



Who's Counting? Numeracy and the Preschool Child.

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The Candy Challenge



- What can you ask children about a handful of candy?
- Easy questions?
- Hard questions?

Background

- Literacy has been a focal point.
- Early involvement with numbers and counting enhances math development.
- In cross-cultural PISA comparisons, Canada ranked 3rd. (Manitoba was below the national average.)
- Teachers who 'dislike mathematics' spend less time instructing mathematics, and have children with lower mathematics scores.
- What happens in early childhood education settings?

The Study



- 1st large scale Canadian attempt
- 768 ECEs participated.
- 28% of the sample was from Manitoba! Mostly women.
- On-line or paper copy survey was completed.
- Sample included even split among administrators, people working directly with children in centers or nursery schools, or in family settings.
- Asked questions about Knowledge, Practices & Beliefs

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Early Learning Survey Summary: Characteristics of clusters of survey participants by beliefs, knowledge and practices.			
	Child-Initiated Cluster	Moderate Cluster	Adult-Guided Cluster
Size of Cluster	n = 305	n = 297	n = 164
Shared Belief	Social & Emotional growth is the primary goal.		
Defining Beliefs	All activities should be child-initiated.	All activities should not be child-initiated.	All activities should not be child-initiated.
	Children should be allowed to opt out of numeracy & literacy activities	Children should not be allowed to opt out.	Children should not be allowed to opt out.
	Preparation for school is not the most important goal.	Preparation for school is not the most important goal.	Preparation for school is the most important goal.
Knowledge of children's early numeracy capabilities	<p>41% Older</p>	<p>48% Older</p>	<p>54% Older</p>
	Tend to think kids are not capable until older		Tend to think kids are capable at younger ages
Knowledge of Early Numeracy	Most feel knowledgeable, but many do not	Most feel knowledgeable, but some do not	Almost all feel they are sufficiently knowledgeable
Math Confidence	Tend to avoid math	Tend to avoid math	Confident about their math skills
Importance ratings for Simple Arithmetic	Not really important before Grade 1	Not really important before Grade 1	Important before Grade 1, but not as important as reading
Early numeracy activities with children	Play some counting games	Play some counting games	Frequent counting games and some quantities & early arithmetic
Recommendations	Target resources on children's capabilities first	Provide resources on children's capabilities and activities	Provide resources on full range of early numeracy



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Implications

- Provide information on numeracy capabilities of young children.
- Provide information on fun, effective early numeracy activities.
- Encourage numeracy involvement by ECE in education of all children.





What You Can Do (NCTM & NAEYC)

- **Infants & Toddlers**

- Exposure (vocabulary, counting, sing songs)

