

Common Core

PTO Meeting
December 8, 2015

MAP Math

Grade	KIS 2015-16	MAP Norms	All Intl Schools	EARCOS Schools
	Fall Mean	Fall Mean	Score *	Score *
2	189	177	192	196
3	204	190	204	209
4	217	202	213	219
5	232	211	222	229
6	237	218	227	236
7	252	223	233	241
8	256	226	239	247

Percent of students in the 90th Percentile or Higher

Grade	Number of Students	Math	
		Count	Percent
2	57	23	40%
3	62	23	37%
4	65	25	38%
5	61	35	57%
6	99	43	43%
7	105	83	79%
8	96	68	71%

Understanding Common Core Math

Common Core math stresses the importance of Conceptual Understanding.

Conceptual understanding is the ability to justify why a mathematical statement is true or why procedures (algorithms) can be used to carry out solutions.

The concept of division, multiplication, addition, subtraction, and the procedure for solving division, multiplication, addition, and subtraction problems are not the same thing.

Running throughout the Common Core standards are the Standards for Mathematical Practices (SMP) that mathematics educators at all levels should seek to develop in their students.

Standards for Mathematical Practices

SMP 1 - Make sense of problems and persevere in solving them

SMP 2 - Reason abstractly and quantitatively

SMP 3 - Construct viable arguments and critique the reasoning of others

SMP 4 - Model with mathematics

SMP 5 - Use appropriate tools strategically

SMP 6 - Attend to precision

SMP 7 - Look for and make use of structure

SMP 8 - Look for and express regularity in repeated reasoning

ACTIVITY 1

Please complete the following addition problem three different ways

$$235 + 316 =$$

Addition-Adding two or more numbers to find the total- $235 + 316 = 551$

Standard Algorithm

$$\begin{array}{r} 316 \\ + 235 \\ \hline 551 \end{array}$$

Place Value-
Decompose and
compose the
numbers

$$\begin{array}{r} 316 + 235 \\ 300 + 200 = 500 \\ 10 + 30 = 40 \\ 6 + 5 = 11 \\ \hline 551 \end{array}$$

Number Line

Component

316 + 235 = 551

316 + 200 = 516

516 + 30 = 546

546 + 5 = 551

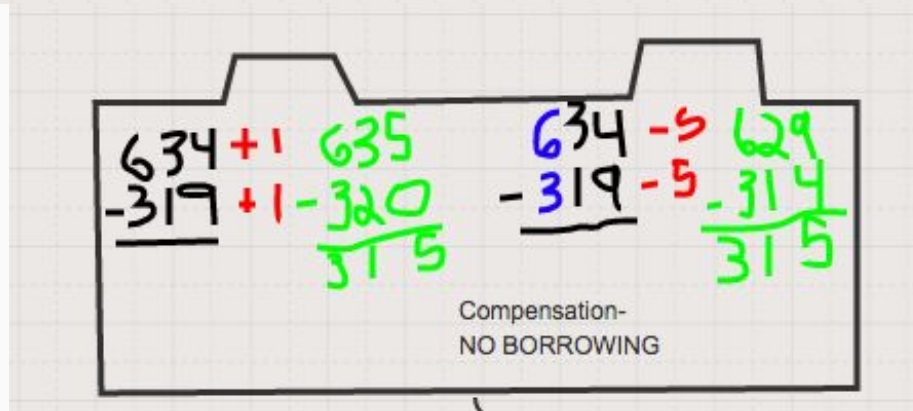
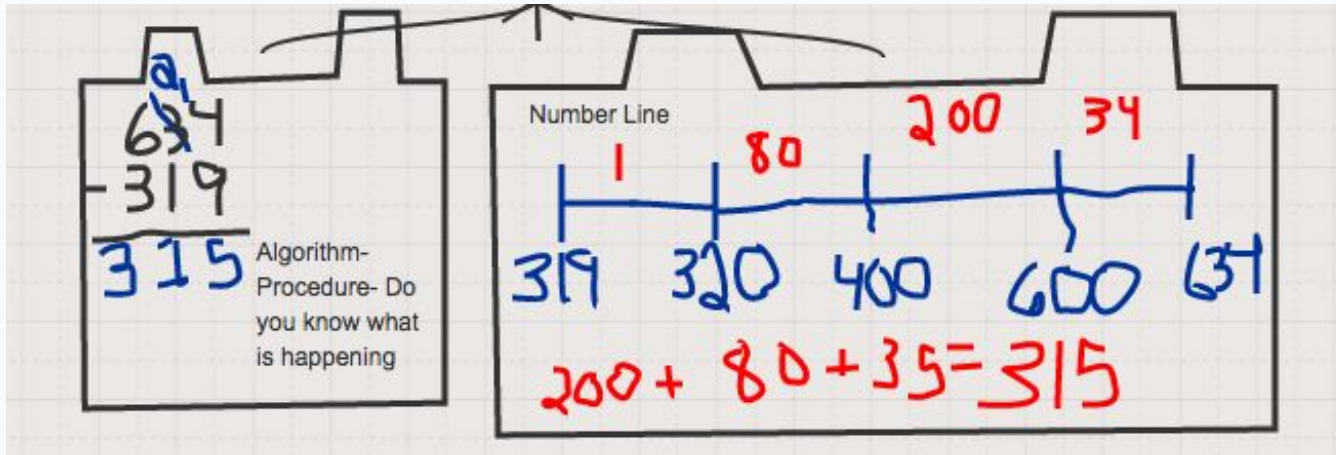
235 + 316 = Compensation method- Advanced/Mental Math

