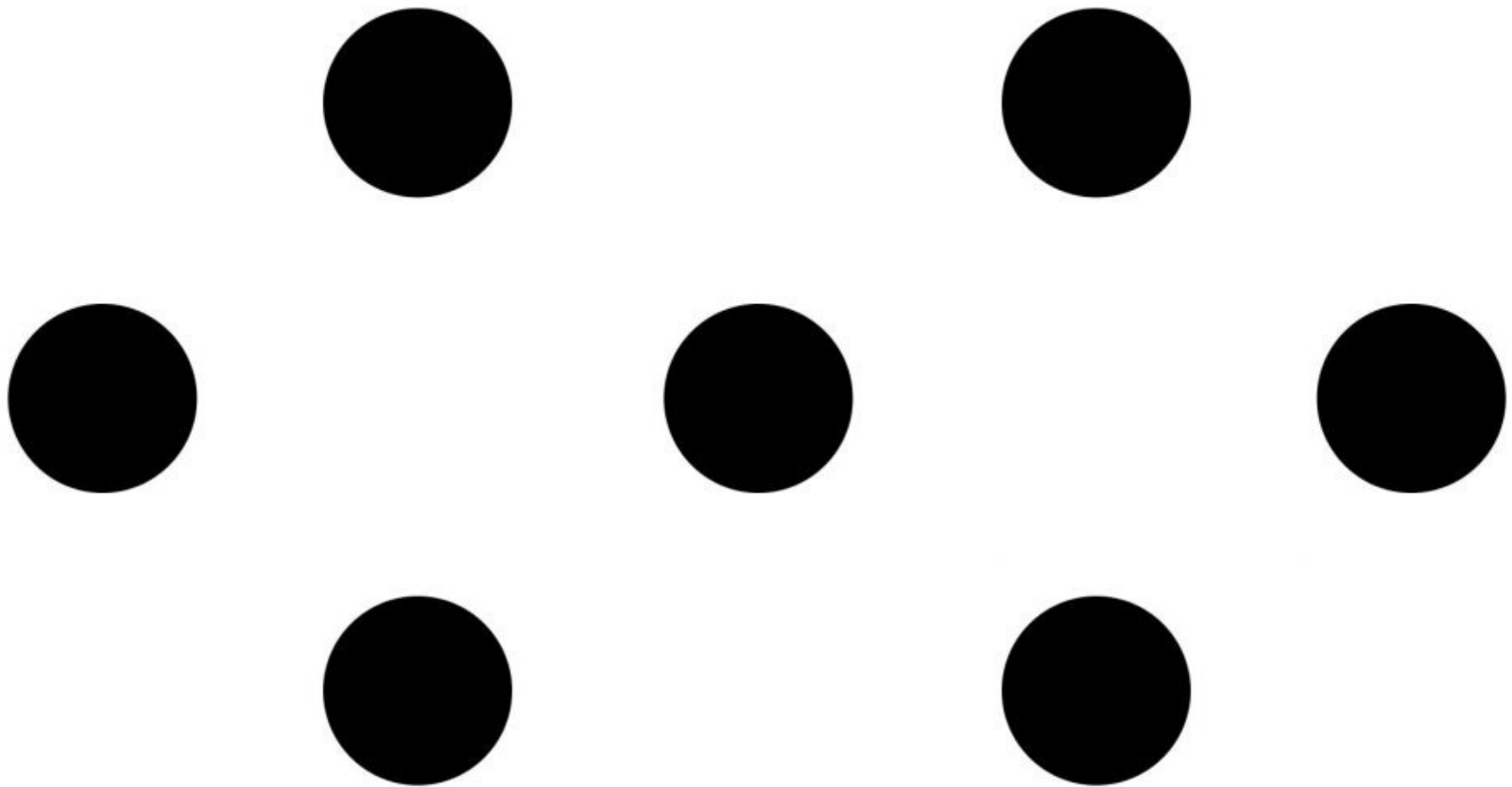
Recognizing a number pattern as a composite of parts of a whole.

