

# Kindergarten Readiness Numeracy Workshop

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## Key Shifts in Common Core Mathematics

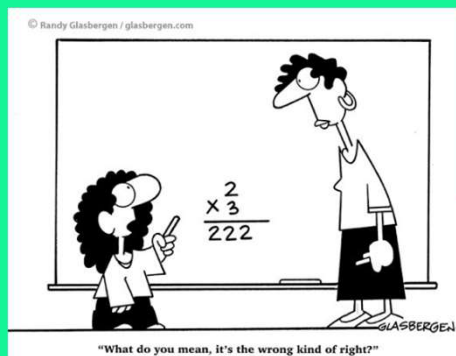


- Focuses on Conceptual understanding (knowing the “why” and “how”)
- Requires students to apply skills in real world problems and situations
- Encourages multiple strategies and approaches for procedural fluency

### FCR

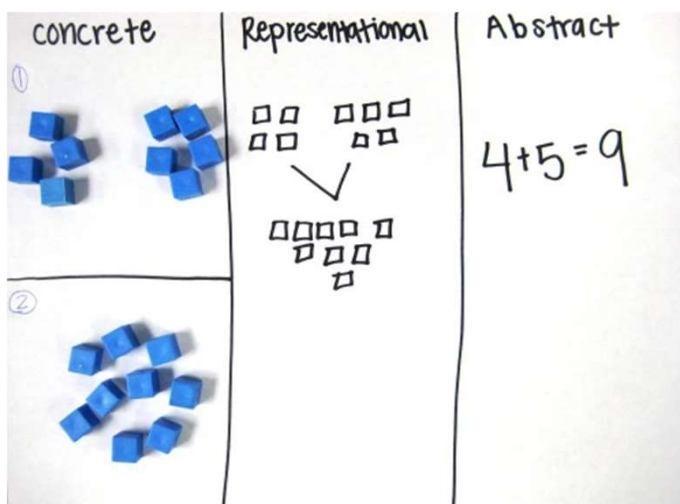
- 1) Greater focus on fewer topics
- 2) Coherence: Linking topics and thinking across grades
- 3) Rigor: Pursue conceptual understanding, procedural skills, fluency and application with equal intensity

## Teaching Math in the 21st Century



## CRA Learning Model



1. **Concrete:** Objects and materials, "Doing Stage" (chips, beans, cubes)
2. **Representational:** Drawing pictures, "Seeing Stage" (dots, circles, tallies, stamps)
3. **Abstract:** Number, math symbols/notation, "Symbolic Stage" (+, -, =)



## Mathematics Learning Progressions



### Counting and Cardinality:

Strand A: Early learning experiences will support children to understand counting and cardinality.

3 to 4 year olds	4 to 5 year olds	Activities/Suggestions
Say or sign the number sequence up to at least <b>10</b>	Say or sign the number sequence up to at least <b>20</b>	Turn mealtime into counting fun by having your child count objects as he or she sets the table. (Forks, spoons, napkins, etc)  Take a handful of your child's favorite cereal and have them count out sets of 2, 3, 4, and 5... 
Count up to at least 5 objects using <b>one-to-one correspondence</b> , using the number name of the last object counted to represent the total number of objects in a set.	Count up to 10 objects using <b>one-to-one correspondence</b> , regardless of configuration, using the number name of the last object counted to represent the total number of objects in a set.	
Count out a <b>set objects up to four</b> .	Count out a <b>set objects up to five</b> .	



## Counting and Cardinality Continued

Strand A: Early learning experiences will support children to understand counting and cardinality.

