

Demystifying K-7 Math Common Core Standards

Kelsey Ritzel, MAT

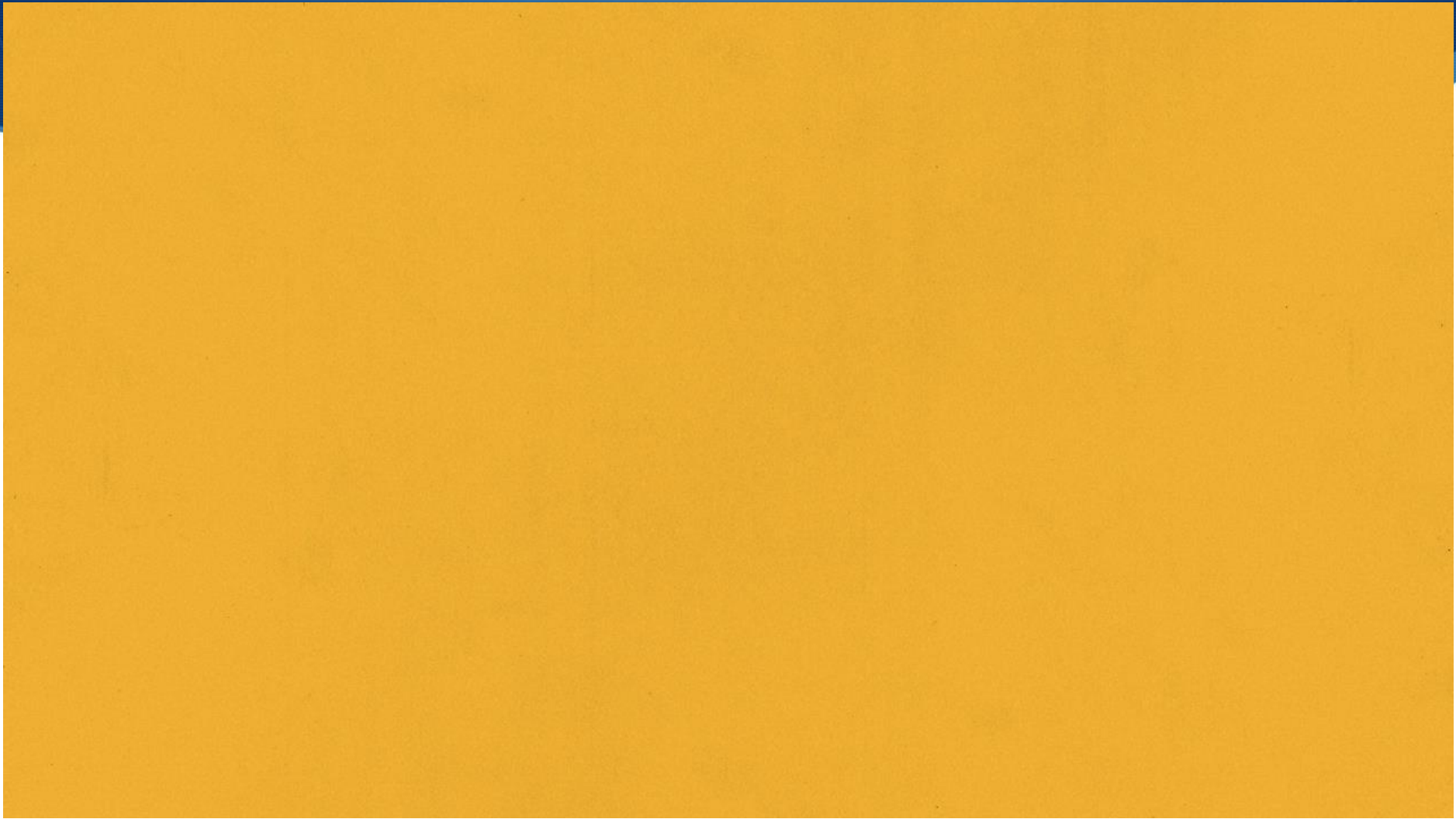


Agenda

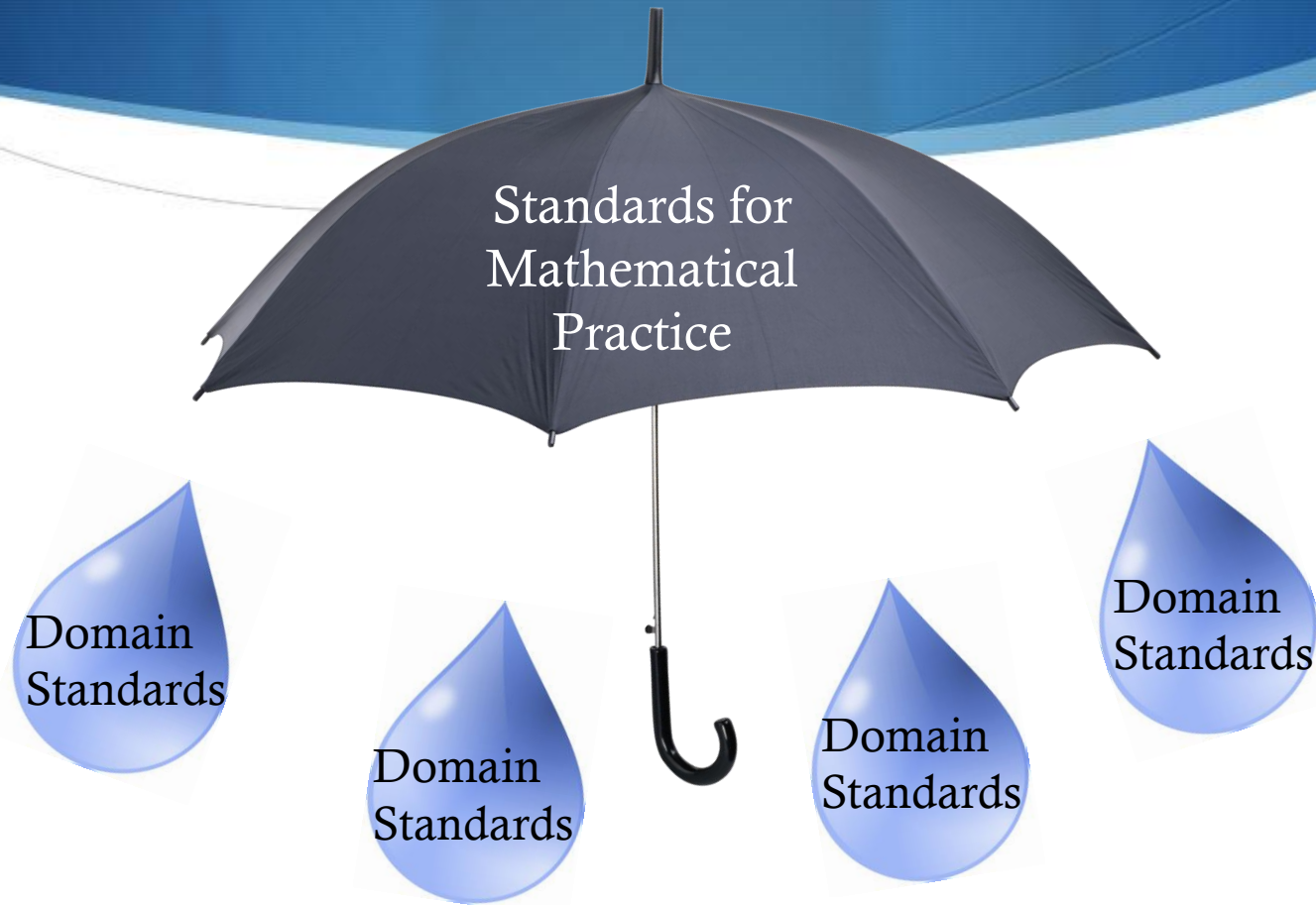
- ◆ Overview of CCSS
- ◆ Organization of CCSS
- ◆ CCSS in 6th and 7th grades
- ◆ Operations and Algebraic Thinking
- ◆ Number and Operations in Base Ten
- ◆ Number and Operations-Fractions
- ◆ Resources
- ◆ Questions

Why Common Core?