Some children will be able to verbally label two sets of subgroups up to six and then one more subgroup when subitizing up to ten items.



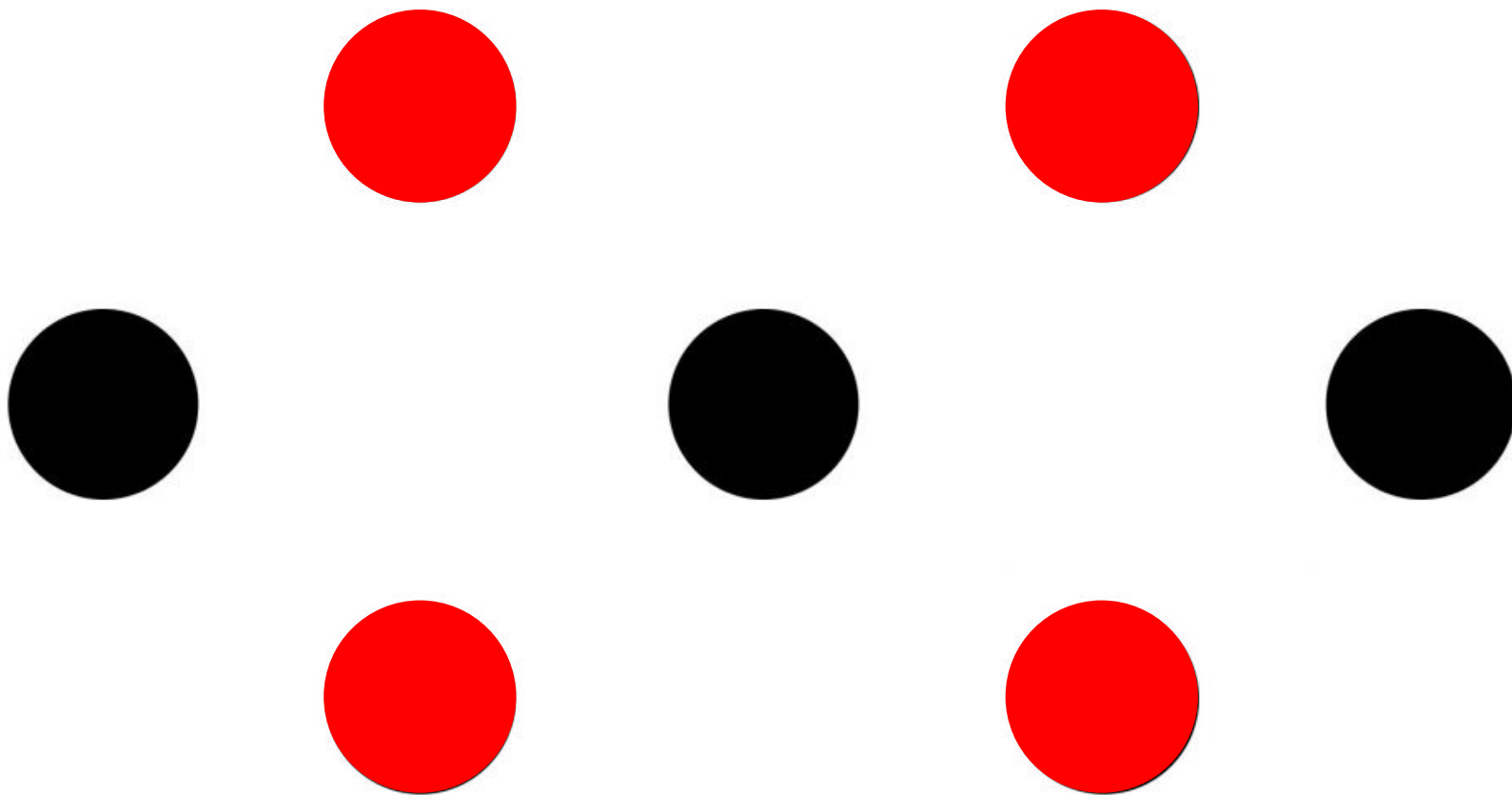
# What do you see?