316
- 16

300 + 235 = 535 + 16 = 551

ACTIVITY 2

Please complete the following Subtraction problem three different ways. $634 - 319$



Activity 3

Represent this multiplication problem three different ways $7 \times 5 = 35$

Repeated Addition:

$$7+7+7+7+7 = 35$$

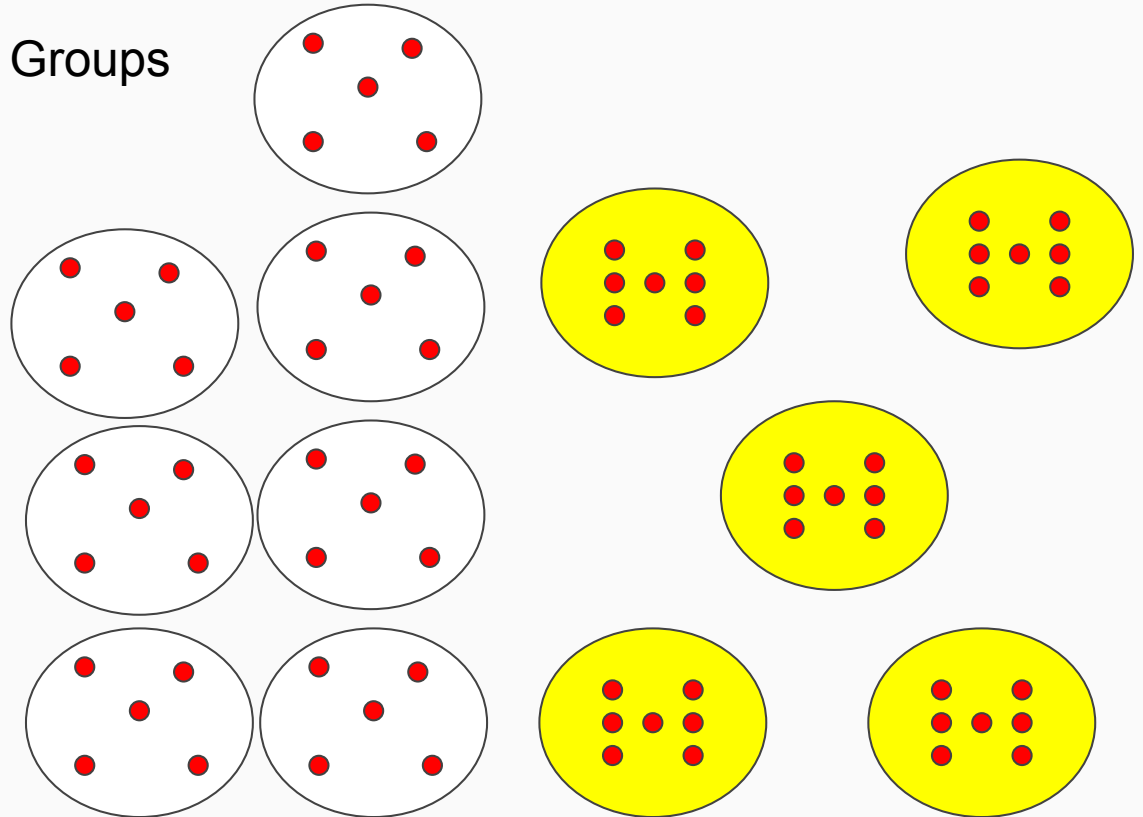
$$5+5+5+5+5+5+5=35$$

Distributive property:

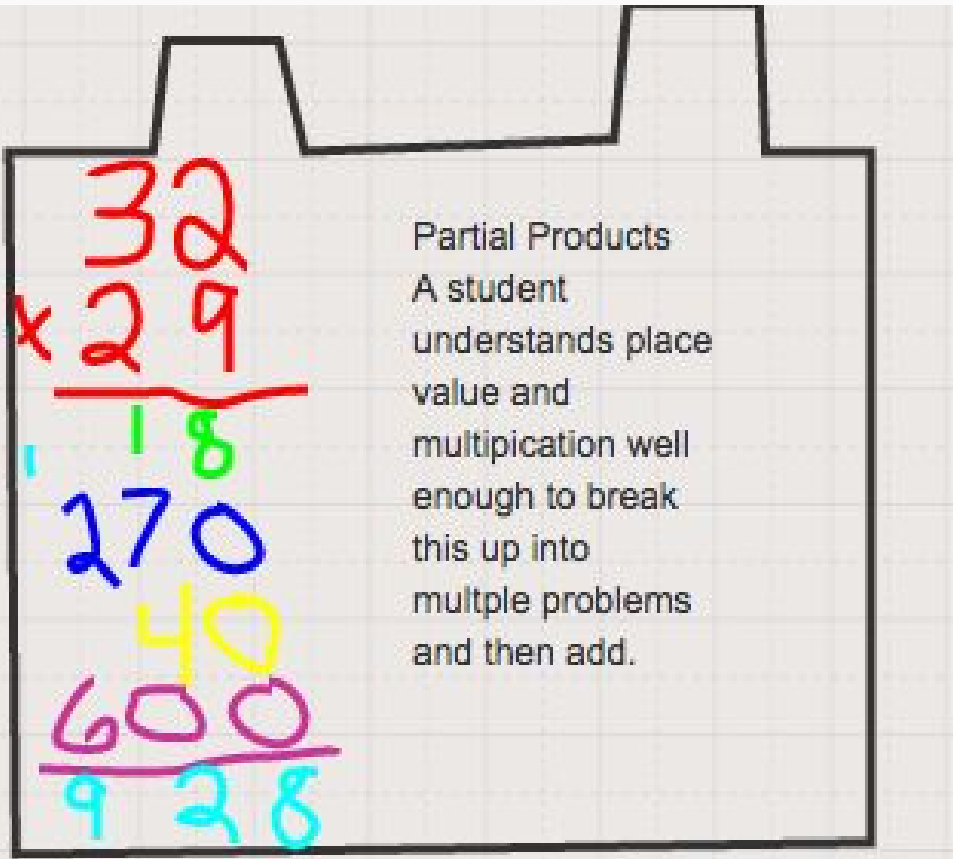
$$7 \times 5 = 35$$

$$7(2+3) = (7 \times 2) + (7 \times 3)$$

Groups



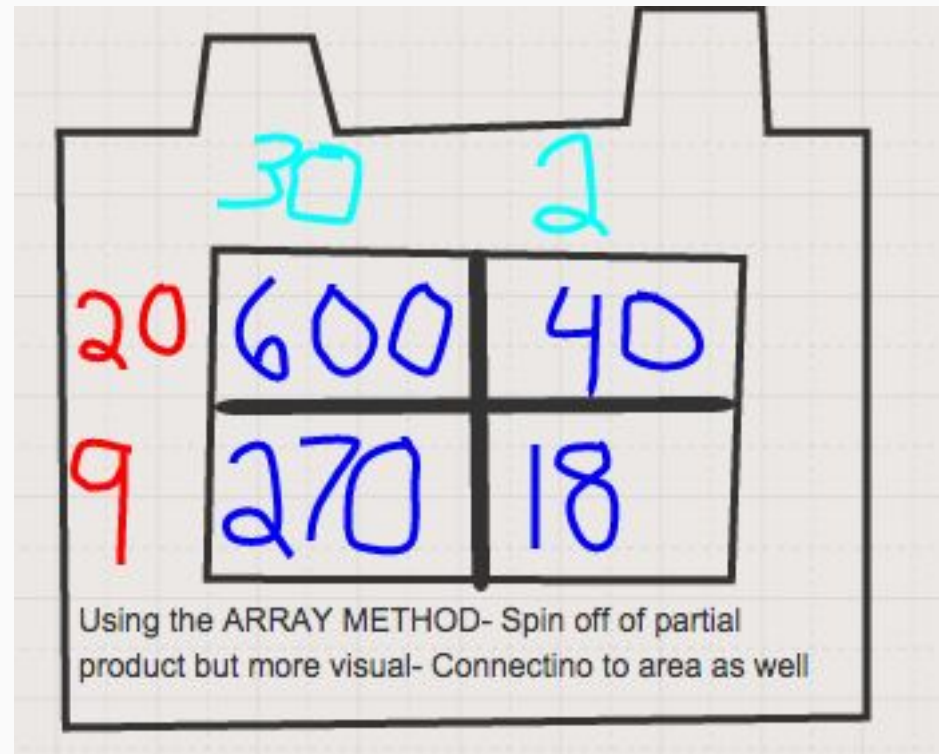
Multiplication to solve 32×29 using alternatives to the Standard Algorithm



Handwritten multiplication problem for 32×29 using the partial products method. The numbers are written in red. The partial products are written in different colors: 18 (green), 270 (blue), 40 (yellow), and 600 (purple). The final sum is 928, written in cyan.

$$\begin{array}{r} 32 \\ \times 29 \\ \hline 18 \\ 270 \\ 40 \\ 600 \\ \hline 928 \end{array}$$

Partial Products
A student understands place value and multiplication well enough to break this up into multiple problems and then add.



Handwritten array method for 32×29 . The array is a 2x2 grid. The top row is labeled 30 and 2. The left column is labeled 20 and 9. The cells contain the partial products: 600, 40, 270, and 18. The final sum is 928, written in cyan.

	30	2
20	600	40
9	270	18

Using the ARRAY METHOD- Spin off of partial product but more visual- Connecting to area as well

SMP3- Construct Viable arguments and critique the reasoning of others