- ◆ Development process began in 2009
- ◆ California adopted the CCSS in 2010 with full implementation in the 2014-2015 school year
- ◆ Focus on college and career readiness
- ◆ Depth vs. Breadth
- ◆ Achievethecore.org



Standards Organization



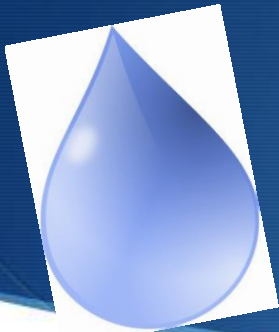
Standards for Mathematical Practice

- ◆ Overarching standards for all grade levels
- ◆ Not content based
- ◆ How students should learn and think



Standards for Mathematical Practice

- ◆ Make sense of problems and persevere in solving them.
- ◆ Reason abstractly and quantitatively.
- ◆ Construct viable arguments and critique the reasoning of others.
- ◆ Model with Mathematics
- ◆ Use appropriate tools strategically.
- ◆ Attend to precision.
- ◆ Look for and make use of structure.
- ◆ Look for and express regularity in repeated reasoning.



Domain Standards

Domain Standards are linked across grade levels with skills building upon one another

Grade	K	1	2	3	4	5	6	7	8	
Domains	Counting & Cardinality						Ratios & Proportional Relationships		Functions	
	Operations and Algebraic Thinking						Expression and Equations			
	Number and Operations in Base Ten						The Number System			
				Fractions						
	Measurement and Data						Statistics and Probability			
	Geometry									

Progressions

Math Content Standard 1

K Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g. claps), acting out situations, verbal explanations, expressions, or equations.

1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem

2 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Progressions

Math Content Standard 1

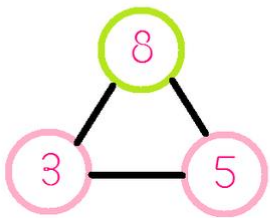
- 3 Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5×7 .*
- 4 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.
- 5 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.

Common Core 6th and 7th Grade

- ◆ Ratios and Proportional Relationships
- ◆ Expressions and Equations
- ◆ The Number System
- ◆ Statistics and Probability
- ◆ Geometry

Operations and Algebraic Thinking

Number Bonds
also known as
Fact Families

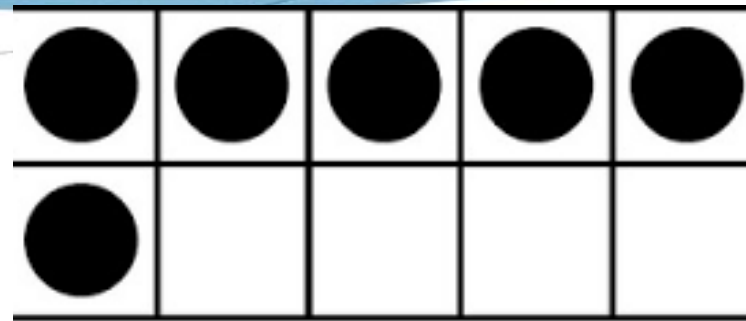


$$\underline{5} + \underline{3} = \underline{8}$$

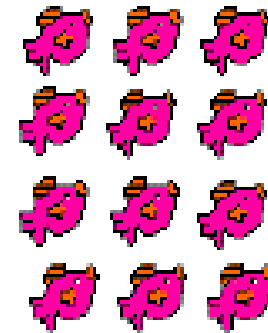
$$\underline{3} + \underline{5} = \underline{8}$$