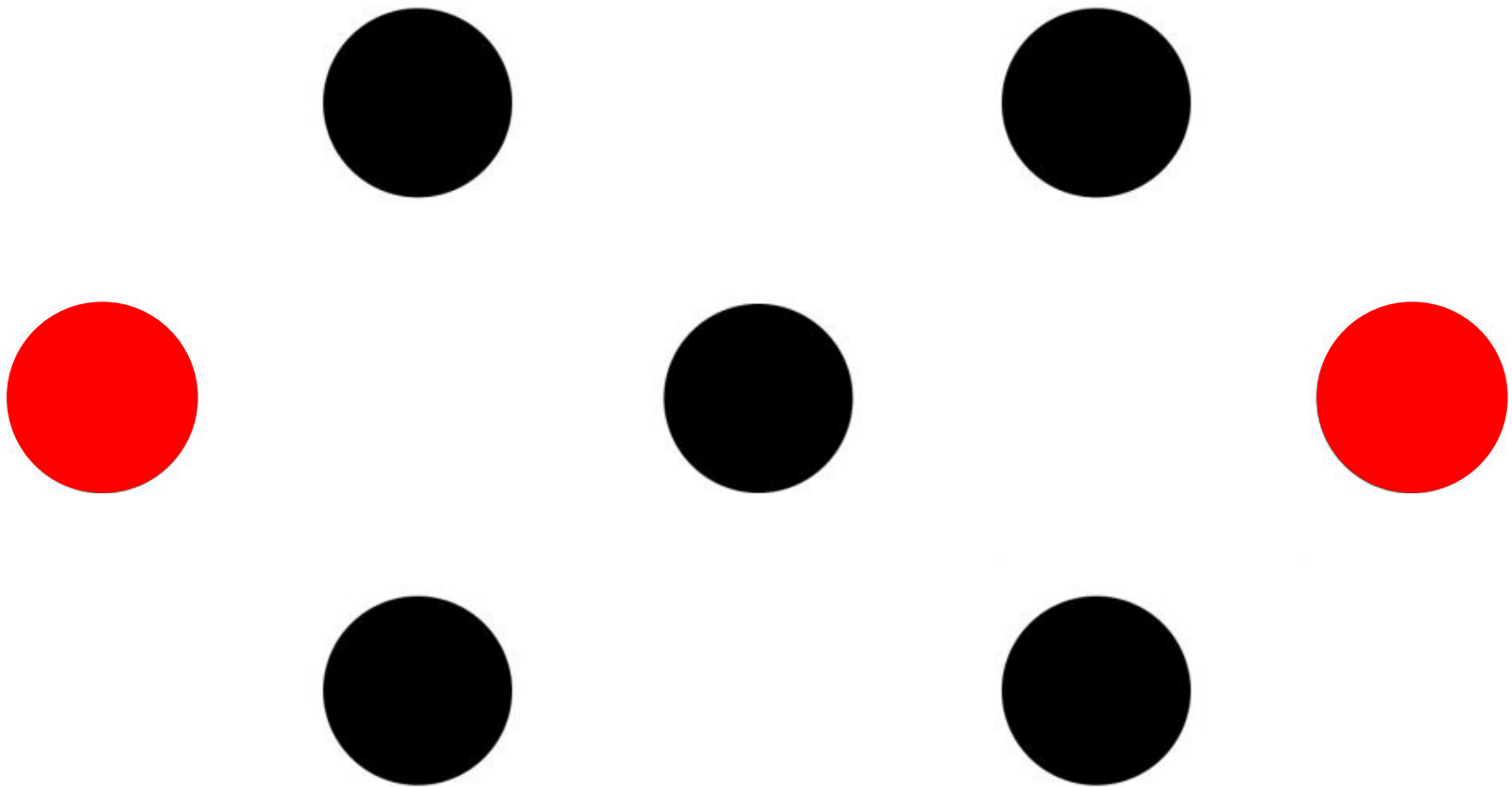
Share your thoughts with the group using the Chat feature on your Zoom toolbar.

