

# The Power of Acceleration

Changing the Trajectory

Suzy Pepper Rollins

# Suzy Pepper Rollins Resources

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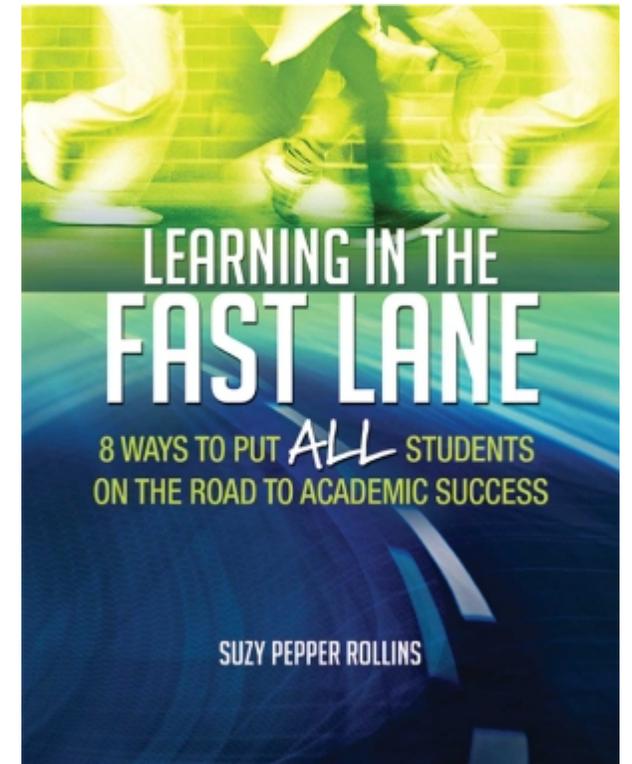
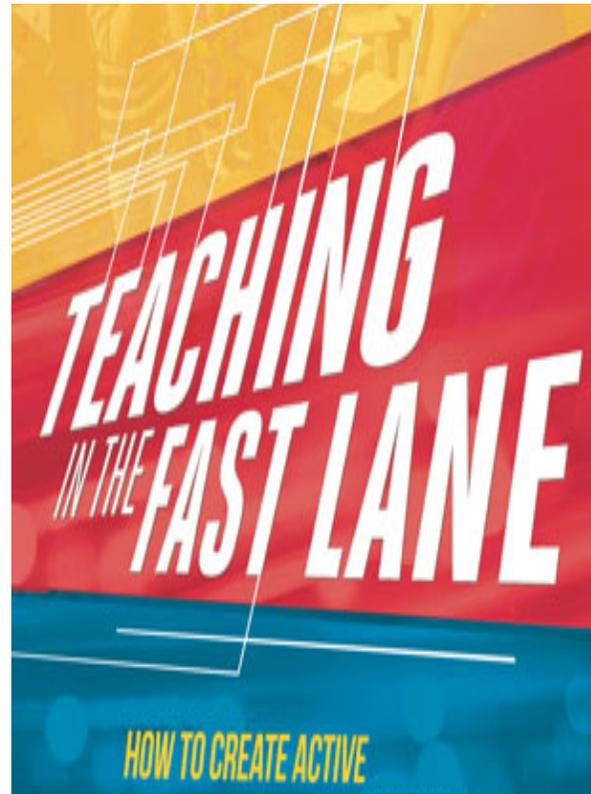
**Suzy Pepper Rollins**

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Astro Teller

“Think 10 X Bigger”

# “We Choose to Go to the Moon” (1962)



# 1962 Worlds Fair: Emerging Technology



“The boys at State are going to kill me,” he said,  
“but it's the right thing to do.” Ronald Reagan

- 10 -

THERE IS ONE SIGN THE SOVIETS CAN MAKE THAT  
WOULD BE UNMISTAKABLE, / THAT WOULD ADVANCE  
DRAMATICALLY THE CAUSE OF FREEDOM AND PEACE.

