CT Core Standards: Implications for SPED/SRBI/EL

CCSS for SRBI Math
Tier 2 and Tier 3 Students
Goals for this session:
Participants will....

• Review RTI model

• Experience what it’s like to be a student struggling with math

• Learn the components of an SRBI Math program

• Review recommendations from the What Works Clearinghouse

• Learn of resources to aid in your SRBI efforts
Essential Components of SRBI/RTI
Basic Review of SBRI Model:

Diagram by Daniel Lunk

www.learnnc.org
Think of that student:

• Who thinks she’s a dummy because she just doesn’t get it when everyone else seems to

• Who acts out because it’s easier than showing he doesn’t understand

• Who copies everything down and looks like he knows what he’s doing, but cannot tell you what it means

• Who’s frustrated because she thought she knew the rules but the rules keep changing
There are things I’d tell my teachers
If I only had a chance.
Like the reasons I so often
Seem to drift off in a trance.

What they cannot see by looking
Is that I’m quite insecure.
Even when I’m acting macho
What I’m feeling is unsure.

My classmates think I’m smart
But just refuse to buckle down,
That somehow I like my status
As the classroom’s premier clown.

Since I act like I don’t care
About my low grades and performance,
No teacher wants to work with me
They all express reluctance.

So I wish I had the courage
When I’m lost and feeling frightened
To let teachers know I want some help
To have my prospects brighten.

If only there was some way
I could make a true confession
That I’m not the clown I seem
I want to master all my lessons.

Ronald F. Ferguson, October 2013
Let’s walk a mile in their shoes...

- \(23 + 12 = ?\)

- \(23 + 12 \neq 35\)? What? Why not??????

- \(23 + 12 = 101\) What???

The magic of **Base 4**:
Now you try it!

• $23 + 32 = ?$ in Base 4

• $143 + 41 = ?$ in base 5

How did you feel while doing these “simple” math problems?
Who should always be at the center of our SRBI planning and decision making?
A 4-Tiered Intervention Model

Tier 1 – Standards-Based Classroom Learning:
All students participate in general education learning that includes:
- Universal screenings to target groups in need of specific instructional and/or behavioral support.
- Implementation of the Georgia Performance Standards (GPS) through standards-based classroom structure.
- Differentiation of instruction including fluid, flexible grouping, multiple means of learning, and demonstration of learning.
- Progress monitoring of learning through multiple formative assessments.
- Positive behavior supports.

Tier 2 – Needs-Based Learning:
In addition to Tier 1, targeted students participate in learning that is different by including:
- Standard intervention protocol process for identifying and providing research-based interventions based on need and resources.
- Ongoing progress monitoring to measure student response to intervention and guide decision-making.

Tier 3 – SST-Driven Learning:
In addition to Tier 1 and Tier 2, targeted students participate in learning that is different by including:
- Intensive, formalized problem solving to identify individual student needs.
- Targeted research-based interventions tailored to individual needs.
- Frequent progress monitoring and analysis of student response to intervention(s).

Tier 4 – Specially-Designed Learning:
In addition to Tiers 1 through 3, targeted students participate in:
- Specialized programs, methodologies, or instructional deliveries.
- Greater frequency of progress monitoring of student response to intervention(s).
Tier 1: Benchmark Level

- **Who**: all students
  - Will be successful for approx. 80% of students

- **What**: high quality, empirically supported curriculum and instruction

- **When**: regularly scheduled classroom instruction

- **How assessed**: progress is monitored at minimum three times a year
  - Benchmark screening during the Fall, Winter and Spring
Tier 2: Supplemental Level

- **Who**: students not making adequate progress in the Tier 1 core curriculum –
  - 10% - 15% of students
  - *Small group* instruction

- **What**: research-based instruction and strategies that are matched to student need and focused on core competencies that support, enhance, or supplement Tier 1 instruction

- **When**: in addition to core instruction, *several times a week*

- **How assessed**: on-going *(1-2 times a month)* progress monitoring to measure student response to intervention and to guide decision making
Tier 3: Intensive Level

- **Who**: students not making adequate progress in the Tier 1 core and Tier 2 curriculum –
  - Approx. 5% of students
  - *Individual and* small group instruction

- **What**: research-based *intense intervention* and strategies that are matched to *individual student need and progress* and focused on core competencies

- **When**: in addition to core instruction, *every day*

- **How assessed**: on-going (*1-2 times per week*) progress monitoring to measure student response to intervention and to guide decision making
Tier 4: Specially Designed Instruction Level

