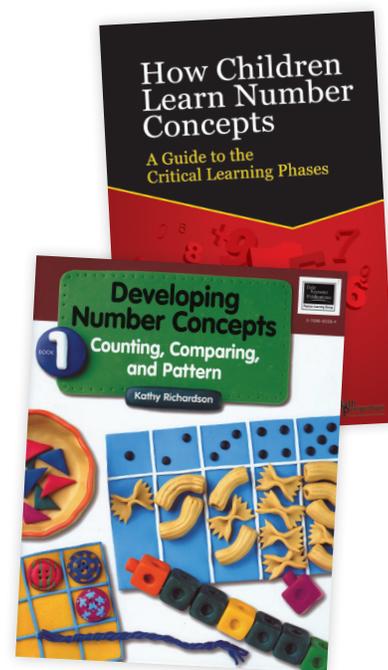


Assessment and Curriculum Resources

By Kathy Richardson



Meet Kathy Richardson

Kathy Richardson is the nation's leading elementary mathematics educator. She is the author of the *Developing Number Concepts* and the *Assessing Math Concepts* series as well as numerous other publications. She is passionate about making schools good places for all students and believes in the need for solutions that go beyond creating “illusions of learning” to look carefully at what students need to understand to be successful. All of her work is supported by the most recent research in mathematics education and her own classroom-tested experiences. She is the program director of the Math Perspectives Teacher Development Center in Bellingham, WA.



Assessing Math Concepts Program

Assessing Math Concepts™ (AMC) is the only formative math assessment for grades K-2 that accurately uncovers students' knowledge of key math concepts. The assessments go beyond “getting the right answers” to reveal students' true understanding. AMC determines the level of thinking each student has reached. Teachers use this level to guide instruction so that the student is working at the most appropriate level for maximum growth and understanding. AMC will ensure students understand the mathematical concepts they need to know in elementary school to be successful in math in middle school and beyond.

Richardson identifies the “Critical Learning Phases” that students move through as they develop an understanding of the foundational mathematical ideas they need to know. The nine assessments are:

- Counting Objects
- Changing Numbers
- More/Less Trains
- Number Arrangements
- Combination Trains
- Hiding Assessment
- Ten Frames
- Grouping Tens
- Two-Digit Addition and Subtraction

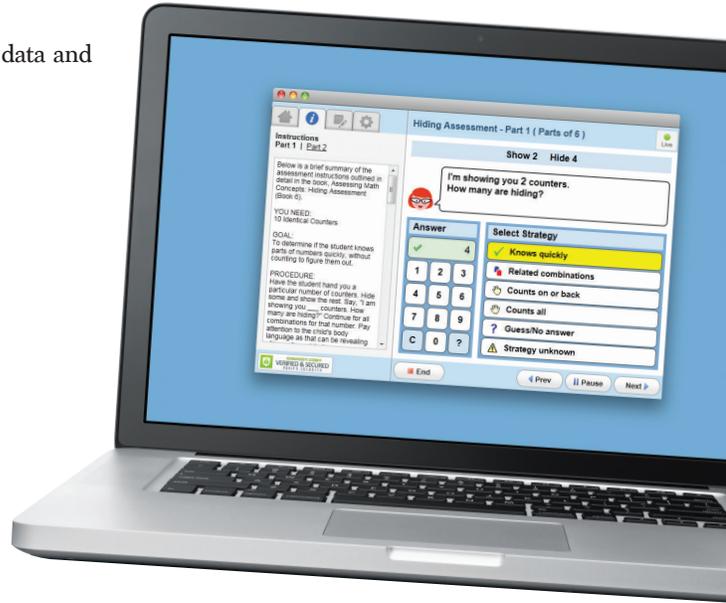
Program Highlights

- Provides a systematic way of interpreting student performance so teachers can truly target their instruction
- Supports MTSS and RTI initiatives
- Automatically captures data in web-based reports
- Reporting links assessment results to Richardson's curriculum resources for instruction
- Reporting enables teachers to group students for instruction or provide individualized support

AMC Anywhere

AMC Anywhere is the web-based tool that captures student assessment data and provides powerful reporting to track results.