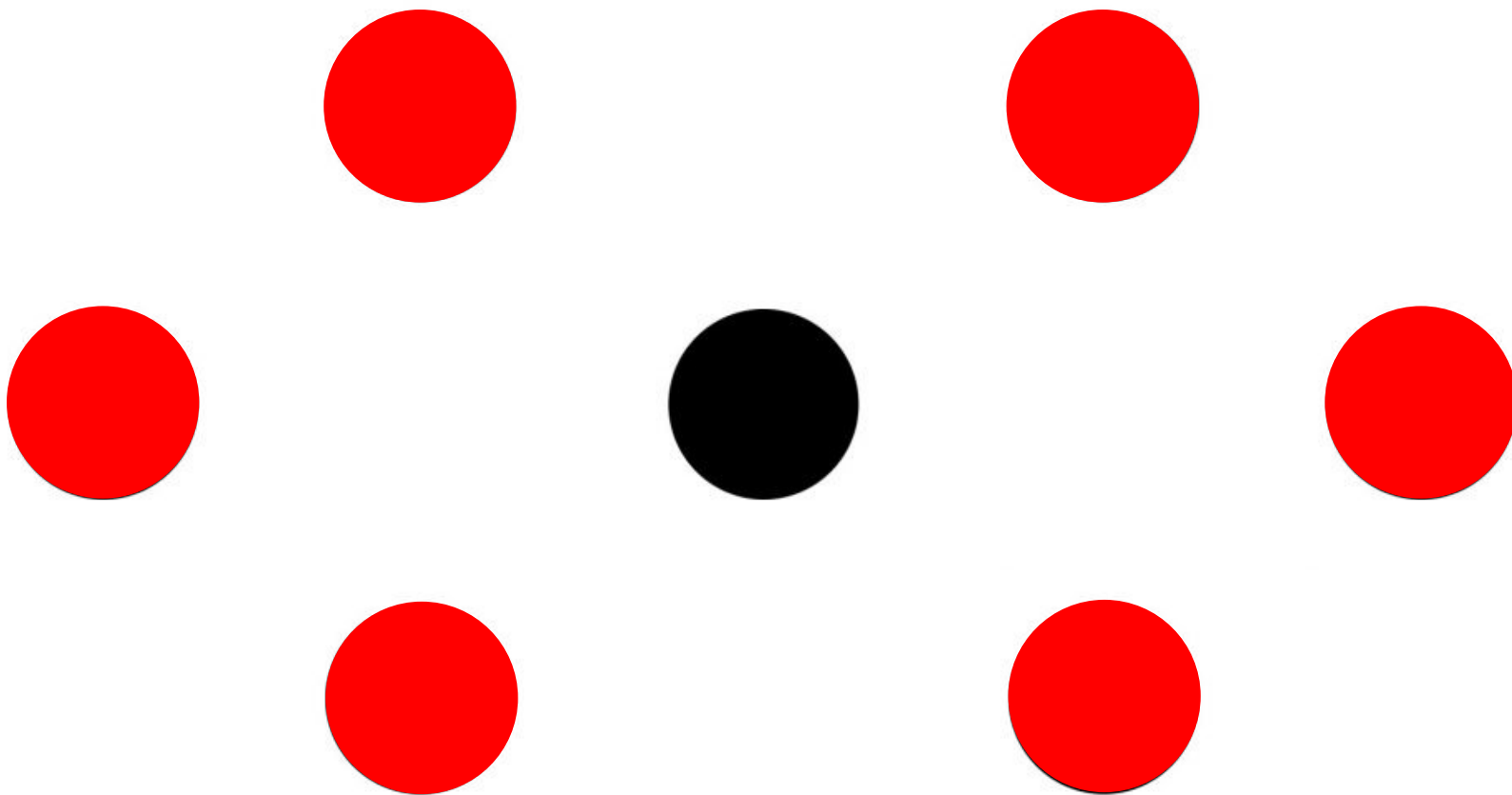












## Maria (4 years, 4 months)

Me: "What did you see?"

