

**Not Using Speed Tests?
Now What??**

Assessing Math Fluency

Kristin Hilty

Educator, Consultant
SDE Booth #936

Expect
Extra-ordinary

NCTM 2016 Annual Meeting & Conference
Saturday, April 14, 2016
11:00 am – 12:00 pm
Golden Gate C3 (Marriott)

SDE Staff Development for
EDUCATORS
1-877-388-2054 | www.SDE.com

Session Handouts

Have questions or interested
in continuing the conversation?

Come visit Kristin in SDE booth #936!

Thursday, April 14 Noon – 2 PM

Friday, April 15 9 AM – 11 AM

Saturday, April 16 10 AM – Noon

Assessing Math Fluency - Presented by: Kristin Hilty khilty@sde.com

Staff Development For Educators www.sde.com

<u>Activity</u>	<u>Notes</u>
<p>Objectives:</p> <ul style="list-style-type: none"> ➤ Define fluency... ➤ Learn strategies for multiplication mastery ➤ Learn a few games for purposeful practice 	
<p>What is fluency?</p> <ul style="list-style-type: none"> • Speed • Accuracy • Understanding 	
<p>Developing an understanding of multiplication</p> <ul style="list-style-type: none"> • What are equal groups? • Circles and stars <p>Suggested order to teach facts: 10, 5, 2, 4, 8, 3, 6, 9, 7</p>	
<p>Multiplication Journals</p> <p>Pgs. 1-2—Discovering Patterns</p> <ul style="list-style-type: none"> • Hundreds board • Building equal groups with manipulatives • Recording equations • Reading equations with the words “groups of” <p>Pgs. 3-4—Creating Area Models</p> <ul style="list-style-type: none"> • Graph paper to draw area models • Commutative property • Square numbers <p>Pg. 5—Real World Connection</p> <ul style="list-style-type: none"> • Create individual math story • Differentiate by providing a range of numbers to choose from • Create visual representation, equation, and answer sentence 	

<p>Pg. 6—Extensions</p> <ul style="list-style-type: none"> • Use for discovering other properties • Create arrays • Recording sheet for games • Write division stories 	
<p>Speed and Accuracy Folders</p> <ul style="list-style-type: none"> • Cover—what I need to know • Inside left—working on • Inside right—ready to show what I know • Back—celebrate <p>Tips:</p> <ul style="list-style-type: none"> ➤ Put a multiplication table on the cover ➤ Record the dates of assessments given on the cover ➤ Color code when facts are learned on the table <p>Flashcards:</p> <ul style="list-style-type: none"> • Students create using index cards • Can pre-cut tabs • Factors can either be in a random order to encourage multiple strategies rather than just repeated addition or skip counting 	
<p>Games for Purposeful Practice</p> <ul style="list-style-type: none"> *Rock, Paper, Scissors, Math *Silent Math *Four in a Row *Block It *Knock Off the Clock *Face Off 	

REFERENCES & RECOMMENDED RESOURCES

1. Forsten, Char & Torri Richards. (2009) *Math Talk*. Crystal Springs Books.
2. Kuhns, Catherine. (2009) *Building Number Sense*. Crystal Springs Books.
3. Boaler, Jo and Carol Dweck. (2016) *Mathematical Mindsets. Unleashing Students' Potential through Creative Math, Inspiring Messages, and Innovative Teaching*. Josey-Bass Publications.
4. Kuhns, Catherine. (2013) *Common Core Math In Action Grades K-2*. Crystal Springs Books.
5. Kuhns, Catherine. (2014) *Common Core Math In Action Grades 3-5*. Crystal Springs Books.
6. Hilty, Kristin and Eliza Thomas. (2016) *Time's Up On Timed Tests*. Crystal Springs Books
7. Thomas, Eliza. (2014) *Math Play: 40 Engaging Games for the Differentiated Classroom*. Crystal Springs Books

WEBSITES

1. Staff Development For Educators: www.sde.com
2. Crystal Springs Books: www.crystalsprings.com
3. Highlights: www.highlights.com
4. Interactive model drawing: www.thinkingblocks.com
5. Fluency Without Fear: Research Evidence on the Best Ways to Learn Math Facts:
www.youcubed.org/fluency-without-fear/