- Assess with short one-on-one student/teacher interviews to reveal true understanding
- Capture in-depth information in the shortest amount of time
- Automatically calculates students' instructional level
- Use results to inform classroom instruction
- Assessment results are linked to Richardson's *Developing Number Concepts* curriculum for targeted instruction
- Can be used to identify students who need intervention



AMC Anywhere Reporting

Administrative Reports

Show assessment usage and results throughout school or district. Reports available:

- Benchmark Report by School, Teacher, and Student
- Instructional Report by School
- Assessment Usage Report by School

Teacher Reports

Summarizes results by classroom and students. Reports available:

- Class Instruction, Summary, and Benchmark Report
- Student Detail and Progress Report

Results summarized across district or school

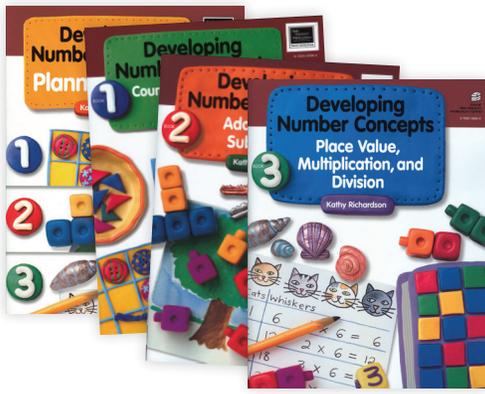
| Benchmark Report by School | | | | | |
|----------------------------|-------------------|---------------------|-----------------------|-----------------------|-------------------------|
| School | Students Assessed | Met Benchmark Total | Met Benchmark Percent | Below Benchmark Total | Below Benchmark Percent |
| Anderson Elementary | 182 | 149 | 82% | 33 | 18% |
| Brown Elementary | 221 | 152 | 69% | 69 | 31% |
| Carson Elementary | 113 | 103 | 91% | 10 | 9% |
| Davis Elementary | 188 | 164 | 87% | 24 | 13% |
| Emerson Elementary | 96 | 90 | 94% | 6 | 6% |
| Gonzalez Elementary | 244 | 173 | 71% | 71 | 29% |
| Harris Elementary | 204 | 165 | 81% | 39 | 19% |
| Jacobson Elementary | 137 | 103 | 75% | 34 | 25% |
| Kellerman Elementary | 121 | 80 | 66% | 41 | 34% |
| MacDonald Elementary | 265 | 180 | 68% | 85 | 32% |
| Nelson Elementary | 171 | 144 | 84% | 27 | 16% |
| Palmer Elementary | 322 | 190 | 59% | 132 | 41% |
| Reynolds Elementary | 79 | 73 | 92% | 6 | 8% |
| Santana Elementary | 159 | 138 | 87% | 21 | 13% |
| Thompson Elementary | 191 | 147 | 77% | 44 | 23% |
| Walden Elementary | 239 | 174 | 73% | 65 | 27% |
| TOTAL | 2932 | 2225 | 76% | 707 | 24% |

Administrator Benchmark Report

Students sorted by instructional level

| Student | Date | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------|------------|---|----|---|---|----|---|---|----|
| Needs Prerequisite | | | | | | | | | |
| Sanchez, Camila | 09/01/2010 | N | | | | | | | |
| Working on Parts of 4 | | | | | | | | | |
| Thompson, Ashley | 09/17/2010 | A | | | | | | | |
| Garcia, Tyler | 09/17/2010 | A | P | | N | | | | |
| King, Camika | 11/03/2010 | A | P+ | | P | | | | |
| Working on Parts of 5 | | | | | | | | | |
| Miller, Jacob | 10/20/2010 | | A | | P | P- | I | | |
| Working on Parts of 6 | | | | | | | | | |
| Scott, Daniel | 10/20/2010 | | | A | | A | | | |
| Working on Parts of 7 | | | | | | | | | |
| Rodriguez, Carlo | 10/20/2010 | | | | A | | | | |
| Cooper, Marcus | 10/19/2010 | | | | | A | | P | |
| Working on Parts of 8 | | | | | | | | | |
| Harris, Brandon | 10/19/2010 | | | | | A | | A | |
| Working on Parts of 9 | | | | | | | | | |
| Roberts, Madison | 10/19/2010 | | | | | | | A | P+ |
| Ready to Apply | | | | | | | | | |
| Lee, Hannah M. | 10/19/2010 | | | | | | | A | A |

