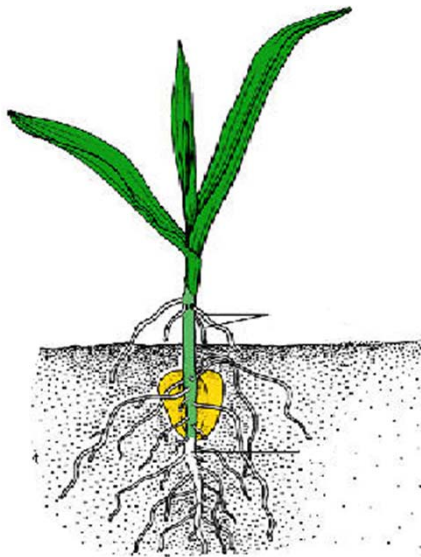


# Early Mathematics Education Project

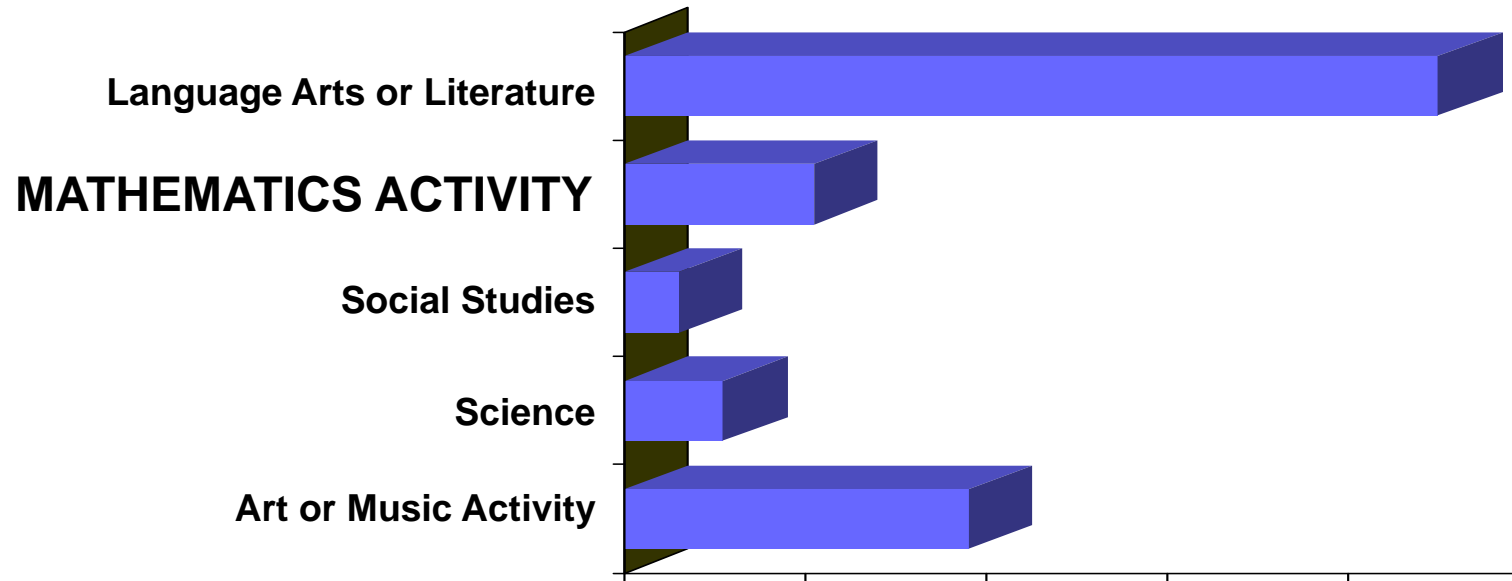


**Accomplishments and Plans**

## Myth 1:

**For young children, learning mathematics is less important than developing early literacy and language skills.**

# Chicago Early Childhood Mathematics



**Mathematics activities take place in only 21 percent of CPS early childhood classrooms on a given day**

(Chicago Program Evaluation Project, 2007)