GENERAL SECRETARY GORBACHEV, IF YOU  
SEEK PEACE /- IF YOU SEEK PROSPERITY FOR  
THE SOVIET UNION AND EASTERN EUROPE /--  
IF YOU SEEK LIBERALIZATION, / COME HERE,  
TO THIS GATE.

MR. GORBACHEV, OPEN THIS GATE.

MR. GORBACHEV, TEAR DOWN THIS WALL.

I UNDERSTAND THE FEAR OF WAR AND THE  
PAIN OF DIVISION THAT AFFLICT THIS  
CONTINENT /- AND I PLEDGE TO YOU MY  
COUNTRY'S EFFORTS TO HELP OVERCOME THESE  
BURDENS, / TO BE SURE, WE IN THE WEST MUST  
RESIST SOVIET EXPANSION, / SO WE MUST  
MAINTAIN DEFENSES OF UNASSAILABLE STRENGTH.  
YET WE SEEK PEACE, / SO WE MUST STRIVE TO  
REDUCE ARMS ON BOTH SIDES.



# What if Jeff Bezos thought incrementally?



Incremental Goal:

“Sell 5% more books out of my garage this year.”

10 X Thinker

Goal: Create orbital space launch vehicle

# Thinking 10 X Bigger? Incremental? 2.7 Increase in Independence?



# 10 x Bigger



# Big Idea: Acceleration vs. Remediation

**Challenge: If we could just fix our kids, close every gap they didn't get in prior grades, they'd be just fine.**

Ana Sanalidro, Principal

<https://fr.calameo.com/read/001898804de933eb6e8e4>

“I’m tired of pouring money into remedial programs and not seeing results.”

*Acceleration: Tactically  
moving learners ahead  
to facilitate new  
learning.*

# What is *Acceleration*?

- Strategically providing prior knowledge **just in time** for new learning.
- Remediation is in the **context of new learning**, rather than isolated.
- Designed to give students a **fresh instructional start**.
- Tactical focus on what students need **this week** to be successful.
- **Jump starting** some students ahead of their peers.
- 70%-30%

# Power of Prior Knowledge

- Student at 50% percentile. Increase her background knowledge by one standard deviation, her academic achievement would be expected to increase from the 50% to the 75% percentile.
- BUT...if her background knowledge is DECREASED by one standard deviation, her academic achievement would be expected to drop to the 25<sup>th</sup> percentile.

# Prior Knowledge & Reading Comprehension

- “Prior knowledge is the main determinant of comprehension.”
- “The ability to get meaning from print is dependent on what we already know.
- “...the only way we can learn new information is by attaching it, connecting it, and integrating it with information we already have.”

(Daniels & Zemelman, 2004)

# Role of Prior Knowledge

- “Prior knowledge about the topic speeds up basic comprehension and leaves working memory free to make connections between the new material and previously learned information.”

(Hirsch, 2003)

“Perhaps the single most important resource in learning with texts is reader’s prior knowledge.”

(Vacca & Vacca, 2002)

# A Quick Reading Quiz...

- Read the passage and answer the questions
- Share the key points of the passage with your partner.

# Jai Alai





# Jai Alai Cesta, Pelota, and Helmet



# Jai Alai

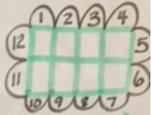
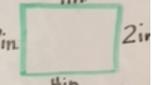
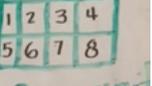
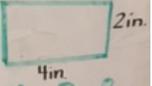
- Cancha: Court that is 3-sided. 4<sup>th</sup> side is a chain link fence
- Pelota: Ball made from goatskin, rubber, and leather
- Fronton: Jai alai facility
- Pelotari: Jai alai player
- Cesta: Basket strapped to the pelotari

