By Kathy Richardson

The only formative math assessment for grades K-3 that truly uncovers students’ knowledge of key math concepts.
Assessing Math Concepts

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.
Counting / Number Relationships

Counting Objects

Changing Numbers

More/Less Trains

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Number Composition & Decomposition

Number Arrangements

Combination Trains

Hiding Assessment

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Place Value / Numbers as Tens & Ones

Ten Frames

Grouping Tens

Two-Digit Add/Sub

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AMC Assessments

• Inform instruction

• Document growth

• Uncover the child’s edge of understanding

• Guide us as to what is coming into view as children construct mathematical understandings
Document Growth

• Enables teachers to select instructional tasks that coincide well with child’s current level of understanding

• Provides an on going picture of child’s achievement progress

• Provides data for measuring understanding of core number concepts
The assessments are not about “helping children be right,” but about uncovering what they need regarding instruction.
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)
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.
The assessments are the beginning, not the end.

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

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

Counting, Comparing & Pattern

Addition & Subtraction

Place Value, Multiplication & Division

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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.
The Solution for Managing Students’ Math Progress
A Look at Some of the Key Features of the Web Based assessments
Login Screen
Each teacher and administrator has their personal user name and password
The above **Welcome Screen** appears after logging in with the teacher’s class list and various tabs. First tab we will select is: **Start Assessment**
A separate window pops up (see below) displaying all assessments on the right side. We can **SELECT** the “Counting Objects” assessment—and, before continuing, check out the useful features tabbed on the left side. We can **CLICK** on the grey “I” tab for instructions. An informative section appears on the left of the screen. This material will help teachers review the tasks, goals and materials needed before starting the assessment they’ve selected.
During the assessment, the teacher’s questions can be read from the easy-to-follow bubbled text
With a simple click of the mouse, the teacher prompts can be changed to Spanish.
The teacher records the student’s answer and strategy
When the assessment is completed, the student’s instructional level is shown and permanently recorded.
CLICK the Resources tab, indicated by the arrow below to see what resources are available.
You can click on the PDF file icons for files for the Instructions, Linking Assessment to Instruction or Cards (if needed) for each of the assessments.
Teachers have a variety of classroom and individual reports available to help them plan for instruction.
Here is an example of a Classroom Instruction Report that groups students according to their instructional needs.

<table>
<thead>
<tr>
<th>Arrangements</th>
<th>Date</th>
<th>Recognizes Small Groups</th>
<th>Identifies Parts of Numbers</th>
<th>Combines Parts of Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Recognizes Small Groups</td>
<td>09/13/2011</td>
<td><img src="image" alt="Icon" /></td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Students Identifies Parts of Numbers</td>
<td>09/16/2011</td>
<td><img src="image" alt="Icon" /></td>
<td>P</td>
<td>N</td>
</tr>
<tr>
<td>Students Combines Parts of Numbers</td>
<td>09/16/2011</td>
<td><img src="image" alt="Icon" /></td>
<td><img src="image" alt="Icon" /></td>
<td><img src="image" alt="Icon" /></td>
</tr>
<tr>
<td>Students Apply</td>
<td>09/16/2011</td>
<td>A</td>
<td><img src="image" alt="Icon" /></td>
<td>A</td>
</tr>
</tbody>
</table>
MATH PERSPECTIVES TEACHER DEVELOPMENT CENTER

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ASSESSING MATH CONCEPTS RESEARCH SUMMARY