# Early Mathematics Education Importance

Kindergarten entry

3<sup>rd</sup> to 8<sup>th</sup> grades

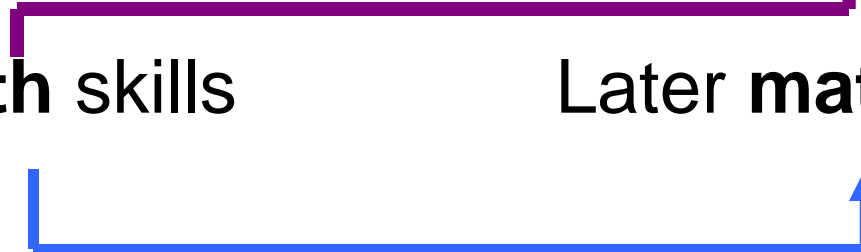
Early **reading** skills

Later **reading** achievement



Early **math** skills

Later **math** achievement



**Mathematics has strong predictive power.**

Duncan, et al. 2004, 2007

# Make That Number!



# Make That Number!

6

3 & 3

2 & 4

4 & 2

5 & 1

1 & 5

2 & 2 & 2

1 & 3 & 2

1 & 4 & 1

2 & 2 & 1 & 1

## An Early Mathematics Big Idea

**Composing and decomposing** —  
A quantity (whole) can be  
“broken apart” (**decomposed**)  
into parts, and the parts can be  
combined (**composed**) to form  
the whole.