Maria: "I saw 5."

Me: "How did you see it?"

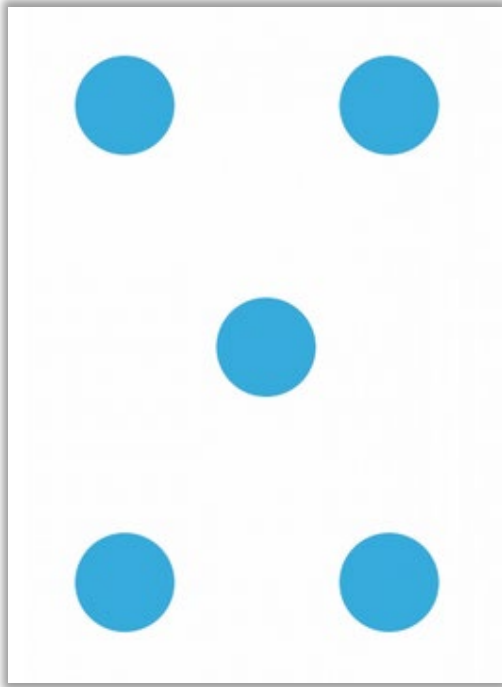
Maria: "I saw two, two, and one."

Me: "I also saw five, but in a different way. Do you want to look at it again?"

Maria: "Ok..." I proceeded to show the card again and again she said, "I saw 5."

Me: "How did you see it?"

Maria: "I saw two, two, and one."



Source: AIMS Center

## Omar (just turned 4)

Me: "What did you see?"

Omar: "I saw a square with a dot in the middle."

Me: "How many dots did you see?"

Omar: "Five. I saw four and one in the inside."

Me: "I see how you saw that."

Omar: "Hey, I see two on the top, one in the middle, and two on the bottom, too."

Me: "Yeah, I can see it that way too."

# Why Should My Students Be Doing This?



The development of pattern recognition.



The understanding of numbers and number sense.

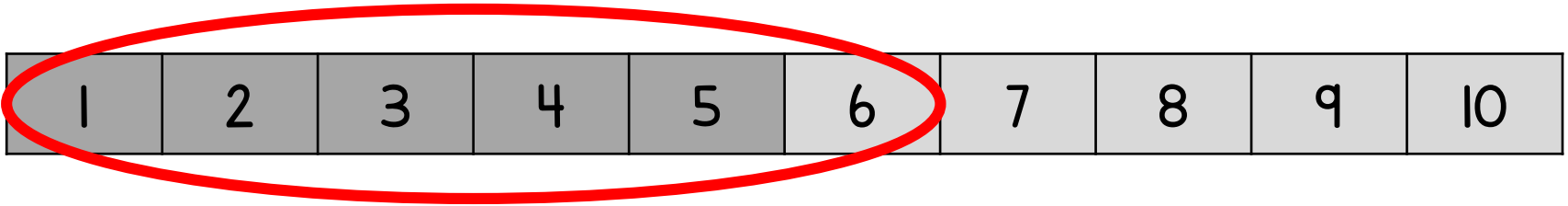
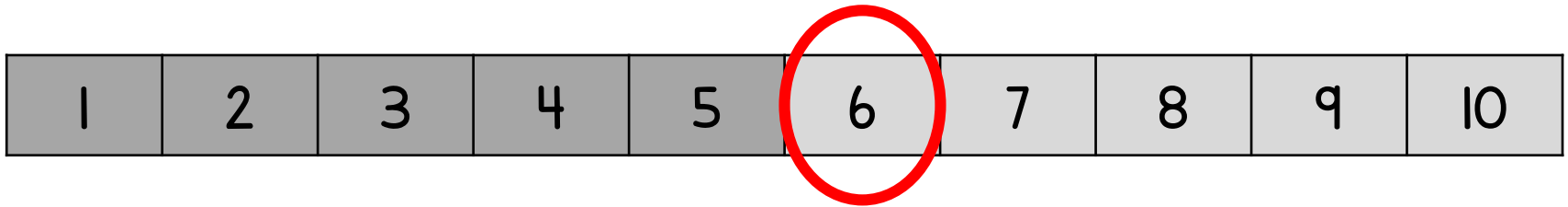


