



Helping Your Child with the New Common Core Math: A Focus on Preschool to 3rd Grade

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*The Erikson Institute's Early Math Collaborative provided critical content expertise to this workshop.

Who Is the Latino Policy Forum



- The agency conducts analysis with Latino perspective to inform, influence and lead
- Its four issue areas:
 - Early care and education
 - Housing
 - Immigration
 - Civic Advancement
- It convenes sectors of the community to engage in policy advocacy and training through our *Acuerdo* model
- It believes advancing Latinos advances a shared future

Today's Objectives

- Overview of Common Core State Standards—Illinois Learning Standards
- What the new standards mean for learning math
- What can you do as a parent to support your child's learning

Section 1

Background to changes in math
instruction



What are the Common Core State Standards?

- Illinois adopted the new standards in 2010, introduced them in 2012, and the assessments begin 2014-2015
- An estimated 46 states adopted Common Core State Standards; now it looks different
- The standards apply to public schools, including charters and magnets
- Today we can discuss opportunities and challenges with the new standards



Why have standards in education?

- All students held to same high standards
- All students have access to high-quality educational content and opportunities
 - Students who meet the standards will not need remedial course work after high school graduation. Right now = 1/3 need it in college
- Compare student progress across states
- Better assessments to measure what students know





Group Exercise

- Envision someone who does math well.
- Envision someone who does not do math well.



US Math Knowledge

- Study of adults ages 16 to 65 in 20 countries: US ranks in the bottom 5 for understanding numeracy
- Example: Third Pounder ($\frac{1}{3}$) hamburger vs. McDonald's Quarter Pounder ($\frac{1}{4}$)
- We suffer from innumeracy (not understanding math concepts) – the mathematical equivalent of not being able to read
- Why a child might write 1002 vs. 102



What is different about math?

- **US:** Covering many topics
- **Other countries:** Covering less topics with more depth
- **US:** The *right* answer is most important vs. *understanding*
- **Other countries:** How you get to the answer is just as important as the answer itself



What is different about math (cont.)?

- **US:** Memorizing formulas and multiplication tables
- **Other countries:** Discovering procedures and proofs – critical thinking
- **US:** Past state exams valued the answer
- **Other countries:** No multiple choice; partial credit on the process



What is different about math (cont.)?

- **US:** Less emphasis on connecting previous learning
- **Other countries:** Connect prior knowledge to current lesson



Research on how brain functions

- “New brain science tells us that no one is born with a math gift or a math brain and that all students can achieve in math with the right teaching and messages.”*
- “Think about your intelligence, talents, and personality. Are they just fixed or can you develop them?”**
- How you start out is not necessarily how you finish.
- All students can achieve.

*Jo Boaler, 2015, *Memorizers are the lowest achievers and other common core math surprises*.

**Mindset On-line 2015, <http://mindsetonline.com/whatisit/about/>



Section 2

How teachers are teaching
today



Mathematical Practices Aligned with the Standards, K-12

- Understand the problem; and persevere in solving it.
- Provide flexible ideas for how to solve problems.
- Create possible solutions; explain why yours is good.

Adapted from *Principles to Action. Ensuring Mathematical Success for All.* (2014) NCTM



Mathematical Practices Aligned with the Standards, Cont.

- Use appropriate tools.
- Be precise.
- Look for and make use of structure and patterns.

Adapted from *Principles to Action. Ensuring Mathematical Success for All.* (2014) NCTM



Big Ideas About Number Sense

- Numbers are used in many ways, sometimes to add, subtract, multiply, and divide and other times they are names.
- There is a need to understand when numbers are being used to name a specific quantity.
- The quantity of a small collection can be intuitively perceived without counting.

Adapted from *Big Ideas of Early Mathematics. What Teachers of Young Children Need to Know.* (2014) The Early Math Collaborative. Erikson Institute.