# Make That Number!

**6**

3 & 3

2 & 4

4 & 2

5 & 1

1 & 5

2 & 2 & 2

1 & 3 & 2

1 & 4 & 1

2 & 2 & 1 & 1

- Flexible Thinking
- Analytical Thinking
- Abstract Thinking
- Problem Solving

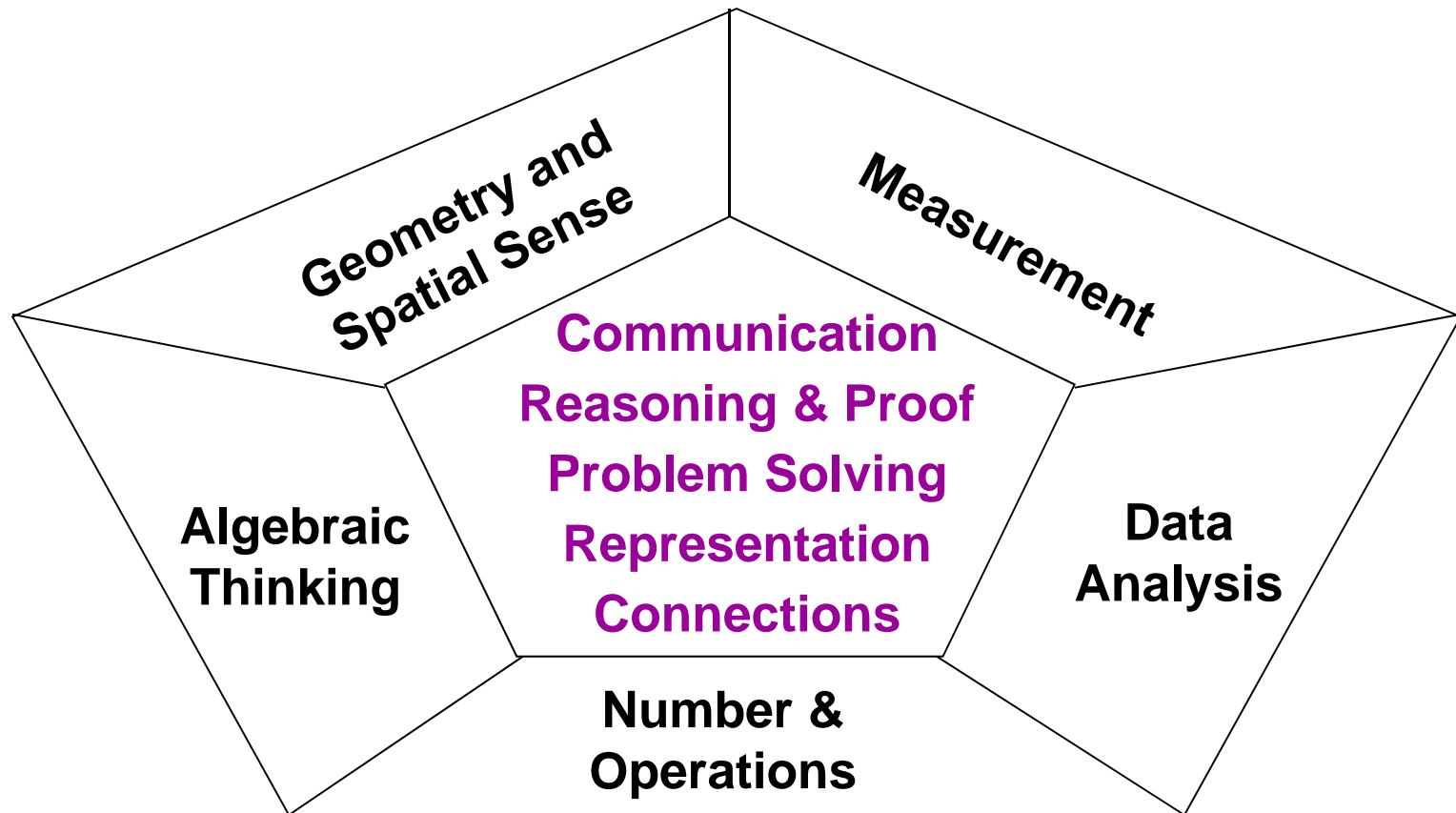
- $8+6=10+4=8+2+4=14$

## Myth 2:

**Early mathematics is primarily about learning numbers and shapes.**



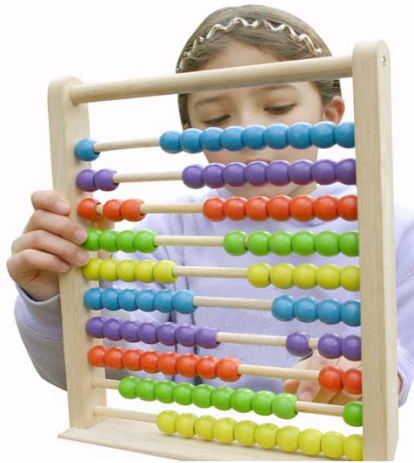
# Mathematics Content and Process Standards



National Council of Teachers of Mathematics (NCTM)

# Counting is Complex

- Counting can be used to find out how many in a collection
- There are five counting principles



**The one-one principle**

**The stable-order principle**

**The cardinal principle**

**The abstract principle**

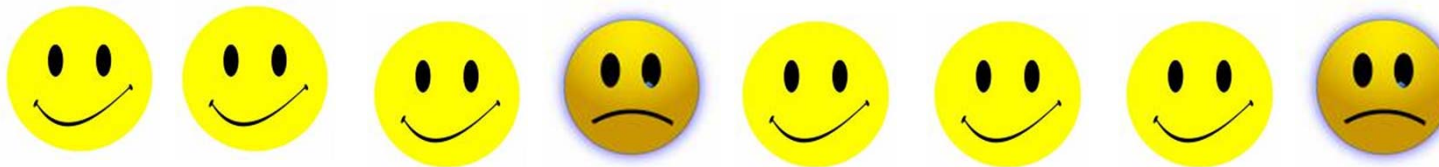
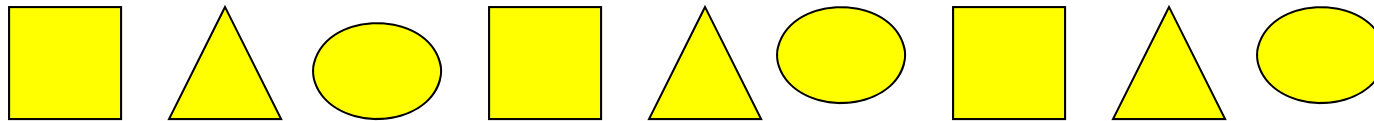
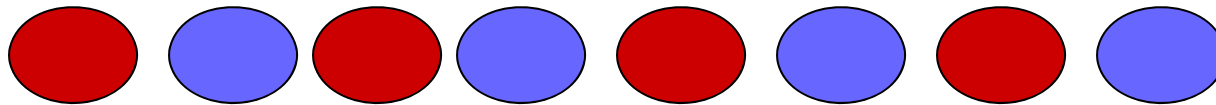
**The order-irrelevance principle**

# Number is Complex

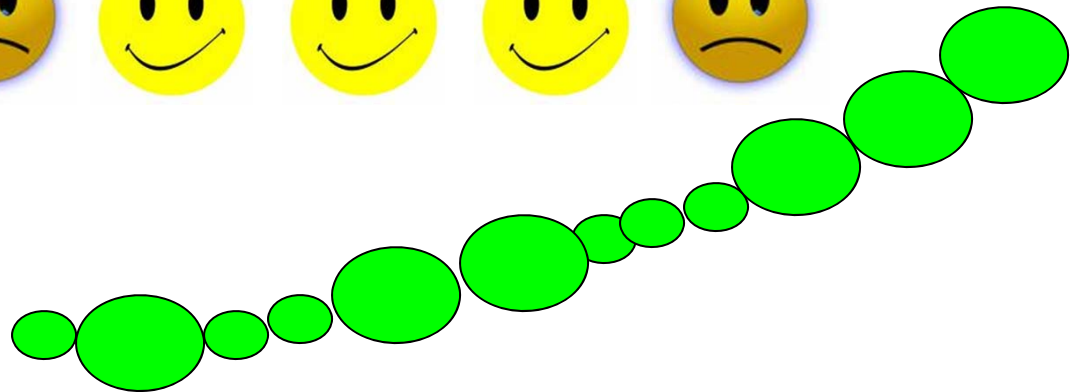


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# Pattern is Complex



?