Building a foundation for algebraic thinking.



It is efficient.

# But Shouldn't They Be Counting?



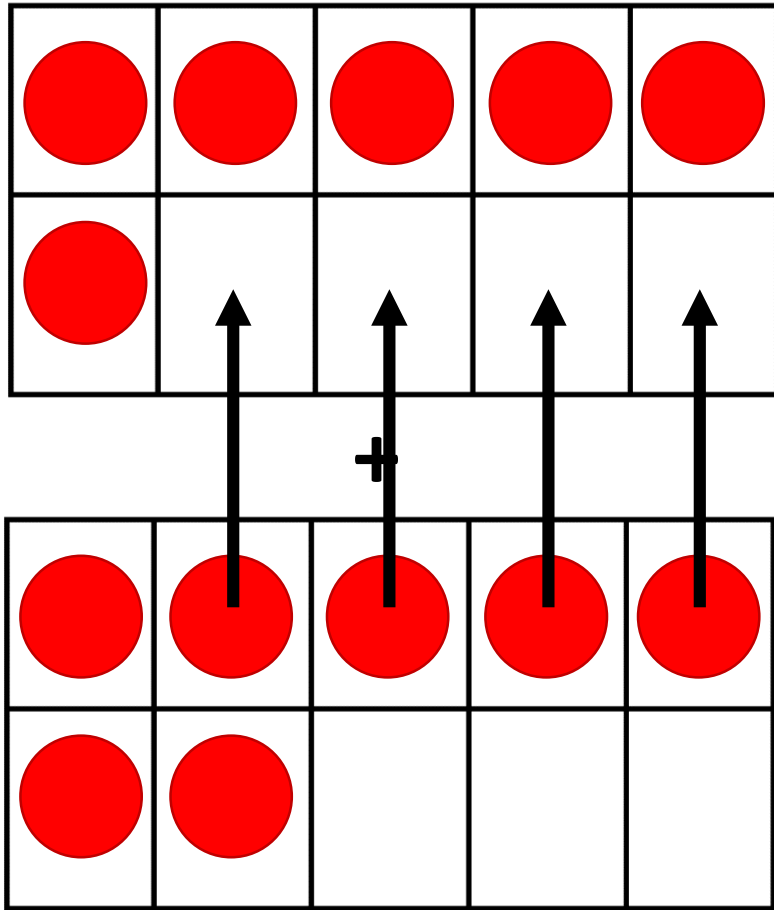
$$6 + 5$$



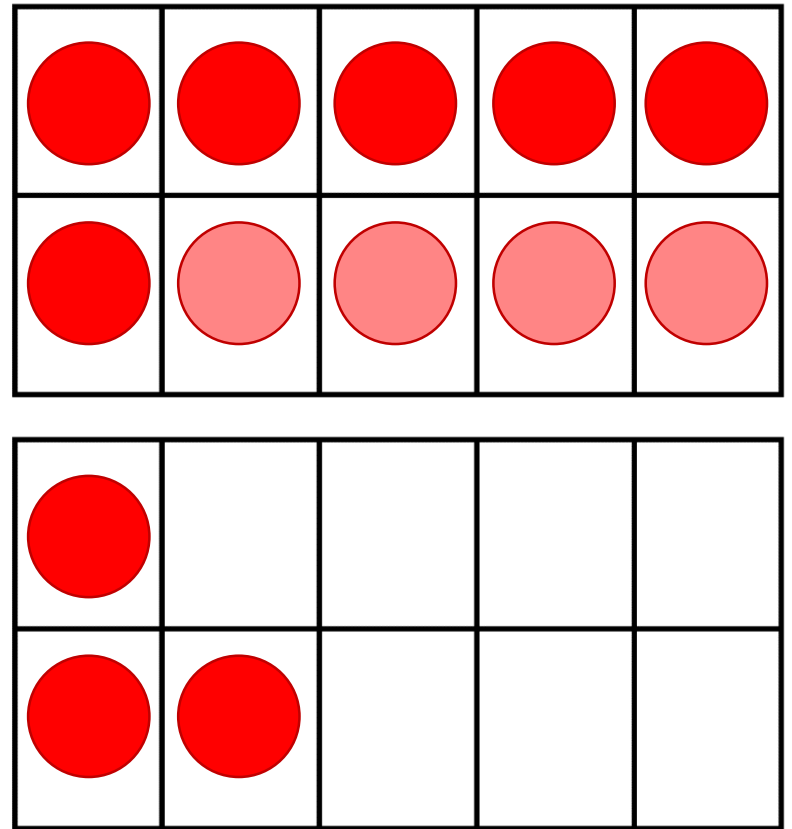
+



$$6 + 7 = 13$$



=





# How Do I Get Started?

Classroom Routines

Transitions

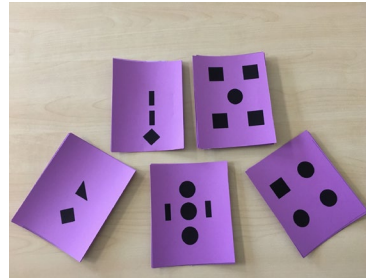
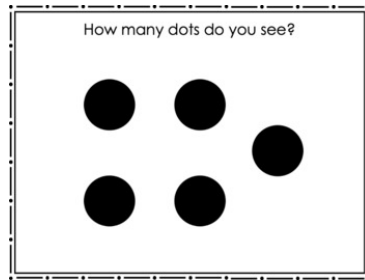
Small Group Games

STEAM & Literature Integration

# Classroom Routines



## Math Talks



Geometry Subitizing Cards