- **Who**: students not able to make progress in the Tiers 1, Tier 2, or Tier 3
  - Approx. 1% of students; PPT decision
  - *Individualized* instruction

- **What**: specialized programs, methodologies, or instructional delivery of *focused, targeted research-based instruction* and strategies that are matched to *individual student need and progress* and focused on core competencies

- **When**: *every day in place of Tiers 1-3*

- **How assessed**: *daily* progress monitoring to measure student response to intervention and to guide decision making
New Study Shows Benefits of Visual, Game-Based Math: *EdWeek* 12/08/14

ST Math has six distinct advantages:

1. **Game-based**: engaging and challenging learning games that promote persistence and performance

2. **Instructional**: the games promote hypothesis development and testing; failure is met with instructional feedback which an builds an academic mindset that effort leads to achievement (i.e., grit)

3. **Conceptual understanding**: rather than math as a barrier to adventure games, ST Math games are built around the mechanics of math to promote powerful learning.

4. **Aligned**: the games can be aligned to the core curriculum creating a coherent instructional program (unlike most blended learning initiative) and allowing application of newly developed skills.

5. **ELL**: the games include no words so they are perfect for students new to English as well as advanced students.

6. **Support**: schools don’t buy online games, they buy a proven program with strong implementation, professional development, and ongoing support.

Other Programs Helping to Individualize:

http://www.dreambox.com/math-intervention


https://www.tenmarks.com/

Grades K-8 and HS Intervention

Grades 1 – Algebra 2 and Geometry
And what about students with an IEP?

http://coe.lehigh.edu/content/what-rti
Progress Check!

Let’s do a Kahoot!

Join at: kahoot.it

https://play.kahoot.it/#/?quizId=e5536744-ba93-4e94-8cec-6d96b6240196
My “Go-to” Resource for Math SRBI:

Each recommendation includes:

1. Brief Summary
2. How to carry out the recommendation
3. Potential roadblocks and solutions

Table 2. Recommendations and corresponding levels of evidence

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Screen all students to identify those at risk for potential mathematics</td>
<td>Moderate</td>
</tr>
<tr>
<td>difficulties and provide interventions to students identified as at risk.</td>
<td></td>
</tr>
<tr>
<td>2. Instructional materials for students receiving interventions should focus</td>
<td>Low</td>
</tr>
<tr>
<td>intensely on in-depth treatment of whole numbers in kindergarten through grade</td>
<td></td>
</tr>
<tr>
<td>5 and on rational numbers in grades 4 through 8. These materials should be</td>
<td></td>
</tr>
<tr>
<td>selected by committee.</td>
<td></td>
</tr>
<tr>
<td>3. Instruction during the intervention should be explicit and systematic.</td>
<td>Strong</td>
</tr>
<tr>
<td>This includes providing models of proficient problem solving, verbalization</td>
<td></td>
</tr>
<tr>
<td>of thought processes, guided practice, corrective feedback, and frequent</td>
<td></td>
</tr>
<tr>
<td>cumulative review.</td>
<td></td>
</tr>
<tr>
<td>4. Interventions should include instruction on solving word problems that</td>
<td>Strong</td>
</tr>
<tr>
<td>is based on common underlying structures.</td>
<td></td>
</tr>
<tr>
<td>5. Intervention materials should include opportunities for students to work</td>
<td>Moderate</td>
</tr>
<tr>
<td>with visual representations of mathematical ideas and interventionists should</td>
<td></td>
</tr>
<tr>
<td>be proficient in the use of visual representations of mathematical ideas.</td>
<td></td>
</tr>
<tr>
<td>6. Interventions at all grade levels should devote about 10 minutes in each</td>
<td>Moderate</td>
</tr>
<tr>
<td>session to building fluent retrieval of basic arithmetic facts.</td>
<td></td>
</tr>
<tr>
<td>7. Monitor the progress of students receiving supplemental instruction and</td>
<td>Low</td>
</tr>
<tr>
<td>other students who are at risk.</td>
<td></td>
</tr>
<tr>
<td>8. Include motivational strategies in tier 2 and tier 3 interventions.</td>
<td>Low</td>
</tr>
</tbody>
</table>

Source: Authors' compilation based on analysis described in text.
Recommendation 2:

• Instructional materials should focus intensely on in-depth treatment of:
  – Grades K-3: **Number sense, place value of whole numbers and operations with whole numbers**
  – In Gr.4-8: use an understanding of whole numbers to build conceptual framework and work with **rational numbers**, which are critical for future success in math

• Cover fewer topics in more depth and with coherence

• Intervention curriculum should not be over-simplified
Is my SRBI program aligned to the core curriculum?

