

assessing

**MATH**


concepts™

**Math**  
**Perspectives**  
Teacher Development Center

P.O. Box 29418  
Bellingham, WA  
98228-9418  
mathperspectives.com

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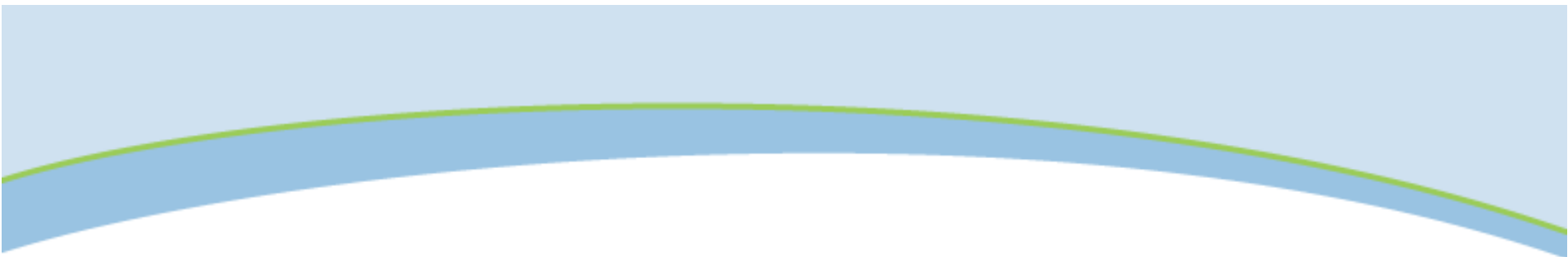
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assessing  
**MATH**  
concepts™

By  
**Kathy Richardson**

**The only formative math assessment  
for grades K-3 that truly uncovers  
students' knowledge of key math  
concepts.**



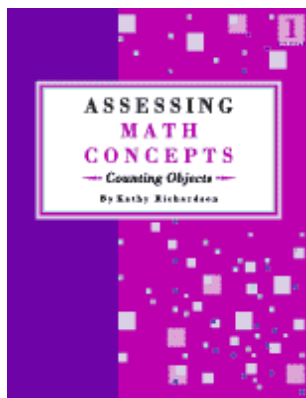
The focus is on the

# Critical Learning Phases

# What are Critical Learning Phases?

- They are the essential ideas that are milestones or hurdles in children's growth in understanding.
- They determine the way a child is able to think with numbers and use numbers to solve problems.
- They are the understandings that must be in place to ensure that children are not just imitating procedures or saying words they do not really understand.  
(illusions of learning)

# Counting / Number Relationships



Counting  
Objects



Changing  
Numbers



More/Less  
Trains

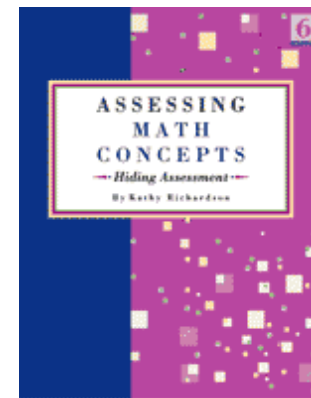
# Number Composition & Decomposition



Number  
Arrangements



Combination  
Trains



Hiding  
Assessment

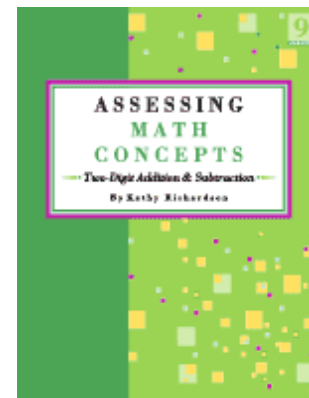
# Place Value / Numbers as Tens & Ones



Ten  
Frames



Grouping  
Tens



Two-Digit  
Add/Sub

# Assessing Math Concepts

What do we need to know?

It is not enough to know if the child can get right answers.

We need to know what mathematics the child knows and understands.