# TIP Chart

TERM	INFO	PIC
cesta	Basket strapped to pelatori's arm	
Pelotari	Jai Alai player	

# Daniel Blandy Hills 3

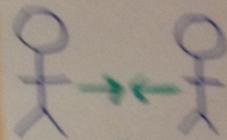
## TIP

<u>T</u> erm	<u>I</u> nformation	<u>P</u> icture
Perimeter	the distance around a figure <u>formula</u> $P = l + w + l + w$	 $P = 12$ units  $P = 4 + 2 + 4 + 2 = 12$
Area	the measure of the number of unit squares needed to cover the inside of a figure. <u>formula</u> $A = \text{length} \times \text{width}$	 $A = 8$ sq. units  $A = 4 \times 2 = 8$ $A = 8 \text{ in.}^2$

Term	Info.	Picture
------	-------	---------

Gravity

A force that pulls all objects toward each other



Weight

Weight is a measure of gravity pull on an object



Mass

How much matter (stuff) is an object. It will not change

# The Trouble with Vocabulary

- A high ability student has a 19% chance of learning a new word in context
- A low ability one 8%
- A medium one 12%.
- With a high density text, only 7% chance. (High density means 1 new word for every 10 words.)

Swanborn & De Glopper (1999)

# What Works in Direct Vocabulary Instruction

- Nonlinguistic based strategies had an average effect size of 1.00 a gain of 34 percentile points gain in vocabulary learning. (Marzano citing Powell)
- Multiple exposures: Vocabulary understanding deepens over time. For deep understanding, students need repeated and varied exposures to the words that vary. (Beck, McKeown & Kucan (2002)
- Students need to be exposed to the word at least six times before they can ascertain and remember its meaning.

(Jenkins, Stein, and Wysocki , 1984 )

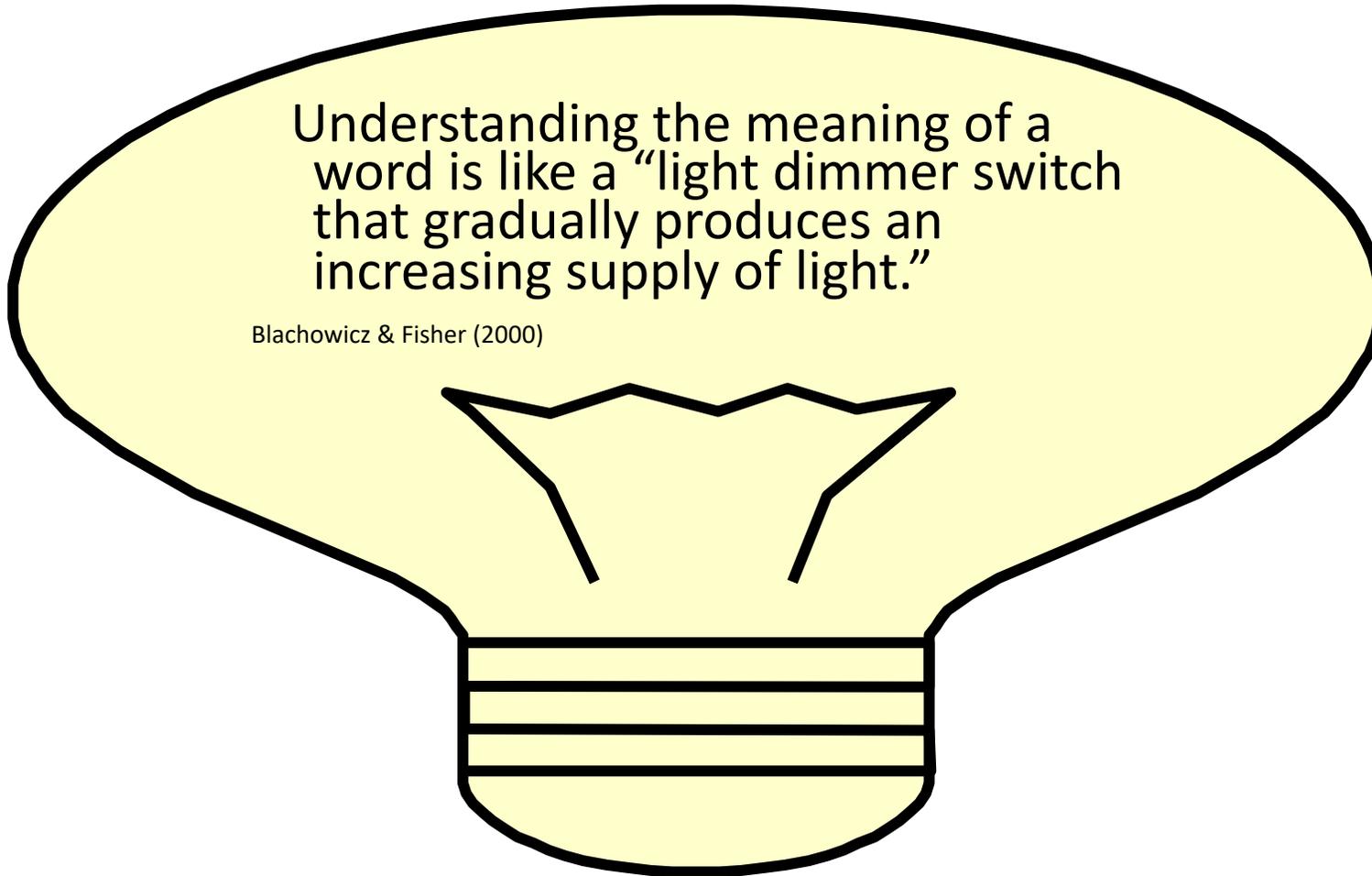
# What Works in Direct Vocabulary Instruction