Teacher Class Instruction Report



Developing Number Concepts

This series provides a cohesive curriculum for number operations to help young children develop an understanding of and competence in counting, number relationships, addition, subtraction, and place value. Every concept is developed through both teacher-directed and independent activities. Because children learn at different rates, the activities are “expandable,” making it easy for teachers to differentiate their instruction. The program is ideal for math intervention programs.

All AMC assessment results are linked to activities from the Developing Number Concepts program

Concept 1: Counting Objects *Core Topic: Counting*

If children need practice:
Provide activities requiring the children to keep track of quantities in a variety of situations, such as those listed below from *Developing Number Concepts: Book 1*.

| NEEDS PRACTICE (P): COUNTING OBJECTS | | |
|--------------------------------------|--------------------------|------|
| TEACHER DIRECTED | | TO 5 |
| 1: 1-2 | Count and Dump | • |
| 1: 1-4 | Counting Stories | • |
| 1: 1-5 | Creations | • |
| 1: 1-8 | Grow and Shrink | • |
| INDEPENDENT ACTIVITIES | | TO 5 |
| 1: 1-21 | Counting Boards, Level 1 | 1-6 |

1-8 Grow and Shrink* Small-Group Activity

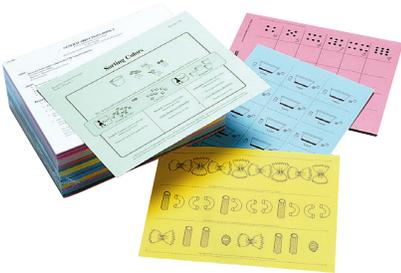
Materials: *Level 1:* Counters • Working-space papers (1 per child) [BLM #1]
Level 2: Same as for Level 1, plus Large dot cube 1-6 (See Materials Preparation, p. 24.)
Level 3: Same as for Level 1, plus Large number cubes 0-5, 1-6, and 4-9 (See Materials Preparation, p. 24.)

Level 1: Counting

This activity appears to be just a simple counting game, but it is one that allows children to begin to see relationships between numbers.

From *Assessing Math Concepts: Counting Objects*

From *Developing Number Concepts Book 1: Counting, Comparing and Pattern*



Activity Cards

Additional Items to Support Developing Number Concepts

DNC Activity Cards

Printed cards for the station activities in the DNC series, available on cardstock or laminated.

DNC Resource Kits

Available for each book, these kits provide the manipulatives, laminated activity cards, and dice needed to implement the program.

DNC Dice Kits and Spinners

Customized dice and spinners for Developing Number Concepts.



Resource Kit

Expert Professional Development Support

Math Perspectives Teacher Development Center works with school districts across the country to provide teachers with the training they need. It is recommended that math educators receive professional development to ensure the correct implementation of AMC. Teachers learn essential math content, information on how children learn mathematics, and how to use the assessments to identify students' instructional needs.

For more information about Professional Development, visit www.mathperspectives.com or call (360) 715-2782.

Research Results

A study was conducted to examine the influence of formative assessment practices on primary grades students' number sense skills using the internet-based formative assessment tool, AMC Anywhere.

“The data analyzed in this study came from teacher-participants in the Assessment Practices to Support Mathematics Learning and Understanding for Students (APLUS) professional development project funded by the Department of Education’s Mathematics Science Partnership grant program.

The APLUS project provided teachers with approximately 70 hours of learning experiences related to the use of the internet-based formative assessment tool, AMC Anywhere, (Richardson, 2012), and the accompanying Developing Number Concepts curricular resources (Richardson, 1998). Participants in this study were 906 teachers and their 13,567 students in Grades K-2.

Results indicated there were statistically significant relationships between the use of formative assessment practices and primary grades students’ achievement on number sense tasks using the internet-based tool, AMC Anywhere. Further, students from impoverished settings, larger schools, and students who were assessed more frequently were associated with greater growth than their peers.”