# Assessing Math Concepts is:

- **A cohesive look at the development of children's understanding of core math concepts.**
- **Not a random collection of questions focused on a child's ability to get right answers.**



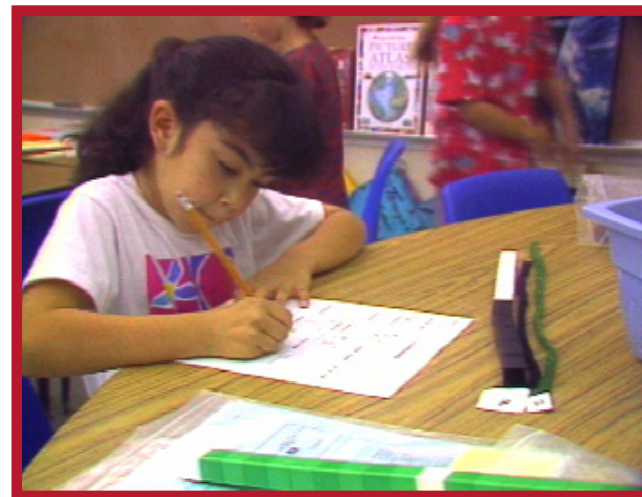
## The assessments pinpoint what each child knows and still needs to learn

- The assessments have been carefully designed so each question elicits several levels of thinking.
- This gives teachers the most information possible in the shortest amount of time.

# Indicators

- N Needs Prerequisite** (The child is not yet able to learn this concept. Something else is needed first)
- I Needs Instruction** (The child has a beginning understanding of this but needs support)
- P Needs Practice** (The child is developing insight and competence and needs to work at this level longer)
- A Ready to Apply** (The child has facility with the idea and needs to apply it and move on to other concepts)

**The assessments give you the information  
you need to identify the appropriate  
working level for each child.**

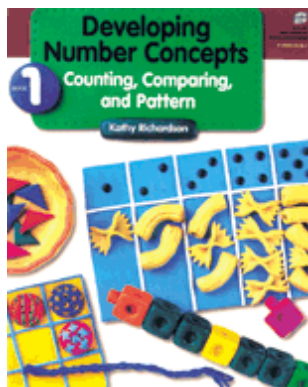




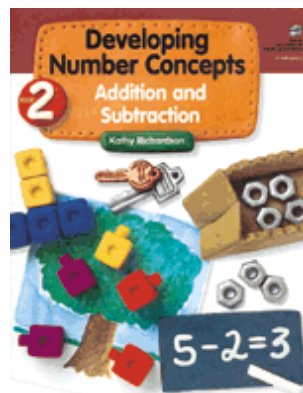
# The assessments are the beginning, not the end.

The information you get tells you what you need to do for your students. What you learn can truly guide your instruction.

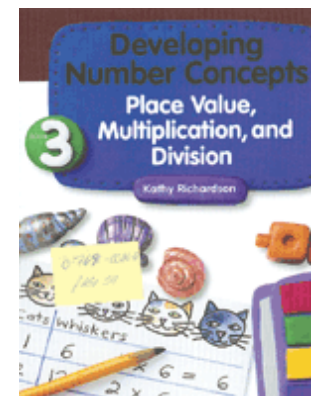
**The assessments lead you to resources that will help provide appropriate instruction for each child.**



Counting,  
Comparing &  
Pattern



Addition &  
Subtraction



Place Value,  
Multiplication &  
Division

# Assessing Math Concepts

This assessment series is based on the premise that teachers will be able to provide more **effective instruction** and ensure **maximum learning** for each of their students when they are aware of the essential steps that children move through when developing an **understanding** of foundational mathematical ideas.

# Learning the Essential Mathematics is What Matters

“When children learn only to follow procedures without understanding the underlying mathematics, what they are doing is empty of mathematics.”

*Kathy Richardson*

# The Solution for Managing Students' Math Progress



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# MATH PERSPECTIVES TEACHER DEVELOPMENT CENTER

[www.mathperspectives.com](http://www.mathperspectives.com)

Phone: 360-715-2782

## ASSESSING MATH CONCEPTS RESEARCH SUMMARY

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