Developing meaningful sense of quantity

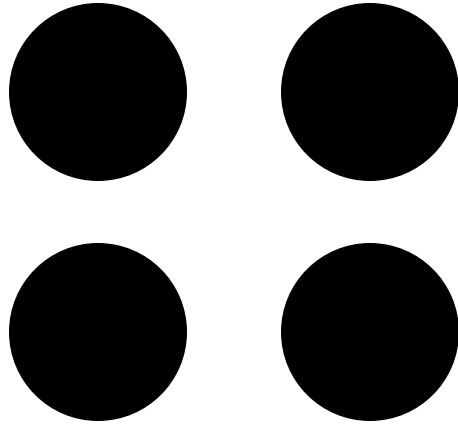
- Need to create a connection between the number words and understanding their numerical meaning.
- Connect counting to quantities
- Children are able to better understand ideas of more or less
- It also helps children estimate quantities and measurement.

**Big Ideas of Early Mathematics. What Teachers of Young Children Need to Know. (2014) The Early Math Collaborative. Erikson Institute.*

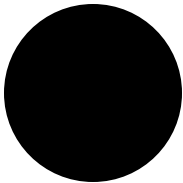
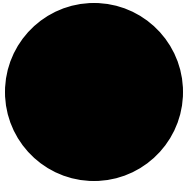
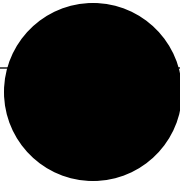


What can you see quickly?

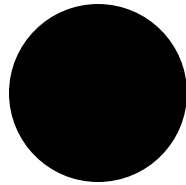
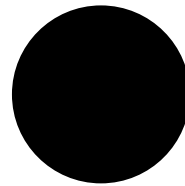
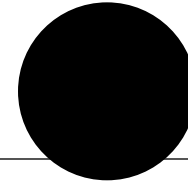
Some dots will flash on the screen ***briefly*** – try to see how many without counting.



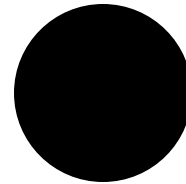
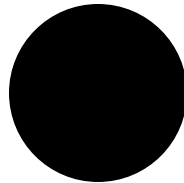
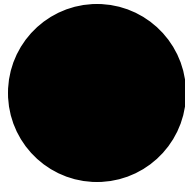
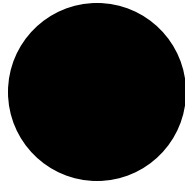










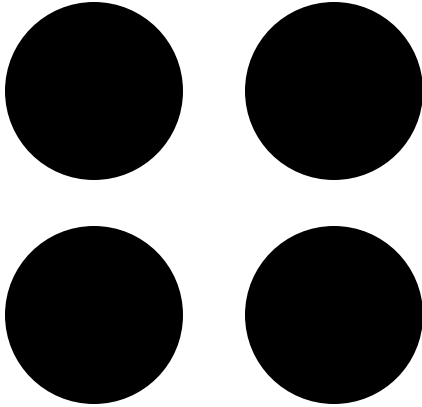
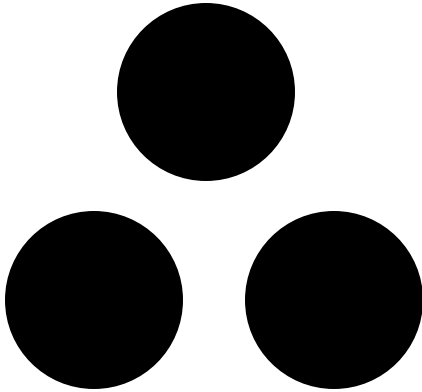




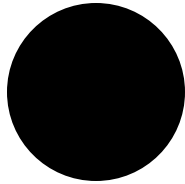
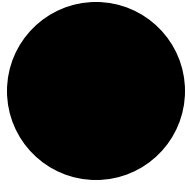
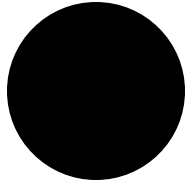
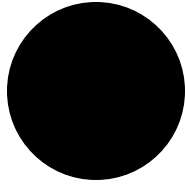
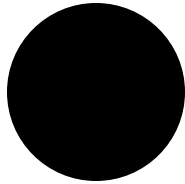
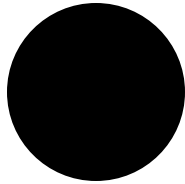
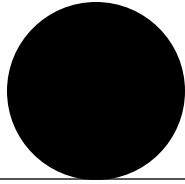