Number Strings

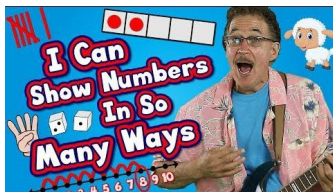


## Attention Getters

- "Show me four!"
- "Show me one more than four!"
- "Show me four on two hands!"



## Brain Breaks – Songs by Jack Hartmann



# Transitions



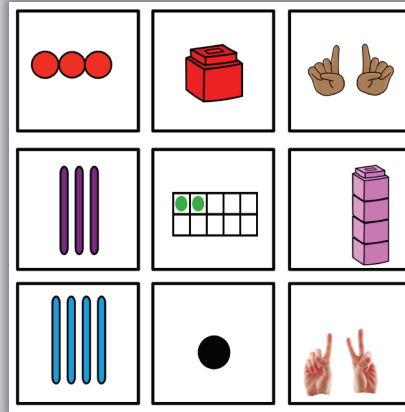
Source: Erikson Institute

# Small Group Games and Activities

## Card Games

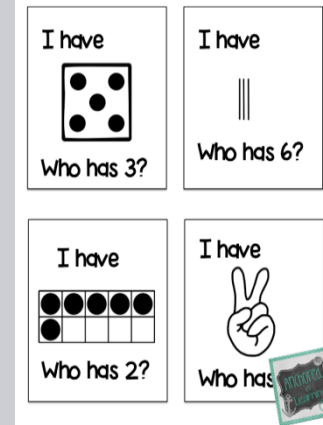
- Memory
- War
- Sorting
- Go Fish
- Flash It!