$$\underline{8} - \underline{5} = \underline{3}$$

$$\underline{8} - \underline{3} = \underline{5}$$

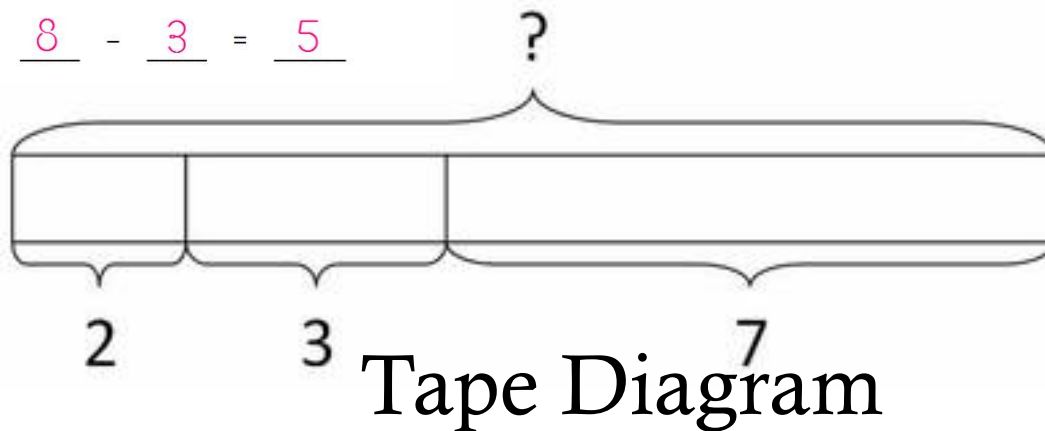


Tens Frame



$$4 \times 3 = 12$$

Array



Tape Diagram

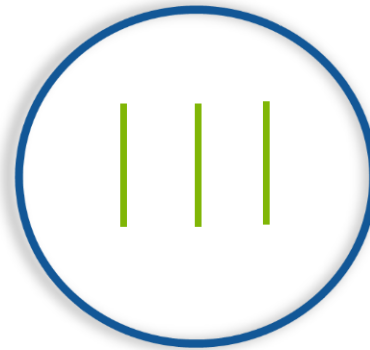
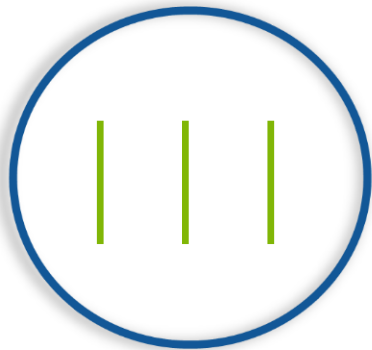
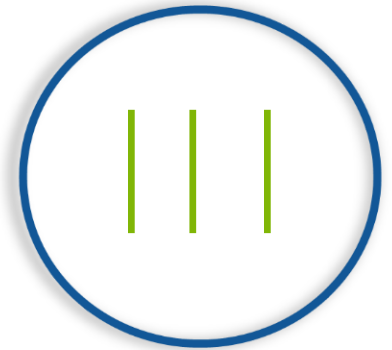
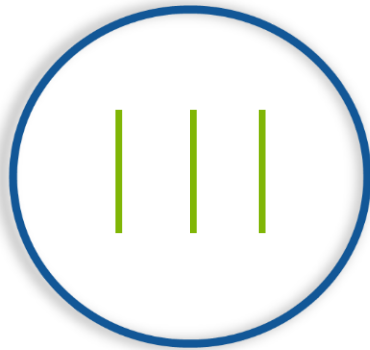
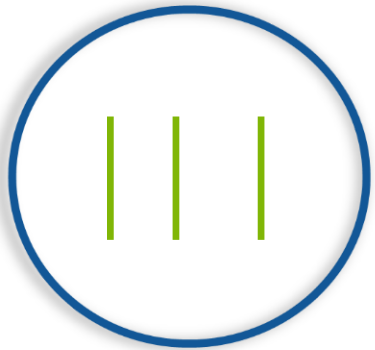
Operations and Algebraic Thinking Tutoring Activities