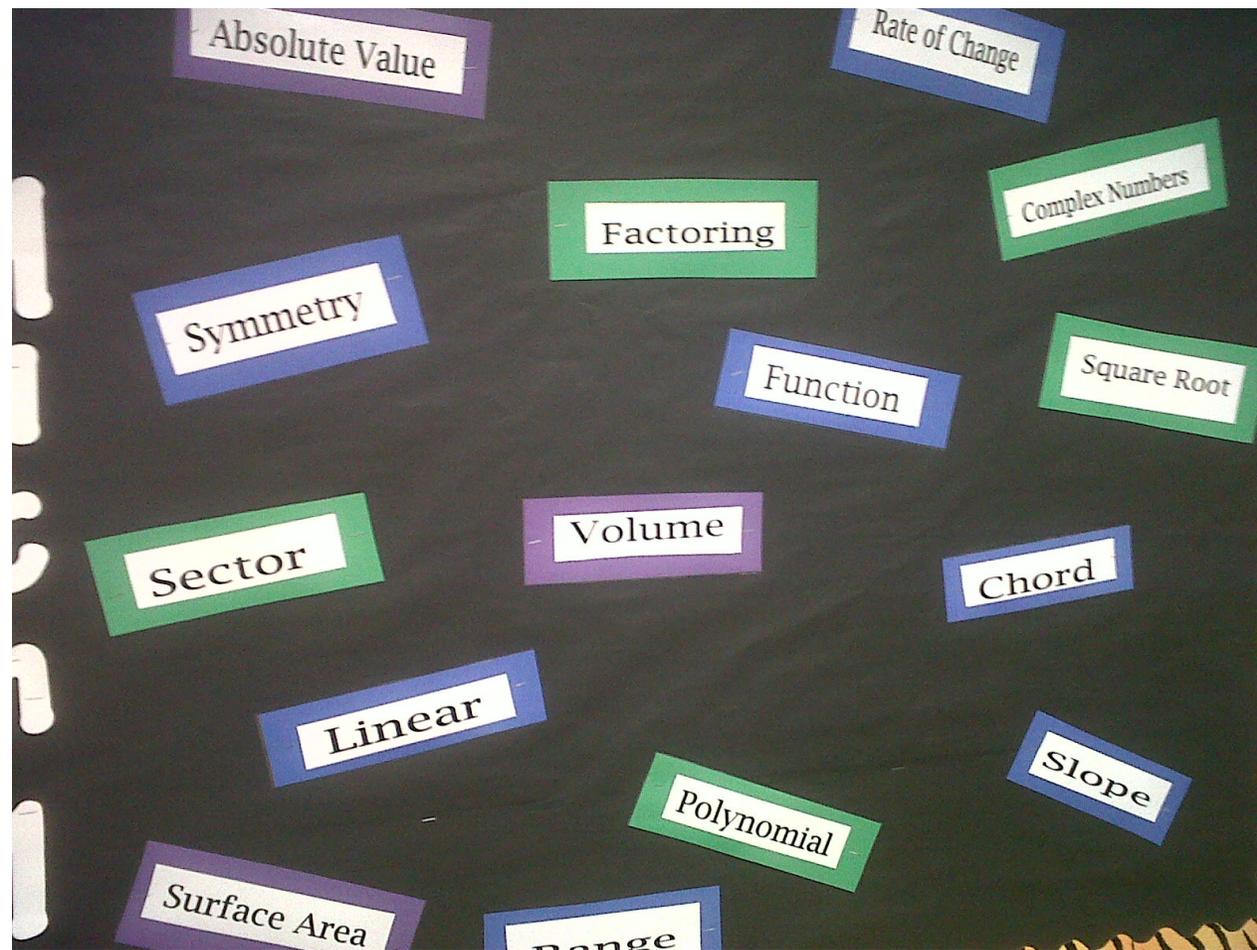
- Finding similarities and differences is very effective. (Marzano & Pickering 2001)
- Classifying words into categories helps students understand the words. (Marzano & Pickering, 2001)
- Creating metaphors and analogies – finding relationships between words. (Marzano & Pickering, 2001)
- Word parts: roots, prefixes and suffixes. Decomposing words makes words memorable and helps in determining meaning of new words. (Dale and O'Rourke, 1986)