3 to 4 year olds	4 to 5 year olds	Activities/Suggestions
Recognize written numerals up to at <b>least five</b> .	Recognize written numerals up to <b>at least 10</b> .	Play "I Spy" with a magazine. Have children locate numbers 1-10 in a magazine and cut them out. Have children sort them into piles of 1's, 2's, 3's etc. 
Recognize and name, without counting, the number of objects in small groups or <b>at least 3 or 4 objects</b> .	Quickly recognize and name, without counting, the number of objects in collections of up to <b>at least five items</b> .	
<b>Compare sets of 1 to 5</b> objects using a visual matching or counting strategy and describing the comparison as more, less than or the same.	<b>Compare sets of up to 10 objects</b> using a visual matching or counting strategy and describing the comparison as more, less than or the same.	
		Use a deck of card (numbers 1-9, Jack as 10) and lay them out a few at a time. Have your child count out objects (cubes, chips, cheerios,) and lay them on top of the card to match the number. Have them compare using vocabulary. 





## Operations and Algebraic Thinking

Strand B: Understand and describe relationships to solve problems.

3 to 4 year olds	4 to 5 year olds	Activities/Suggestions
<p>Understand that adding to(or taking away) one or more objects from a group will increase or decrease the objects in the group.</p>	<p>Use real-world situations and concrete objects to model and solve addition and subtraction problems up to five.</p> <p>Recognize and describe parts contained in larger numbers by composing number combination up to at least 5.</p>	<p>Use a box of crayons to model adding and subtraction. Create a story problem where your child is handing out crayons to his/her stuffed animals. Practice adding to and taking from.</p>  


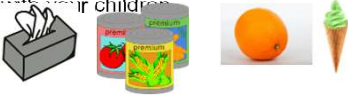
## Measurement and Data

Strand C: Understand the attributes and relative properties of objects.

3 to 4 year olds	4 to 5 year olds	Activities/Suggestions
<p>Recognize measurable attributes of an object such as length, weight or capacity.</p>	<p>Compare the measurable attributes of two or more objects (e.g., length, weight and capacity) and describe the comparison using appropriate vocabulary (e.g., longer, shorter, same weight, holds more, holds less, holds the same amount)</p> <p>Begin to use strategies to determine measurable attributes (e.g., length or capacity of objects). May use comparison, standard or non-standard measurement tools.</p>	<p>Collect objects from home or outdoors and sort &amp; classify them into groups based on size, shape, color, pattern, type</p> <p>Items: Leaves, shells, rocks, books, toys, clothes, etc.</p> <p>*You can place some nature items in a brown bag and have them reach in and grab one (surprise grab game)</p>    
<p>Sort objects into two groups, count, and compare the quantity of the groups formed (e.g., indicate which is more)</p>	<p>Represent data using a concrete object or picture graph according to one attribute.</p>	
<p>Sort and classify objects by one attribute into two or more groups (e.g., color, size, shape).</p>	<p>Sort and classify a set of objects on the basis of one attribute independently and describe the sorting rule. Can re-sort and classify the same set of objects based on a different attribute.</p>	

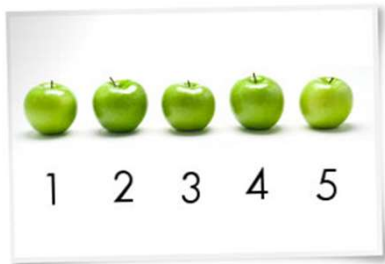
## Geometry and Spatial Sense

Strand D: Understand shapes and spatial relationships.

3 to 4 year olds	4 to 5 year olds	Activities/Suggestions
Use <b>positional vocabulary</b> (e.g., up/down, in/out, on/off, under) to identify and describe the location of an object.	Use related <b>vocabulary of proximity</b> (e.g., beside, next to, between, above, below, over and under) to identify and describe the location of an object.	Provide opportunities for children to take apart, put together and build with blocks: Legos, Tinker Toys, K'nex, etc. 
Identify <b>2-dimensional shapes</b> (starting with familiar shapes such as circle and triangle) in different orientations and sizes).	Identify and describe a variety of <b>2-dimensional and 3-dimensional</b> shapes with mathematical names (e.g., ball/sphere, box/rectangular prism, can/cylinder) regardless of orientation and size.	
<b>Combine two or more shapes</b> to create a new shape or to represent an object in the environment.	Complete a <b>shape puzzle</b> or a new figure by putting multiple shapes together with purpose.	Gather a tissue box, an ice cream cone, a can of vegetables, an orange. Discuss the shapes and dimensions with your children. 