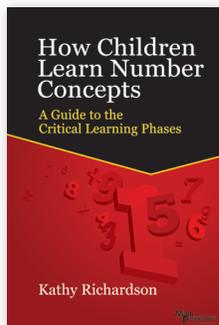
—Polly, D., Wang, C. Martin, C. S., Lambert, R. G., Pugalee, D. K., Stephan, M., & Ringer, C. (2014, April). Examining the influence of professional development on primary students' mathematical achievement. Paper presented at the 2014 Annual Meeting of the American Educational Research Association, Philadelphia, PA.

For complete research reports, contact Margo Hanson (margo@didax.com).



“Results indicated, there were statistically significant relationships between the use of formative assessment practices and primary grades students’ achievement on number sense tasks using the internet-based tool, AMC Anywhere.

Other Kathy Richardson Resources



How Children Learn Number Concepts

A “must-have” book for every math educator

Through her years of research and extensive work with young children, Richardson has identified the stages, or Critical Learning Phases, children go through as they develop mathematical understanding. This important resource will help all math educators understand how children make sense of numbers and what mathematics they are ready to learn at each phase of development. Grades K-5.

Understanding Numbers

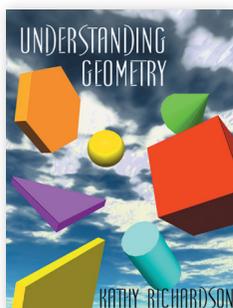
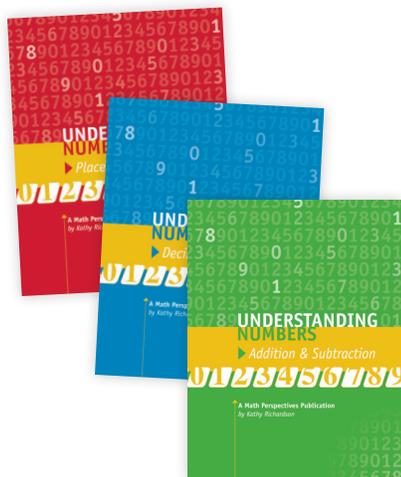
Math Stations for Grades 3-5

This series includes three sets:

- Place Value
- Addition & Subtraction
- Understanding Decimals

Each set consists of eight stations that present a variety of activities focused on one major concept. The tasks are designed to meet a range of needs, allowing all students to work at their own level. These stations should be experienced over and over again until students have developed proficiency in the tasks.

Bundled with the instruction guide are the activity cards needed for each activity, printed on colored stock and suitable for repeated classroom use. Grades 3-5.



Understanding Geometry

A Complete K-3 Resource for Geometry

This valuable resource book provides teachers with ongoing experiences for helping children develop spatial awareness and an in-depth understanding of two- and three-dimensional geometry concepts. More than just activities, the book provides guidelines for deepening children's understanding and observing their growth. Includes the “big ideas” in geometry, glossary, planning guide, task cards, assessments, and observations. Uses a variety of common manipulatives. Grades K-3.

Pre-Kindergarten Resources

Developing Math Concepts in Pre-Kindergarten

This book provides teachers with everything they need to understand the teaching of mathematics in the prekindergarten classroom. The book is organized according to the key mathematical areas children need to know:

- Numbers
- Pattern
- Geometry
- Measurement
- Sorting and Classifying
- Data Collection

For each of these areas, activities are provided for circle time, small group, and individual instruction. In all, more than 75 activities are included, making this a complete resource for all pre-kindergarten teachers.

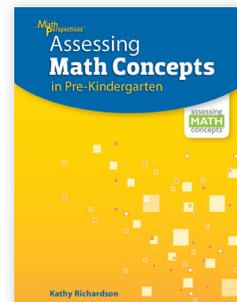


Assessing Math Concepts in Pre-Kindergarten

The assessments in this resource are uniquely focused on how young children learn number concepts. The four concepts addressed in the PreK assessment include:

- Understanding Counting
- Understanding One More/One Less
- Understanding Parts of Numbers: Recognizing Small Groups
- Understanding Number Relationships: Changing Numbers

These simple but informative assessments help teachers gather important data about what each of their students knows and what they need to learn, allowing teachers to meet the diversity of needs in their classrooms. The program includes an assessment guide as well as interview forms for each of the four assessments.