# The light gets brighter...

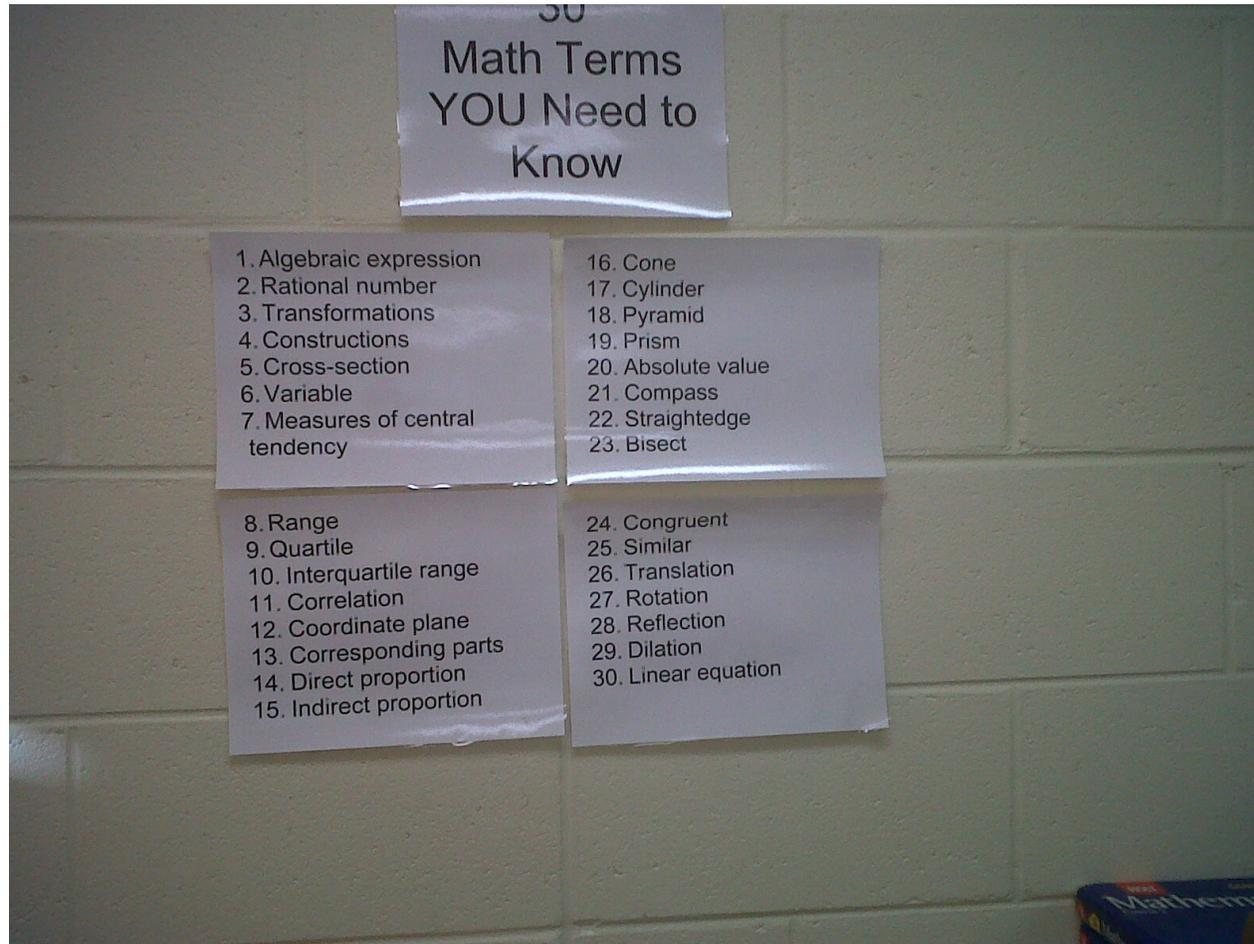
Understanding the meaning of a word is like a “light dimmer switch that gradually produces an increasing supply of light.”