- ◆ Flash Cards
- ◆ Dice Games
- ◆ War (Multiplication or Addition)
- ◆ Skip counting
 - ◆ <https://www.teachingchannel.org/videos/multiplication-warm-up-activity>
 - ◆ with movement, songs, or cards
- ◆ <http://www.mathwire.com/numbersense/bfacts.html>

Multiplication

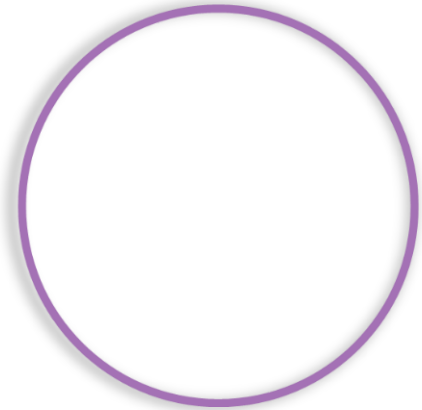
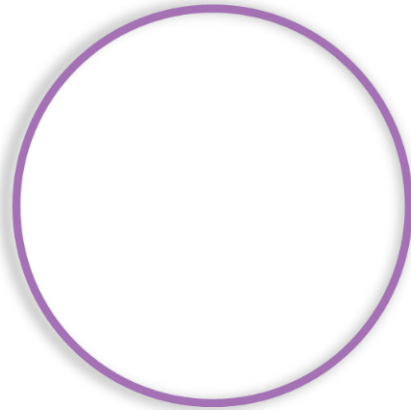
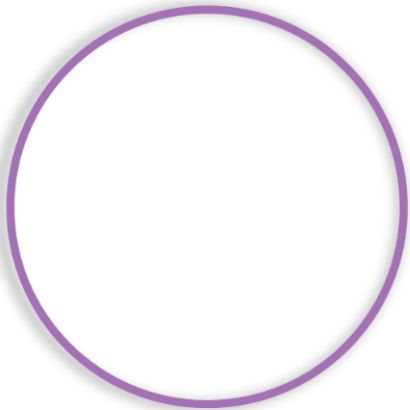
$$5 \times 3 = 15$$