1 2 3 4 5 6 7 8

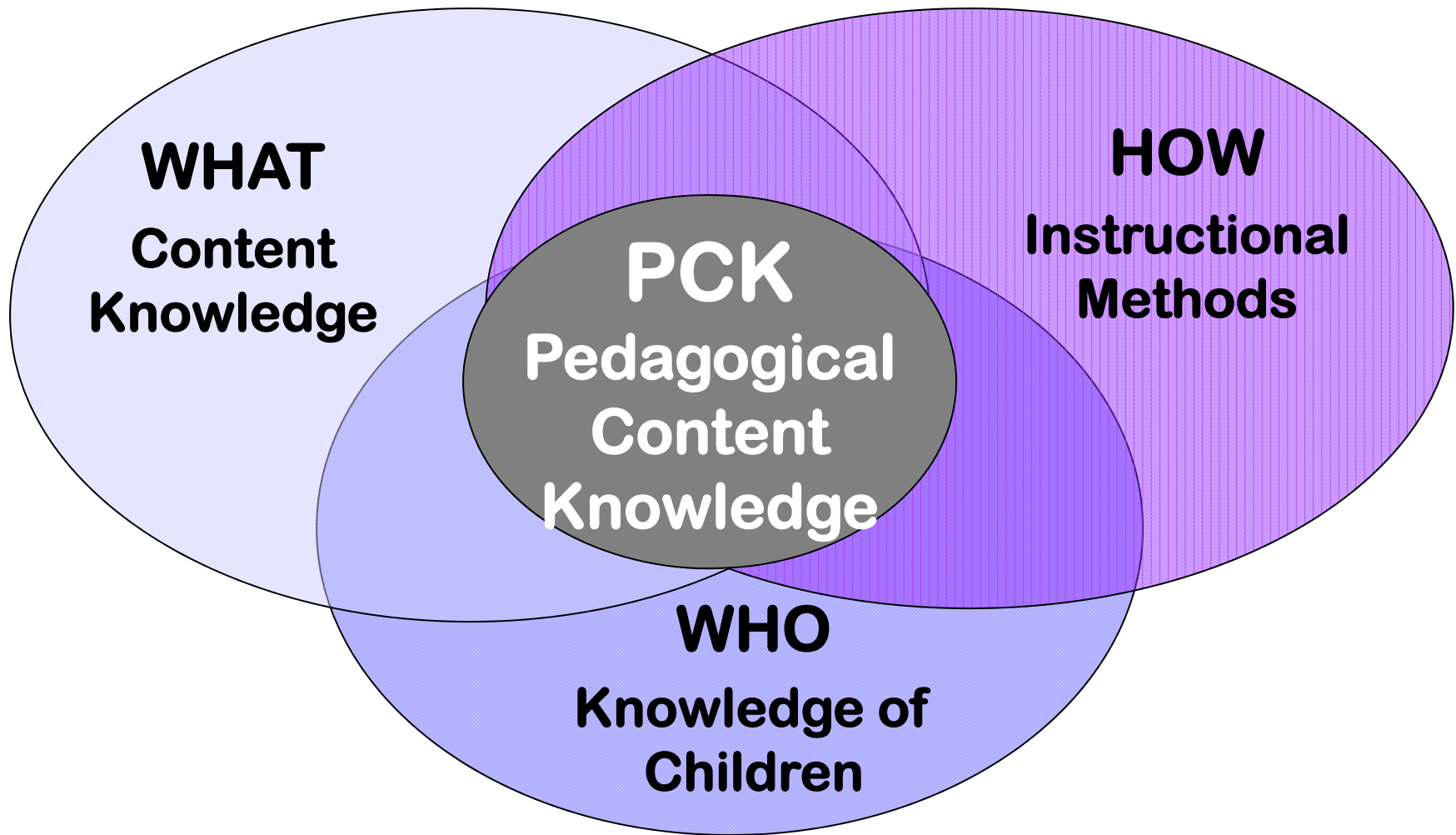
?

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## Myth 3:

**Teaching early mathematics is easy since it's about the most basic math.**

# Early Mathematics Teaching





# Video Analysis

Xio's Classroom

5 year olds

***The Gingerbread Man***



# Early Mathematics Is Foundational Mathematics

