

Visuals for Supporting Common Core Understanding

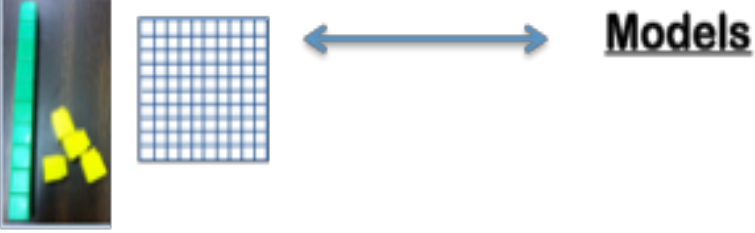
Presented by

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Presentation and mentioned resources can be accessed at drstrayton.com

 Models	
<h3><u>Multiplication</u></h3> <ul style="list-style-type: none">• as "groups of" objects• as arrays• as area• with commutative property• with distributive property• using properties for multiplying larger numbers• multiplying fractions & decimals• as multiplicative comparison	<h3><u>Addition</u></h3> <ul style="list-style-type: none">• counting all• counting on• make a ten<ul style="list-style-type: none">• partners for 10• addends for <10• $10 + \underline{\quad}$• using make a ten with larger numbers• recognizing the pattern across decades• using the strategies for adding even larger numbers
<h3><u>Subtraction</u></h3> <ul style="list-style-type: none">• understanding "the difference"• using addition to subtract• using Take From Ten when regrouping	

For Further Reading

McCallum, William, et al. (2012). Progressions for the Common Core State Standards for Mathematics. <http://ime.math.arizona.edu/progressions/>

Fosnot, Catherine Twomey, Maarden Ludovicus, Antonius Marie Dolk. (2001). *Young Mathematicians at Work Series*. New Hampshire: Heinemann.

Van De Walle, John A., and LouAnn H. Lovin. (2006). *Teaching Student-Centered Mathematics*. Upper Saddle River, NJ: Pearson/Allyn & Bacon.

Illustrative Mathematics Project: <http://illustrativemathematics.org/>

Bobis, Janette. (2007). The empty number line: A useful tool or just another procedure? *Teaching Children Mathematics*, 13(8), p.410. <http://www.nctm.org/publications/article.aspx?id=22065>

Tsankova, Jenny & Karmen Pjanic. (2009). The area model of multiplication of fractions. *Mathematics teaching in the middle school*. 15(5), p.281
<http://www.nctm.org/publications/article.aspx?id=24937>

Cramer, Kathleen, et al (2009). Models for initial decimal ideas. *Teaching Children Mathematics* 16(2) p.106. <http://www.nctm.org/publications/article.aspx?id=24546>

Online Classroom Resources

Percent Paint: <http://www.oswego.org/ocsd-web/games/percentpaint/ppaint.html>

Dreambox Teacher Tools: <http://www.dreambox.com/teachertools>

Thinking Blocks: http://www.thinkingblocks.com/tb_modeling_tool/modeling_tool.html

Illuminations- Multiply & Conquer: <http://illuminations.nctm.org/LessonDetail.aspx?id=L858>

ICT Array Display: <http://www.ictgames.com/arrayDisplay.html>