• Alignment with the core curriculum is not as critical as ensuring that instruction builds students’ foundational proficiencies.

• Tier 2 and tier 3 instruction focuses on foundational and often prerequisite skills that are determined by the students’ rate of progress.
Recommendation 3:

• Instruction should be **explicit** and **systematic**: 
  
  – Instruction should gradually build proficiency by introducing concepts in a **logical order** and providing students with numerous **applications** of each concept and skill
    
    • CCSS Shift: Rigor = conceptual understanding, procedural skill and fluency, and application

  – Explicit instruction ensures that students possess the foundational skills and conceptual knowledge necessary for understanding their grade-level mathematics
Explicit Instruction includes:

• Teacher demonstration of proficient problem solving with sufficient models

• Verbalization of the thought processes and the reasons behind math procedures, formulas, and problem-solving methods
  
  – Teachers should be knowledgeable enough to anticipate and address misconceptions

  – Include numerous clear models of easy and difficult problems, with accompanying teacher think-alouds
Explicit Instruction includes:

• Guided, scaffolded, extensive practice
  – Teacher should ask students to communicate the strategies they are using to complete each step of the process and provide reasons for their decisions
    • CCSS Math Practice #3: “Construct viable arguments and critique the reasoning of others.”

• Teachers provide immediate, specific, actionable corrective feedback with opportunities to correct errors (with guidance, as needed)

• Frequent, cumulative review
Sal Khan’s Words of Wisdom

The Learning Myth:
Why I’ll Never Tell My Son He’s Smart

Recommendation 4:

• Interventions should include instruction on solving word problems that is based on common underlying structures
  
  – Visual representations can be effective for teaching students how to categorize problems based on their structure and determine a solution method appropriate for the underlying structure
Math Story Problem Types:

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prepare problems and use them in whole-class instruction.</td>
<td>Minimal</td>
</tr>
<tr>
<td>2. Assist students in monitoring and reflecting on the problem-solving process.</td>
<td>Strong</td>
</tr>
<tr>
<td>3. Teach students how to use visual representations.</td>
<td>Strong</td>
</tr>
<tr>
<td>4. Expose students to multiple problem-solving strategies.</td>
<td>Moderate</td>
</tr>
<tr>
<td>5. Help students recognize and articulate mathematical concepts and notation.</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

Recommendation 5:

• Intervention materials should include opportunities for students to work with visual representations of mathematical ideas

• Interventionists should be proficient in the use of visual representations of mathematical ideas
Recommendation 5:

• The ability to express mathematical ideas using visual representations and to convert visual representations into symbols is critical for success in mathematics

  – Visual representations such as number lines, number bonds, strip diagrams/bar models, concrete drawings, and other forms of pictorial representations help scaffold learning and pave the way for understanding the abstract version of the representation

  – Interventionists should explicitly link visual representations with the standard symbolic representations: CRA progression
The CRA Progression

Research indicates that using manipulatives is especially useful for teaching low achievers, students with learning disabilities, and English language learners. (Marsh and Cooke, 1996; Ruzic and O’Connell, 2001)

Interventionists should allow students to continue to use manipulatives to demonstrate their understanding in the representational and abstract stages, if needed.

[Link to research](https://www.hand2mind.com/pdf/learning_place/research_math_manips.pdf)
Example 8. A set of matched concrete, visual, and abstract representations to teach solving single-variable equations

<table>
<thead>
<tr>
<th>Solving the Equation with Concrete Manipulatives (Cups and Sticks)</th>
<th>Solving the Equation with Visual Representations of Cups and Sticks</th>
<th>Solving the Equation with Abstract Symbols</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Concrete Manipulatives" /></td>
<td><img src="image2" alt="Visual Representations" /></td>
<td><img src="image3" alt="Abstract Symbols" /></td>
</tr>
<tr>
<td>A: 3 + X = 7</td>
<td>3 + 1X = 7</td>
<td>3 + 1X = 7</td>
</tr>
<tr>
<td>B: 3 - 3 = 0</td>
<td>-3 - 3 = 0</td>
<td>-3 - 3 = 0</td>
</tr>
<tr>
<td>C: X = 4</td>
<td>X = 4</td>
<td>X = 4</td>
</tr>
<tr>
<td>D: 1X = 4</td>
<td>1X = 4</td>
<td>1X = 4</td>
</tr>
<tr>
<td>E: X = 4</td>
<td>X = 4</td>
<td>X = 4</td>
</tr>
</tbody>
</table>