## Match Them All



*Erikson Institute*

## I Have, Who Has



*Anchored in Learning*

## Which One Doesn't Belong?

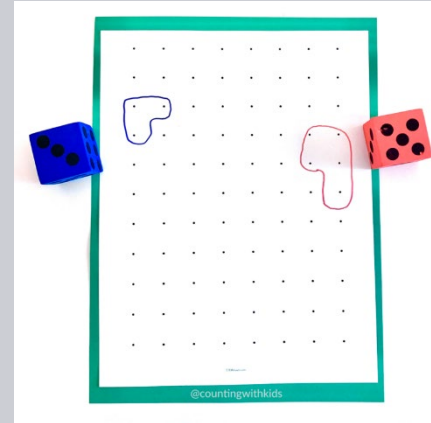


*Which One Doesn't Belong?*

## Tiny Polka Dot



## Roll and Circle



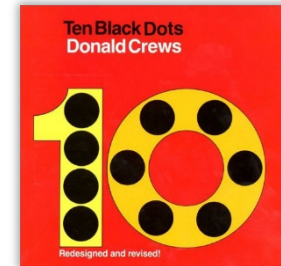
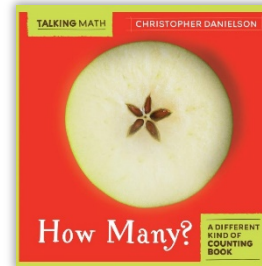
*Counting With Kids*

# STEAM and Literature Integration

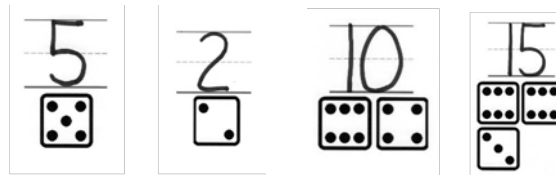


## Literature

- *How Many?* by Christopher Danielson
- *Ten Black Dots* by Donald Crews



Include subitizing cards in centers and math areas

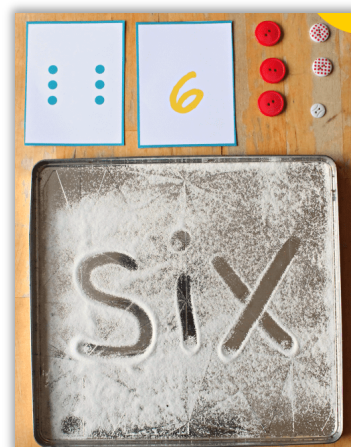


	RED	
	BLUE	
	GREEN	
	YELLOW	
6	WHITE	
	BLACK	



## Sensory Exposure

- Loose Parts
- Musical Instruments
- Kinesthetic Movement
- Sensory Bin with Fillers



Nurture Store

# Resources

## Organizations

- Christina Tondevold  
- [Building Math Minds](#)
- Erikson Institute –  
[Early Math Collaborative](#)
- [Graham Fletcher](#)

## Articles

- [Mathematics in the Early Grades: Counting & Cardinality](#) by Interactive STEM
- [Subitizing: What Is It? Why Teach It?](#) By Douglas Clements (1999)
- [Subitizing Games: Assessing Preschoolers' Understanding of Number](#) by Macdonald and Shumway

## Books & Activities

- [How Many?](#) by Christopher Danielson
- [Ten Black Dots](#) by Donald Crews
- [Match "Em All](#) by Erikson Institute
- [Which One Doesn't Belong](#) by Christopher Danielson
- [Tiny Polka Dot](#)
- [Roll and Circle](#) by Counting With Kids

# Questions?

Please complete the presentation evaluation link in the Chat.  
Your feedback is appreciated!





# Lindsey Herlehy

[lherlehy@imsa.edu](mailto:lherlehy@imsa.edu)

Curriculum & Professional Development Specialist

Illinois Mathematics and Science Academy