\times = groups of



Division

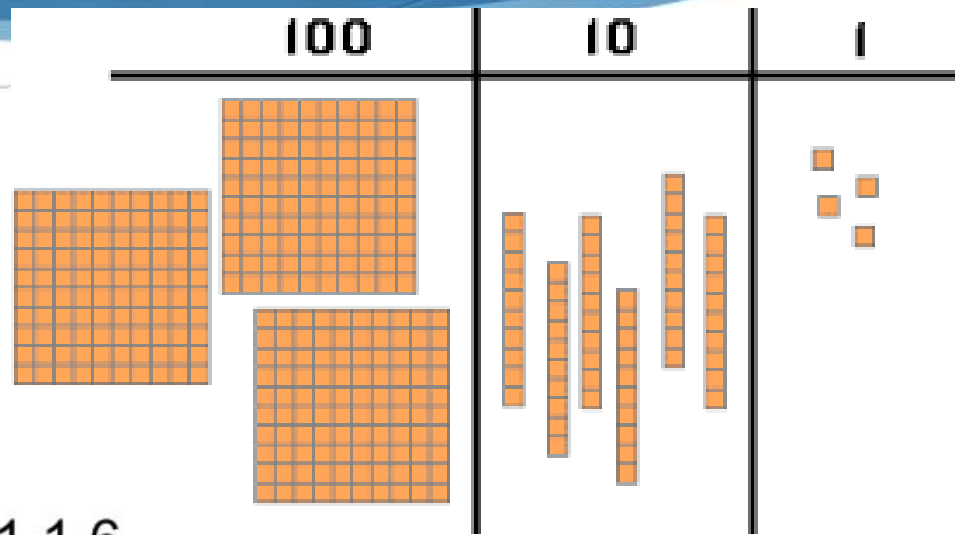
$$15 \div 3 = 5$$



Numbers and Operations in Base Ten

Addition

$$\begin{array}{r} 11 \\ 673 \\ + 457 \\ \hline 1130 \end{array}$$



$$\begin{array}{r} 36 \\ + 48 \\ \hline 14 \\ 70 \\ \hline 84 \end{array}$$

$$\begin{array}{r} 36 \\ + 48 \\ \hline 70 \\ 14 \\ \hline 84 \end{array}$$

$$\begin{array}{r} 116 \\ + 128 \\ \hline 14 \\ 30 \\ 200 \\ \hline 244 \end{array}$$