Blachowicz & Fisher (2000)





# Non-example/Vocabulary



# Word W

Atlas Mountain Range  
 Sahara Desert  
 Sahel  
 Savanna  
 Tropical rainforests  
 Kalahari Desert  
 Nile River  
 Congo River  
 Lake Tanganyika  
 Niger River

Democratic Republic of Congo  
 Egypt  
 Kenya  
 Nigeria  
 South Africa  
 Republic of Sudan  
 South Sudan  
 Deforestation  
 Droughts  
 Desertification

Nile Delta  
 Green Line  
 Oasis  
 Nomad  
 Tuareg  
 Subsistence Farming  
 Extinction  
 Ethnic group  
 Religious Group  
 Islam

Golden Stool  
 Nayne  
 Abosom  
 Nayne  
 Christianity  
 Muslims  
 Bantu  
 Christian  
 Animist religions  
 Swahili

Mita  
 Literacy  
 Unitary Government  
 Confederation Government  
 Federal Government  
 Autocratic Government  
 Oligarchy  
 Democratic  
 Democracy  
 Parliamentary

Parliament  
 Presidential  
 President  
 United Nations  
 World Bank  
 Civil War  
 Antiretroviral Drugs  
 Traditional economy  
 Tradition  
 Bartering

Capital goods  
 Oil  
 Uranium  
 Conflict diamonds  
 Entrepreneurs  
 Income  
 Savings  
 Budget  
 Investing  
 Financial investment

Real investment  
 Physical capital investment  
 Credit  
 Imperialism  
 Indirect rule  
 Assimilation  
 Embargo  
 Nelson Mandela  
 President F.W. de Klerk  
 Pan African movement