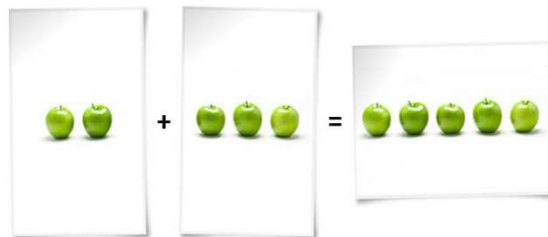
## Key Math Terms to Know and Understand

**One-to-one Correspondence:**



\*Matching an object with a numerical (pointing, placing) value and understanding that each object being counted represents "one more."

**Counting On:**



\*Continue counting objects added to a previously counted group without recounting the entire group



# Integrating Literacy and Numeracy

## Reading with your children or students!

- \*Look for numbers on pages
- \*Identify numbers in text and in pictures
- \*Look for and talk about patterns and shapes
- \*Classify objects in pictures by size, shape, color, category
- \*Develop mathematical language



## Picture Books to Explore:

*The Very Hungry Caterpillar*, Eric Carle  
*Who Stole the Cookie from the Cookie Jar*, Margaret Wang  
*Can't You Sleep Little Bear?*, Martin Waddle  
*The Mitten*, Jan Brett

## Everyday Math

### Playdo

- Roll play-do into snakes, shape into numbers
- Use a toothpick or straw to poke numbers into play-do



### Clothing

- Matching socks into pairs
- Sorting shirts by: short sleeves, long sleeves, tank tops



### Toys

- Make a pattern with beads, marbles, game pieces
- Practice adding/subtracting with play money



### Nature Items

- Rocks, sticks, leaves:
  - Count into piles
  - Order by size
- Find geometric shapes within nature



### Food

- Counting Fun: cheerios, goldfish, small snacks
- Sorting by: color, shape, size
- Fractions: half, whole, quarter, thirds (use pizza, fruit, cake, etc.)



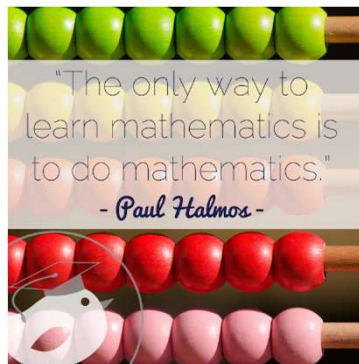
### Car/Driving:

- Count street signs
- Identify shapes of street signs
- Use positional words (above, below, next to, on top of, first, second, etc.) to describe cars/trucks/homes/trees



## Final Thoughts

- Math is anywhere and everywhere
- Talk about math regularly with children by pointing out the numbers, patterns, shapes and measurements we see in the world around us
- Encourage your children and students to be curious and take risks in their learning
- Let children be "problem solvers" by providing them with authentic opportunities to engage in math
- Let them "Do Math" and learn with them!



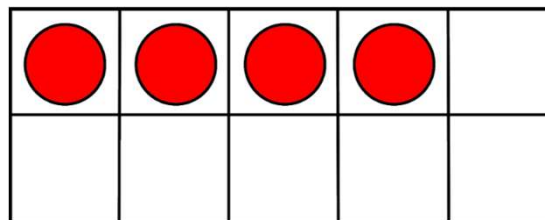
Questions??

## In Your Bags...



You can use: Candy Corns, Pumpkin seeds, snacks, etc to cover the numbers

Roll a dice or flip a card number 1-10. Have child place that number of counters.



Roll a dice and have your child place that many "apple seeds" on their work mat. (Can be done with 2 side by side for comparison)





## Make-and-Take Math Games

Counting Activity



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