PRACTICAL INSTRUCTIONAL TRANSITIONS FOR ELEMENTARY MATH IN THE COMMON-CORE ERA

Sponsored by DreamBox Learning
Ross Brenneman
Senior writer, Education Week Digital Directions

Follow Ross on Twitter: @itsapun
Practical Instructional Transitions for Elementary Math in the Common-Core Era

Expert Presenters:

Zachary Champagne, researcher, Mathematics Formative Assessment Project, Florida Center for Research in Science, Technology, Engineering, and Mathematics; former Duval County, Fla., Teacher of the Year
An on-demand archive of this webinar will be available at www.edweek.org/go/webinar in less than 24 hrs.
Practical Instructional Transitions for Elementary Math in the Common Core Era

Zachary Champagne
Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM)
zacharychampagne@gmail.com
@zakchamp on twitter
MFAS-CCSS Project

- Approximately 400 K – 3 Tasks and Rubrics developed in 2011 – 2013 and are now available via CPALMS
- K – 3 Lesson Study Toolkits developed in 2011 – 2013 and now available via CPALMS
- K – 3 Pilot Study conducted in districts throughout the state of Florida
- FLDOE extended grant for 2013 – 2014 school year to develop tasks and rubrics for grades 4 – 8 and algebra and geometry course descriptions (available June 30, 2014)
Lesson Learned

We need to test less and assess more.
Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students’ achievement of intended instructional outcomes.

(McManus, 2008, p. 3)
What is Formative Assessment?

- A process, not a test
- Reveals student thinking as well as skill
- Embedded within a learning activity
- Reveals gaps in knowledge and understanding that derail student progress
- Targets instruction to strengthen the core concepts and processes essential for mathematics learning
- Used not only to “inform” instruction, but more importantly to “form” instruction.
Focus on the Content

- Counting and Cardinality (K)
- Equality (Grade 1)
- Problem Types in Table 1 (Grade 2)
- Fractions as Numbers (Grade 3)
- Addition, Subtraction, and Multiplication of Fractions (Grade 4)
- Division of Fraction (Grade 5)
# Counting and Cardinality

## Count to tell the number of objects.

4. Understand the relationship between numbers and quantities; connect counting to cardinality.
   
   a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

   b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

   c. Understand that each successive number name refers to a quantity that is one larger.

5. Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
The Counting Principles

- Stable Order
- One to One Correspondence
- Cardinality
- Conservation of Cardinality
- Hierarchal Inclusion
Jessica
Price
What does this impact in the future?

• Count forward beginning from a given number (K.CC.2)
• Properties of operations (1.OA.3)
• Creating equivalent but easier or known sums (1.OA.1)
Thanks for your time!

Zachary Champagne  
Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM)

Formative Assessment Tasks:  
www.cpalms.org/Resources/mfas.aspx

Email:  
zacharychampagne@gmail.com

Twitter:  
@zakchamp
3 Essential Elements

**Rigorous Mathematics**
- Common Core State Standards, Texas TEKS, Virginia SOL, Canada WNCP & Ontario Curriculum
- Standards for Mathematical Practice

**Motivating Environment**
- Motivating and empowering environments
- Gaming fundamentals, rewards

**Intelligent Adaptive Learning™ Engine**
- Millions of personalized learning paths
- Tailored to each student’s unique needs

© DreamBox Learning
Intelligently adapt & individualize to:

• Students’ own intuitive strategies
• Kinds of mistakes
• Efficiency of strategy
• Scaffolding needed
• Response time
# Robust Reporting

## Classroom Summary Report

<table>
<thead>
<tr>
<th>Student</th>
<th>Grade</th>
<th>Kindergarten Curriculum</th>
<th>1st Grade Curriculum</th>
<th>2nd Grade Curriculum</th>
<th>3rd Grade Curriculum</th>
<th>Time on Task (HH:MM)</th>
<th>Notifications</th>
<th>Student Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexander F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17:55</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Alexi K</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14:04</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Billy R</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14:14</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Brianna S</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51:43</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Cassandra H</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18:02</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Erinne N</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20:42</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Jayce D</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28:13</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Josephine J</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15:59</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Kevin M</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18:18</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Kylee P</td>
<td>K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10:24</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Linda C</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>36:10</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Marianne I</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15:58</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Mario E</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>23:44</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Michael B</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28:40</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Ramona G</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11:00</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Renee Q</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11:02</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Rilee L</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13:18</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Roberta A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21:04</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Sakurah P</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>00:16</td>
<td></td>
<td>Weekly Detail</td>
</tr>
<tr>
<td>Solomon O</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>09:57</td>
<td></td>
<td>Weekly Detail</td>
</tr>
</tbody>
</table>

**Symbol Legend**

- **Skipped based on initial placement**
- **Passed in unit pretest**
- **Completed curriculum**
- **Pending assessment**
- **Needs assistance**
- **Working inefficiently**
### Strong Support for Differentiation

**Concept:** Multiplication: Double & Halve

Students use known basic facts and double one factor and halve the other to determine the product of a more challenging problem.

<table>
<thead>
<tr>
<th># Completed with Proficiency</th>
<th># In Progress</th>
<th># Not Started</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 students</td>
<td>10 students</td>
<td>9 students</td>
</tr>
<tr>
<td>John P (about 1 month ago)</td>
<td>Avaneesh S (71%)</td>
<td>Anthony P</td>
</tr>
<tr>
<td>Jacob C (about 1 month ago)</td>
<td>Charles K (71%)</td>
<td>Brittany B</td>
</tr>
<tr>
<td>Rebecah D (about 1 month ago)</td>
<td>Emmanuel M (71%)</td>
<td>Christina P</td>
</tr>
<tr>
<td>Julian B (about 1 month ago)</td>
<td>Luke R (71%)</td>
<td>Emily C</td>
</tr>
<tr>
<td>Edgar H (about 1 month ago)</td>
<td>Alanna M (64%)</td>
<td>Karly H</td>
</tr>
<tr>
<td>Pedro S (2 months ago)</td>
<td>Domenic G (64%)</td>
<td>Leah P</td>
</tr>
<tr>
<td>Daniel C (3 months ago)</td>
<td>Daniel S (57%)</td>
<td>Michael D</td>
</tr>
<tr>
<td></td>
<td>Dominique S (28%)</td>
<td>Samantha S</td>
</tr>
<tr>
<td></td>
<td>Suna C (28%)</td>
<td>Vanessa C</td>
</tr>
<tr>
<td></td>
<td>Caitlin S (21%)</td>
<td></td>
</tr>
</tbody>
</table>
Sign up for a FREE School-Wide Trial

www.dreambox.com/free-trial

© DreamBox Learning
An on-demand archive of this webinar will be available at
www.edweek.org/go/webinar
in less than 24 hrs.
Common-Sense Approaches to Math Curriculum and Assessment Success

Required Reading from *Education Week*:

**Spotlight on Math and the Common Core**

The transition to the common-core math standards has resulted in shifts in classroom teaching and course materials. In this Spotlight, take a look at how the common core is influencing math instruction, see how teachers are preparing at-risk students for the standards, and examine early assessments aligned to the common core.