Activity 4- Solving Division

Please solve the following Division problem $64 \div 7$ three different ways.

$$\begin{array}{r} 7 \overline{) 64} \\ \underline{- 63} \\ 1 \end{array}$$

Subtraction:

$$64 - 7 = 57 \quad 1$$

$$57 - 7 = 50 \quad 2$$

$$50 - 7 = 43 \quad 3$$

$$43 - 7 = 36 \quad 4$$

$$36 - 7 = 29 \quad 5$$

$$29 - 7 = 22 \quad 6$$

$$22 - 7 = 15 \quad 7$$

$$15 - 7 = 8 \quad 8$$

$$8 - 7 = 1 \quad 9$$

1 is unable to fit into the equal groups
of 7-REMAINDER

Addition:

$$7 + 7 = 14 \quad 2 \text{ Times}$$

$$14 + 14 = 28 \quad 4 \text{ Times}$$

$$28 + 28 = 56 \quad 8 \text{ Times}$$

$$56 + 28 = 84 \quad \text{Exceeds}$$

$$56 + 14 = 70 \quad \text{Exceeds}$$

$$56 + 7 = 63 \quad 9 \text{ Times}$$

$64 - 63 = 1$ Number of units unable to fit
into the equal groups of 7

The concept of division is splitting into equal groups or parts.

Conclusion

COMMON CORE

- Common Core creates Chefs
- Common Core instills number sense into our students
 - Numbers are Flexible
 - Numbers are made up of other numbers

In Short:

Common Core teaches students to understand the procedure on a conceptual level