

## Response to Intervention: Evidence-Based Interventions NCTM 2013

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- **Research Basis - What Works Clearinghouse Practice Guide:**

*Assisting Students Struggling with Mathematics: RTI for Elementary & Middle Schools*  
<http://ies.ed.gov/ncee/wwc/publications/practiceguides/>

- **What to Teach:**

- Targeted focus on foundational skills:
  - Whole numbers in grades K-5
  - Rational numbers in grades 4-8
- Basic facts
  - Spend 10 minutes each session developing fluent retrieval of basic facts
  - Focus on 2 new facts until mastered
  - To differentiate practice:
    - Peer tutoring (e.g. Peer Assisted Learning Strategies; Classwide Peer Tutoring): [www.promisingpractices.net/program.asp?programid=99](http://www.promisingpractices.net/program.asp?programid=99)
    - Computer games, Board games, Card games
    - Resource: Forbringer, L., & Fahsl, A. (2009). Differentiating instruction to help students master basic facts. In *Mathematics for every student: Responding to diversity, grades pre-k – 5*. National Council of Teachers of Mathematics.
- Problem Solving: Teach Common Underlying Structures
  - E.g.- 3 Basic Structures for Addition & Subtraction
    - Group Problems (Part/Whole)
    - Change Problem
    - Compare Problems
  - Resources:
    - Solving Math Word Problems: -Jitendra  
<http://www.proedinc.com/customer/productView.aspx?ID=4145>
    - Go Solve Computer Program:  
[www.tomsnyder.com/products/product.asp?SKU=GOSGOS](http://www.tomsnyder.com/products/product.asp?SKU=GOSGOS)
    - Step-by-Step Model Drawing by Char Forsten (Singapore Math)
    - Thinking Blocks: [www.thinkingblocks.com](http://www.thinkingblocks.com)
    - Pirate Math (Fuchs) – [www.kc.vanderbilt.edu/pals](http://www.kc.vanderbilt.edu/pals)

- **How to Teach**
  - Use Explicit Instruction
    - Identify & review prerequisite skills
    - Model
    - Guided Practice
    - Independent Practice (Interleave worked examples)
  - Use Visual Representations
    - Follow the CRA Continuum
      - Concrete Representation (3-dimensional models)  
3 lessons →
      - Visual/Pictorial Representation (e.g. drawings, numberlines, diagrams, tally marks)  
3 lessons →
      - Abstract Representation (words, numbers, symbols)
    - Examples of Useful Models
      - Base Ten Blocks
      - DigiBlocks: [www.digi-block.com](http://www.digi-block.com)
      - Mathline: [www.howbrite.com](http://www.howbrite.com)
      - Fractions Bars
      - Drawing Fraction Squares
    - Explicitly Link CRA
- **Locating Evidence-Based Materials**
  - **Best Evidence Encyclopedia**- *Center for Data-Driven Reform in Education (Johns Hopkins University)*: <http://www.bestevidence.org/>
  - **Center on Instruction** - *RMC Research Corporation*: <http://www.centeroninstruction.org/>
  - **Do What Works** - *U.S. Department of Education*: <http://dww.ed.gov/>
  - **Instruction Tools Chart** - *National Center on Response to Intervention*: [http://www.rti4success.org/tools\\_charts/instruction.php](http://www.rti4success.org/tools_charts/instruction.php)
  - **Promising Practices Network** - *RAND Corporation* <http://www.promisingpractices.net/programs.asp>
  - **What Works Clearinghouse** - *U.S. Department of Education Institute of Education Sciences*: <http://ies.ed.gov/ncee/wwc/>
- **For Additional Information on Instructional Strategies::**  
Forbringer, L., & Fuchs, W. (in press). *RTI Math: Evidence-Based Interventions for Struggling Students*. Eye on Education