Concrete Steps:
A. 3 sticks plus one group of X equals 7 sticks
B. Subtract 3 sticks from each side of the equation
C. The equation now reads as one group of X equals 4 sticks
D. Divide each side of the equation by one group
E. One group of X is equal to four sticks (i.e., 1X/group = 4 sticks/group; 1X = 4 sticks)
When it’s Over
by Ron F. Ferguson, Ph.D.

The lesson ain’t over
‘til the skinny kid smiles
and signals that he understands.

April, 2000

Ronald F. Ferguson, Faculty Co-Chair and Director, Achievement Gap Initiative at Harvard University and Founder, the Tripod Project for School Improvement
Recommendation 6:

- Interventions at all grade levels should devote about 10 minutes in each session to building fluent retrieval of basic arithmetic facts.

  – Quick retrieval of basic math facts is critical for success in mathematics
  
  – Weak ability to fluently retrieve math facts impedes later understanding of rational number concepts
Recommendation 6:

– The goal is quick retrieval of facts using the digits 0 to 9 without any access to pencil and paper or manipulatives
  • Fact families are an efficient way to learn

– In grades 2-8, also include instruction on how to use the commutative, associative, and distributive properties to derive more complex facts in their heads
NCTM Wisdom:

February, 2104

**Growth Mindset!**

**CCSS Math Practice #1:** Make sense of problems and persevere in solving them.
Resources: What Works Clearinghouse

Resources: RTI Action Network

What is RTI?
Response to Intervention (RTI) is a multi-tiered approach to help struggling learners. Students' progress is closely monitored at each stage of intervention to determine the need for further research-based instruction and/or intervention in general education, in special education, or both. Read "What is RTI?"

Why Adopt an RTI Model?
In the opening article for this section, David Prasse of Loyola University Chicago provides a historical context for RTI and a compelling argument for adopting an RTI model implemented with integrity in every school throughout the nation. Additional articles address RTI implementation in secondary schools and in content areas such as mathematics.

Read "Why Adopt an RTI Model?"

Approaches to RTI
Response to Intervention (RTI) has a grassroots history with beginnings in multiple research areas. Over time, general categories of RTI implementations have emerged. They are briefly described in this article with guidance on selecting the right approach for schools and districts.

http://www.rtinetwork.org/learn/what
Resources: National Center on Intensive Intervention

National Center on INTENSIVE INTERVENTION at American Institutes for Research

Home > Tools Charts

Academic Progress Monitoring Tools Chart
Academic Intervention Programs Tools Chart
Behavior Progress Monitoring Tools Chart
Behavioral Intervention Tools Chart

Behavioral Intervention Programs – The 2014 call for tools is now closed.
Behavioral Progress Monitoring Tools – The 2014 call for tools is now closed.
Academic Progress Monitoring Tools – The 2014 call for tools is now closed.
Academic Intervention Programs – The 2014 call for programs is now closed.

http://www.intensiveintervention.org/resources/tools-charts
# Resources: National Center on Intensive Intervention - Tools Chart

## Academic Progress Monitoring GOM

This tools chart presents information about academic progress monitoring tools. The three tabs, *Psychometric Standards*, *Progress Monitoring Standards*, and *Data-based Individualization Standards* include ratings from our TRC members on the technical rigor of the tool. Additional information is provided below the chart.

View the [Progress Monitoring Mastery Measures »](#)

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Subject</th>
<th>Psychometric Standards</th>
<th>Progress Monitoring Standards</th>
<th>Data-based Individualization Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Any -</td>
<td>- Any -</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