Place Value Based Addition

$67 + 85 =$

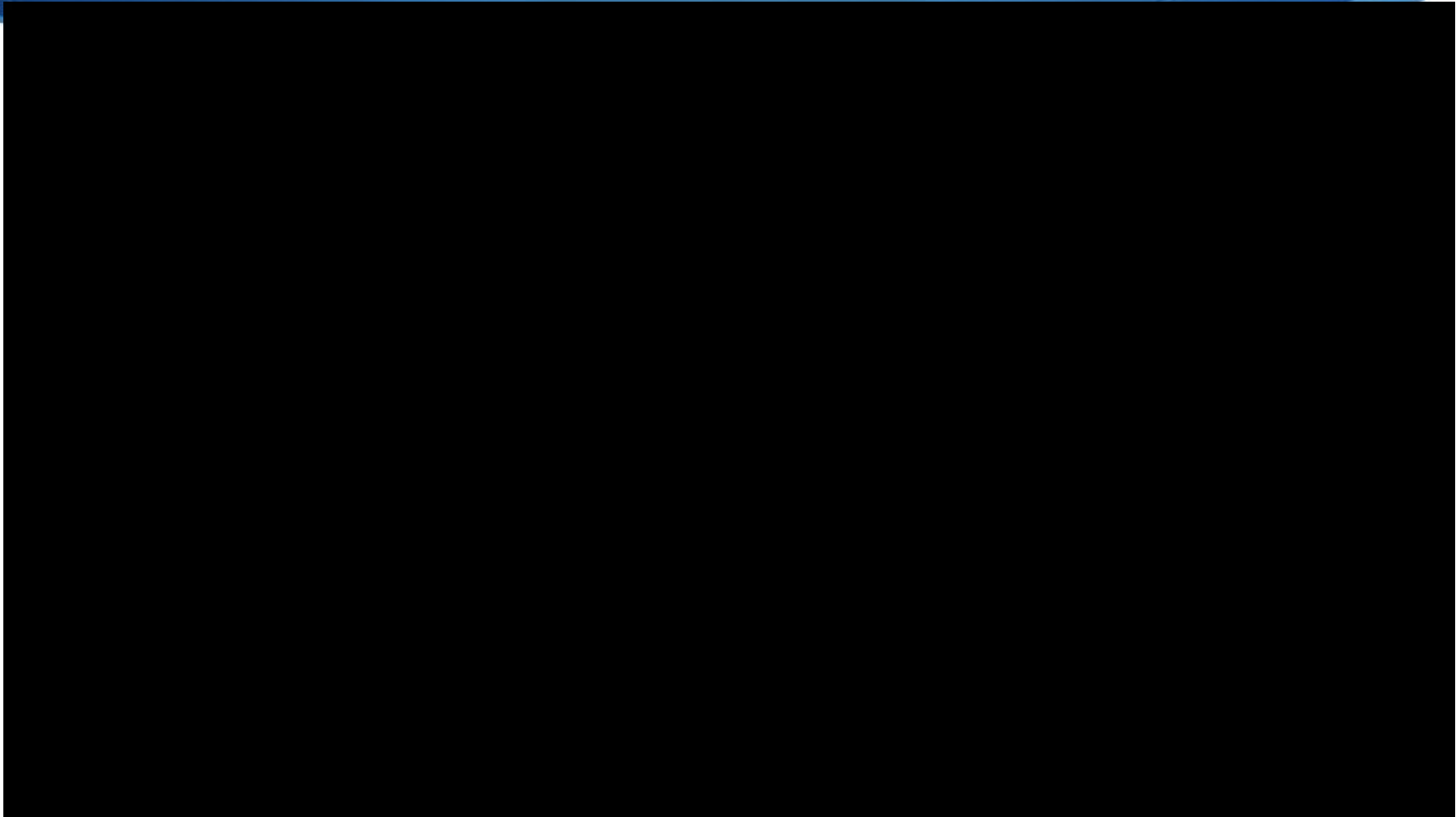
Tens	Ones

Place Value Based Subtraction

$85-67=$

Tens	Ones

Place Value Based Addition



Place Value Based Subtraction

Subtraction with regrouping

* Bigger
on
Top

$$\begin{array}{r} 53 \\ - 29 \\ \hline \end{array}$$

* Taking
away from
the total

53

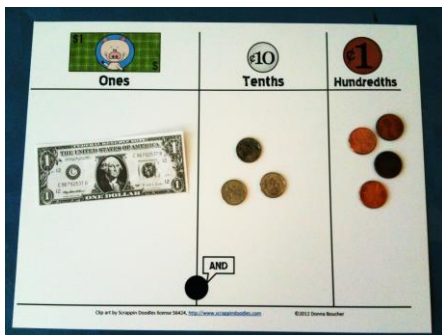
Numbers and Operations Base Ten Tutoring Activities