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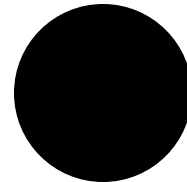
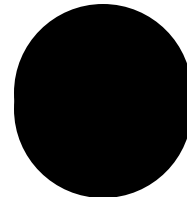
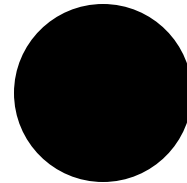
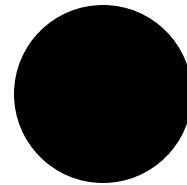
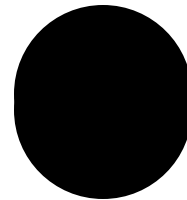
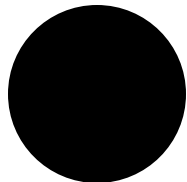
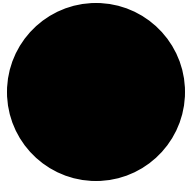
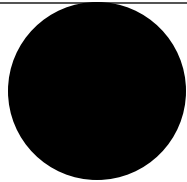
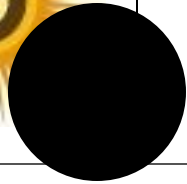
- How did you know it was 3 or 4 dots?
- You “just know.”
- Let’s try some more “quick looks” ...



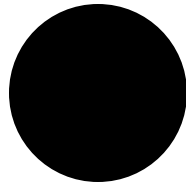
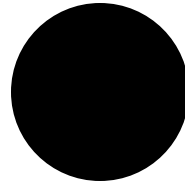
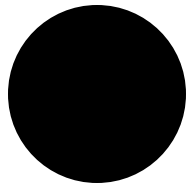
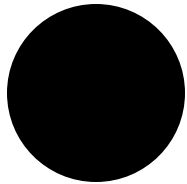
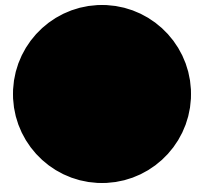
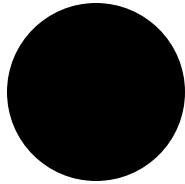
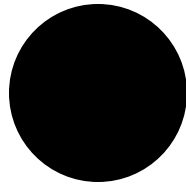
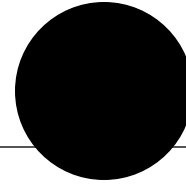
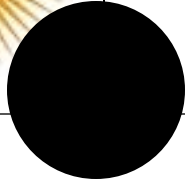
















Developing meaningful sense of quantity

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Emphasizes Base 10 Frame

- Benchmarks of 5 and 10 important in the number system.
- Visual number sense is important because when you can visualize a quantity you can **compose** and **decompose** for a task. This becomes easier vs. just looking at numbers.







Section 3

Ideas for building math at home



Pathway Games

1	2	3	4	5	6	7	8	9	10
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Research on Benefits of Path Games

- **Number line estimation?**
- **Magnitude comparison?**
- **Numeral identification?**
- **+ - x or divide – does any of this happen?**

*Loski and Siegler (2013); Ramani, Siegler, and Hitti (2012); Ramani and Siegler (2011)



Importance of feedback – *continuously improving math knowledge*

- You provide directions and follow rules of game
- How might you?
 - ***Stretch learning?***
 - ***Facilitate communication?***
 - ***Build children's language skills?***
 - ***“Good job” benefits; socio-emotional benefits?***



Games you can play with your child

- Number between 2 and 71
- Dominos
- Card Games – important family time
- Handout



Math Talks at Home

- 1) Tortillas for the family dinner
- 2) Making rice
- 3) Make a grocery list together
- 4) For older kids, any recipe with fractions in it
- 5) \$\$\$ - how much money to buy gum?



Examples of Spanish Cognates for Fractions Unit

<i>English</i>	<i>Spanish</i>
Convert	Convertir
Denominator	Denominador
Double	Doble
Equivalent	Equivalente
Fraction	Fraccion
Mixed	Mixto
Multiple	Multiple
Numerator	Numerador
Package	Paquete
Quadruple	Cuadruple
Rational	Racional
Triple	Triple



Future Steps to Promote Mathematical Learning

- Commit to one thing you will do today
- Develop a relationship with your child's teacher
- Your challenge: **Promote a family math night** or other school-related math activities
- Ask the school to provide resources, including suggestions for books focused on math, for families on their website.



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El Foro de Política Latina agradece al Consejo Nacional de La Raza for hacer este trabajo posible.