- **Preschoolers**

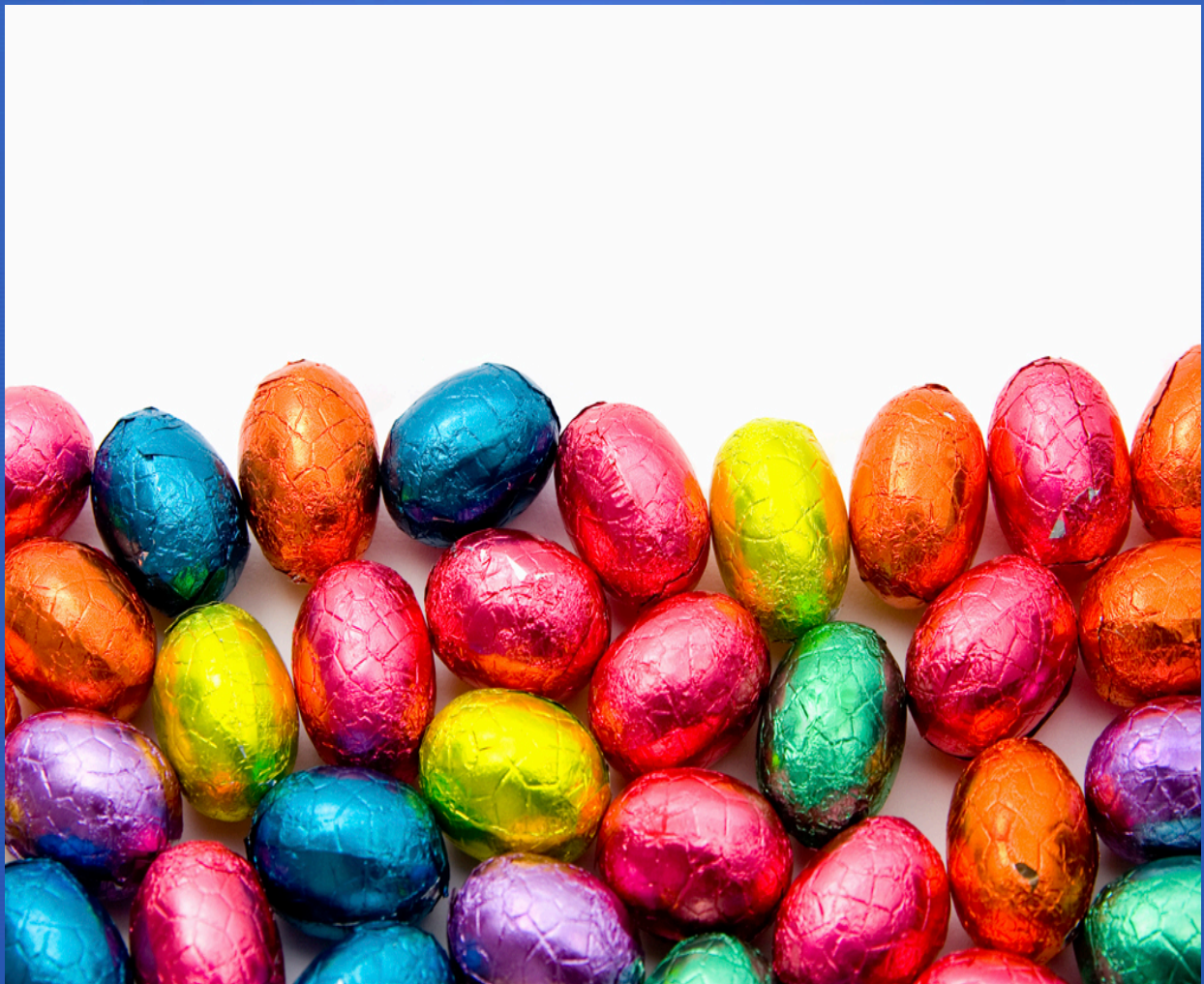
Age 3 Counts 1-4 items	Age 6 Counts up to 100
Names, matches basic shapes in isolation	Names, combines, describes many shapes
Adds/subtracts low numbers non-verbally	Adds/subtracts using counting strategies
"Sees" and labels collections of 1-3 items	"Sees" patterned (i.e., dice) & unpatterned groups up to 6
Copies simple repeating patterns	Discusses patterns in arithmetic (adding 1)
Sorts objects (more/less, heavy/light)	Tries out processes for measurement

- **School Age**

- More of the same (games, math facts, sorting, patterning, graphing, experiments)

What You Can Do...

- Considering the Candies



A Deck of Cards: Your 'Ace of Trumps'

- What can you do with a deck of cards?



Play Time

- Choose an activity
- Play the activity with your partner, the way it was intended, or another way.
- What are some easy questions you can ask? What are some hard questions you can ask?
- Share your activity & ideas with another group & with the large group.



A Time to Learn

- Three things you are already doing to promote numeracy...

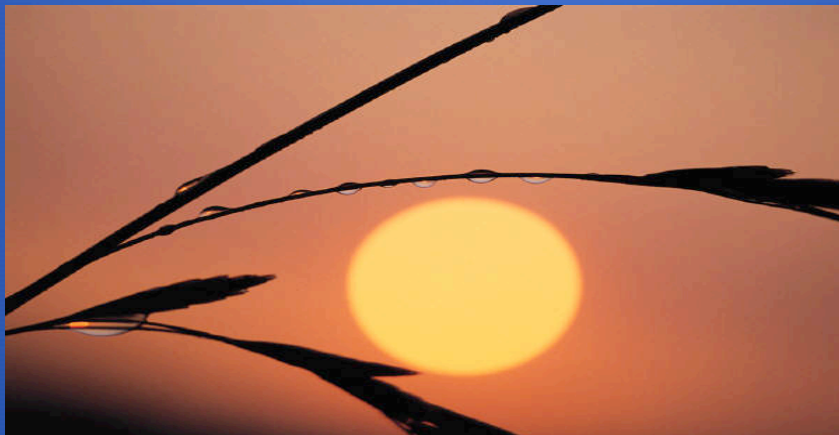
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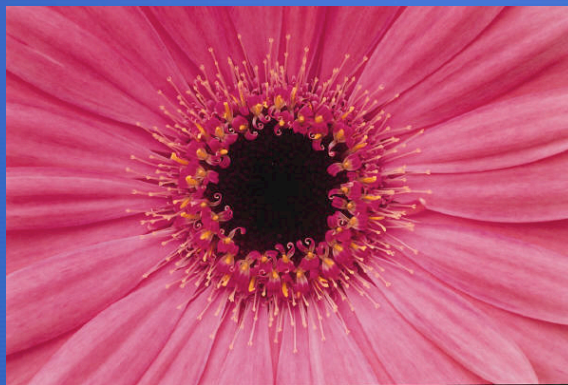
- 1 thing you are going to try...

1)



A Special Thanks to...

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