Place Value

- Decoder- made with Styrofoam cups- expanded form



- Dice or number cards- higher/lower
- Manipulatives- base ten blocks or money

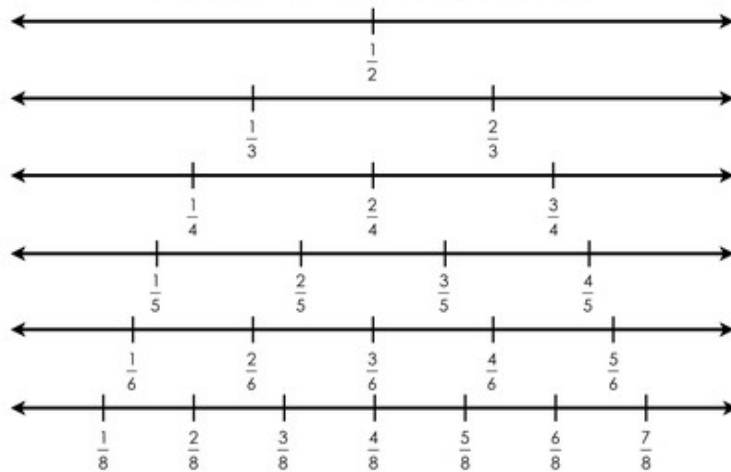


Make your game board

Thousands	Hundreds	Tens	Ones

Numbers and Operations- Fractions

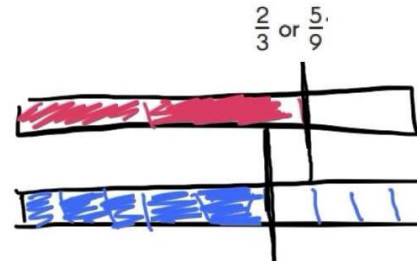
Fraction Number Lines



www.juminolearning.com

We can **compare** any two fractions using **tape diagrams**

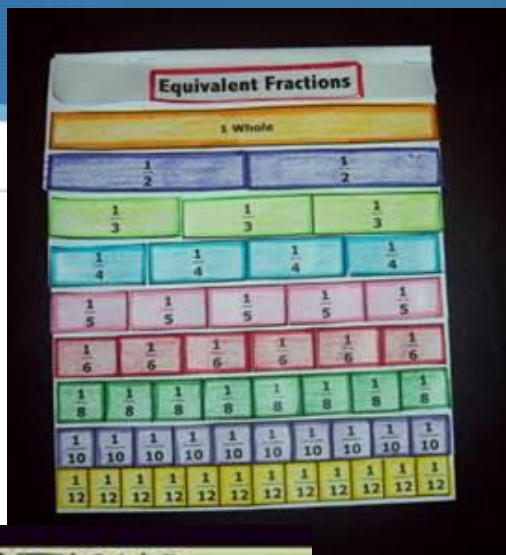
Fill in the blanks to complete the comparison:



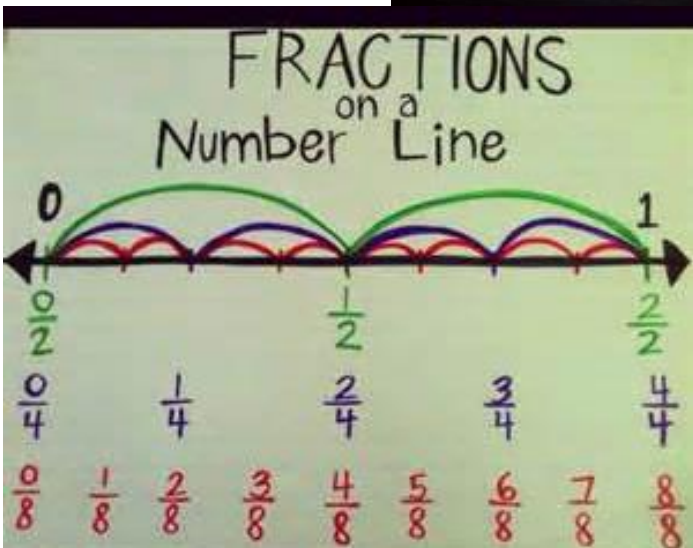
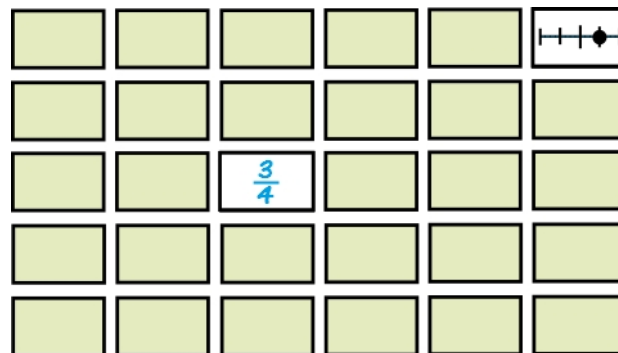
*Always
use the
same
size
whole*

$\frac{2}{3}$ is greater than $\frac{5}{9}$.

Numbers and Operations Fractions Tutoring Activities



Fraction Memory Game



CANDY FRACTIONS!

Count your entire pile of candy.

Record the total number of candies here: _____

Sort them into color piles.

Label the boxes below with the color names, then write the fraction in each box to show how many are in each color group.

Tutoring Resources

- ◆ <http://www.schoolonwheels.org/academic-program/>
- ◆ Achievethecore.org
- ◆ Corestandards.org
- ◆ California Department of Education
- ◆ <http://www.learn-with-math-games.com/>
- ◆ The Teaching Channel