## Table

<table>
<thead>
<tr>
<th>Title</th>
<th>Area</th>
<th>Reliability of the Performance Level Score</th>
<th>Reliability of the Slope</th>
<th>Validity of the Performance Level Score</th>
<th>Predictive Validity of the Slope of Improvement</th>
<th>Disaggregated Reliability and Validity Data</th>
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<tr>
<td>AIMSweb</td>
<td>M-CBM</td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
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<tr>
<td>AIMSweb</td>
<td>Math Computation</td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
</tr>
<tr>
<td>AIMSweb</td>
<td>Math Concepts and Applications</td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
</tr>
<tr>
<td>AIMSweb</td>
<td>Oral Reading Fluency (R-CBM)</td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
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<tr>
<td>AIMSweb</td>
<td>Test of Early Literacy - Letter Naming Fluency</td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
</tr>
<tr>
<td>AIMSweb</td>
<td>Test of Early Literacy - Letter Sound Fluency</td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
<td><img src="image" alt="Rating" /></td>
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<tr>
<td></td>
<td>Introduction</td>
<td>Screening</td>
<td>Progress Monitoring</td>
<td>Multi-level Prevention System</td>
<td></td>
<td></td>
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<td>-------------------------------</td>
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<td>-----------</td>
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<td>-------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Assessment and Data-based Decision Making</strong></td>
<td>Understanding Types of Assessment within an RTI Framework (24:37)</td>
<td>Using Screening Data for Decision Making (58:32)</td>
<td>Using Progress Monitoring Data for Decision Making (53:10)</td>
<td>IDEA and the Multi-level Prevention System (10:57)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Establishing Processes</strong></td>
<td>Implementing RTI (35:58)</td>
<td>Establishing a Screening Process (12:40)</td>
<td></td>
<td>Selecting Evidence-based Practices (53:46)</td>
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<td></td>
</tr>
</tbody>
</table>

## Common Core State Standards

<table>
<thead>
<tr>
<th>K</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Know number names and the count sequence</strong></td>
<td><strong>Represent and solve problems involving addition and subtraction</strong></td>
<td><strong>Represent &amp; solve problems involving multiplication and division</strong></td>
<td><strong>Use the four operations with whole numbers to solve problems</strong></td>
<td><strong>Understand the place value system</strong></td>
<td><strong>Apply and extend previous understandings of multiplication and division to divide fractions by fractions</strong></td>
<td><strong>Work with radical and integer exponents</strong></td>
<td><strong>Understand the connections between proportional relationships, lines, and linear equations</strong></td>
<td><strong>Analyze and solve linear equations and pairs of simultaneous linear equations</strong></td>
</tr>
<tr>
<td><strong>Count to tell the number of objects</strong></td>
<td><strong>Understand and apply properties of operations and the relationship between addition and subtraction</strong></td>
<td><strong>Understand properties of multiplication and the relationship between multiplication and division</strong></td>
<td><strong>Generalize place value understanding for multi-digit whole numbers and decimals to hundredths</strong></td>
<td><strong>Use equivalent fractions as a strategy to add and subtract fractions</strong></td>
<td><strong>Apply and extend previous understandings of numbers to the system of rational numbers</strong></td>
<td><strong>Analyze proportional relationships and use them to solve problems</strong></td>
<td><strong>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Compare numbers</strong></td>
<td><strong>Add and subtract within 20</strong></td>
<td><strong>Multiply &amp; divide within 100</strong></td>
<td><strong>Use place value understanding and properties of operations to perform multi-digit arithmetic</strong></td>
<td><strong>Extend understanding of fraction equivalence and ordering</strong></td>
<td><strong>Apply and extend previous understandings of multiplication and division to multiply and divide fractions</strong></td>
<td><strong>Analyze proportional relationships and use them to solve problems</strong></td>
<td><strong>Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from</strong></td>
<td><strong>Work with addition and subtraction equations</strong></td>
<td><strong>Solve problems involving the four operations, and identify &amp; explain patterns in arithmetic</strong></td>
<td><strong>Develop understanding of fractions as numbers</strong></td>
<td><strong>Build fractions from unit fractions by applying and extending previous understandings of operations</strong></td>
<td><strong>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition</strong></td>
<td><strong>Define, evaluate, and compare functions</strong></td>
<td><strong>Use functions to model relationships between quantities</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Work with numbers 11-19 to gain foundations for place value</strong></td>
<td><strong>Extend the counting sequence</strong></td>
<td><strong>Measure and estimate lengths in standard units</strong></td>
<td><strong>Use place value understanding and properties of operations to add and subtract</strong></td>
<td><strong>Compare decimal fractions</strong></td>
<td><strong>Graph points in the coordinate plane to solve real-world and mathematical problems</strong></td>
<td><strong>Solve real-life and mathematical problems using numerical and algebraic expressions and equations</strong></td>
<td><strong>Use functions to model relationships between quantities</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 1. Progress to Algebra in Grades K-8