Developing Math Concepts in Pre-Kindergarten Manipulative Kit

This kit includes all the materials needed for organizing the activities featured in the book.



“The National Council of Teachers of Mathematics (NCTM) and the National Association for the Education of Young Children (NAEYC) affirm that high-quality, challenging, and accessible mathematics education for 3- to 6-year-old children is a vital foundation for future mathematics learning.”

A joint position statement of the National Association for the Education of Young Children (NAEYC) and the National Council of Teachers of Mathematics (NCTM). Adopted in 2002. Updated in 2010.

Kathy Richardson Publications

| CODE | TITLE | PRICE |
|---------|--|----------|
| 9-00584 | Developing Number Concepts—Book 1 | \$35.95 |
| 9-00592 | Developing Number Concepts—Book 2 | \$35.95 |
| 9-00606 | Developing Number Concepts—Book 3 | \$35.95 |
| 9-59244 | Developing Number Concepts—Planning Book | \$23.95 |
| 2-151 | Developing Number Concepts Activity Cards—Book 1 Cardstock | \$150.00 |
| 2-152 | Developing Number Concepts Activity Cards—Book 2 Cardstock | \$110.00 |
| 2-153 | Developing Number Concepts Activity Cards—Book 3 Cardstock | \$90.00 |
| 211171 | Developing Number Concepts Activity Cards—Book 1 Laminated | \$379.00 |
| 211172 | Developing Number Concepts Activity Cards—Book 2 Laminated | \$319.00 |
| 211173 | Developing Number Concepts Activity Cards—Book 3 Laminated | \$229.00 |
| 210936 | Developing Number Concepts—Book 1 Dice Kit | \$50.00 |
| 210937 | Developing Number Concepts—Book 2 Dice Kit | \$40.00 |
| 210938 | Developing Number Concepts—Book 3 Dice Kit | \$30.00 |
| 211239 | Developing Number Concepts Spinners, Set of 5 | \$5.95 |
| 173025 | Spinner Hands | \$2.95 |
| 211371 | Developing Number Concepts Resource Kit—Book 1 | \$699.95 |
| 211372 | Developing Number Concepts Resource Kit—Book 2 | \$594.95 |
| 211373 | Developing Number Concepts Resource Kit—Book 3 | \$499.95 |
| 211348 | How Children Learn Number Concepts | \$24.95 |
| 2-191 | Understanding Numbers—Place Value | \$36.00 |
| 2-193 | Understanding Numbers—Addition & Subtraction | \$36.00 |
| 2-192 | Understanding Numbers—Understanding Decimals | \$36.00 |
| 2-1059 | Understanding Numbers—Set of Three | \$75.00 |
| 2-141 | Understanding Geometry | \$21.95 |
| 211700 | Time for Math | \$21.95 |
| 123892 | Developing Math Concepts in Pre-Kindergarten | \$29.95 |
| 211701 | Assessing Math Concepts in Pre-Kindergarten | \$21.95 |
| 211703 | Assessing Math Concepts in Pre-Kindergarten, Interview Form—Counting Objects | \$12.95 |
| 211702 | Assessing Math Concepts in Pre-Kindergarten, Interview Form—Changing Numbers | \$8.95 |
| 211704 | Assessing Math Concepts in Pre-Kindergarten, Interview Form—One More/One Less | \$12.95 |
| 211705 | Assessing Math Concepts in Pre-Kindergarten, Interview Form—Recognizing Small Groups | \$7.95 |
| 211030 | Developing Math Concepts in Pre-Kindergarten Kit | \$329.95 |
| 211238 | Developing Math Concepts in Pre-Kindergarten Spinners, set of 5 | \$5.95 |

Contact Information

For more information, visit www.didax.com/kathyrichardson or contact your regional representative.

Eastern US: Anne McManus, amcmanus@didax.com

Western US: Matt Christiansen, matt@didax.com

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