- Represent & solve problems involving multiplication and division
- Understand properties of multiplication and the relationship between multiplication and division
- Use the four operations with whole numbers to solve problems
- Generalize place value understanding for multi-digit whole numbers and decimals to hundredths
- Use equivalent fractions as a strategy to add and subtract fractions
- Apply and extend previous understandings of multiplication and division to divide fractions by fractions
- Represent & solve problems involving addition and subtraction
- Understand place value
- Use place value understanding and properties of operations to perform multi-digit arithmetic
- Extend understanding of fraction equivalence and ordering
- Build fractions from unit fractions by applying and extending previous understandings of operations
- Understand decimal notation for fractions, and compare decimal fractions
- Graph points in the coordinate plane to solve real-world and mathematical problems
- Use functions to model relationships between quantities

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[Link to the source document](http://teacher.scholastic.com/products/math180/assets/CommonCoreProgressAlgebra.pdf)
SRBI Planning Tool:

Last year: Focus was on building strong foundational skills to support Tier 1 content.
### SRBI Planning Tool:

<table>
<thead>
<tr>
<th>Grade 6, Tier 2</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraction Concepts</td>
<td>Fraction Computation</td>
<td>(Begin Decimal Computation, if time)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade 6, Tier 3</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Number Computation</td>
<td>Fraction Concepts</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Grade 7, Tier 2</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
</table>

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<tr>
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<td>Fraction Concepts</td>
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<tbody>
<tr>
<td>Fraction Computation</td>
<td>Fr. Comp./Ratios/Prop.</td>
<td>Integer Computation</td>
<td>Integers/ Algebra eq.</td>
<td></td>
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<td>Ratios/Proportions/Integers</td>
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**SRBI Planning Tool:**

This year: Focus is on remediating Tier 1 content from the prior marking period.

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<tr>
<th>Quarter</th>
<th>6th Grade</th>
<th>7th Grade</th>
<th>8th Grade</th>
</tr>
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<tbody>
<tr>
<td>1st Qtr</td>
<td>Prepping for Decimal Computation (reviewing gr 5 content)</td>
<td>Prepping for Fraction Computation (reviewing gr 6 content)</td>
<td>Prepping for The Number System (reviewing gr 7 content)</td>
</tr>
<tr>
<td>2nd Qtr</td>
<td>Re-teaching standards from Understanding +/− #s, &amp; Add/Sub/Mult Decimals</td>
<td>Re-teaching add/sub/mult/div rational #s</td>
<td>Re-teaching Pythagorean Theorem &amp; Real Numbers</td>
</tr>
<tr>
<td>3rd Qtr</td>
<td>Re-teaching standards from Division (whole #/dec/trac) &amp; Expression &amp; Eq</td>
<td>Re-teaching Applications of Proportions &amp; Connecting Tables/Graphs/Eq</td>
<td>Re-teaching Volume of Cylinders/Cones/Spheres &amp; Congruence &amp; Similarity</td>
</tr>
<tr>
<td>4th Qtr</td>
<td>Re-teaching standards from Geometry (SA &amp; Volume) &amp; Ratios, Rates, &amp; Percents</td>
<td>Re-teaching Expressions &amp; Equations &amp; 2d &amp; 3d Geometry &amp; Measurement</td>
<td>Re-teaching Linear Relationships</td>
</tr>
</tbody>
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<tr>
<th>Tier 2 (not meeting gr level standard on unit assessments)</th>
<th>Tier 3 (more than 1 yr below grade level)</th>
</tr>
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<td>ST Math time (gr 6 content), Fastt Math, &amp; remediation curriculum (tbd)</td>
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Fact Fluency Program:

Renaissance Learning: Accelerated Math

Personalize dynamic, standards-based math practice.

http://www.renaissance.com/products/accelerated-math
Marilyn Burns’ “Do the Math” program

http://teacher.scholastic.com/products/dothemath/dtmn_structure.htm
Engage NY.org
Welcome to LearnZillion! Let's get started.

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https://learnzillion.com/resources/17132
Persist
by Ron F. Ferguson, Ph.D.

There is no greater frustration
than to be stubbornly misunderstood
by a child who is afraid that she can’t learn.

And there is no greater elation
than when the light of understanding
burns away the fear and makes her smile return.

April, 2000
Contact information:

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