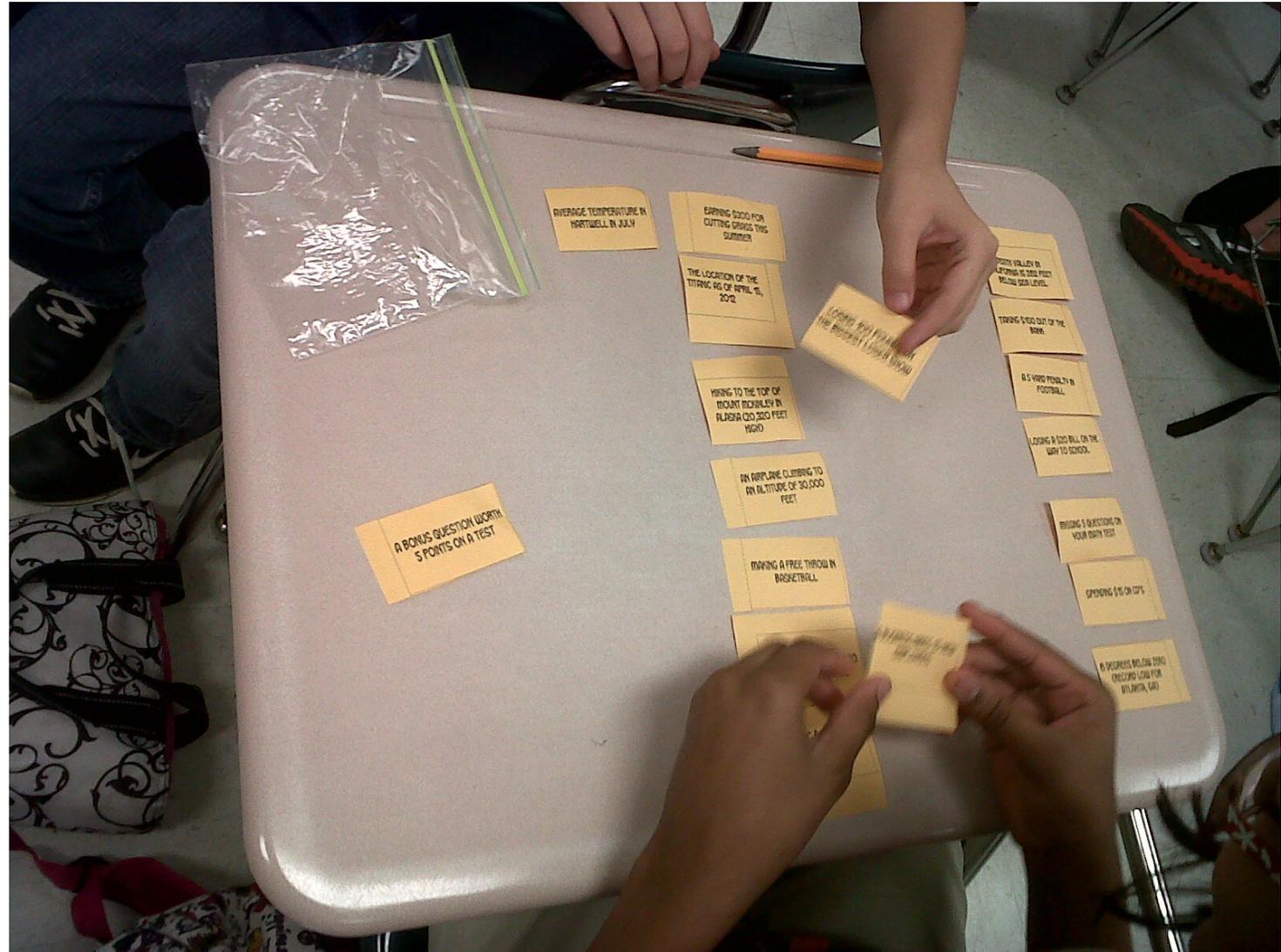
Command economy  
 Market economy  
 Capitalism  
 Free Enterprise  
 Laissez-faire  
 Mixed Economy  
 Voluntary trade  
 Specialization  
 Trade Barriers  
 Tariff

Imported  
 Protective tariff  
 Quota  
 Organization of Petroleum  
 Exporting Countries (OPEC)  
 Embargo  
 Apartheid  
 Human Capital  
 Gross Domestic Product (GDP)  
 Per Capita GDP

# Process of Acceleration

1. Talk about our upcoming learning target
2. Spark intellectual curiosity about new learning
3. Strategically lay key prior knowledge in students' paths
4. Begin the vocabulary journey
5. Scaffold gaps in context (Vocabulary, comma rules, parts of an essay, multiplication tables, integer rules, formulas, science laws...)
6. Get started on new concepts or skills

# Getting Reading for Integers

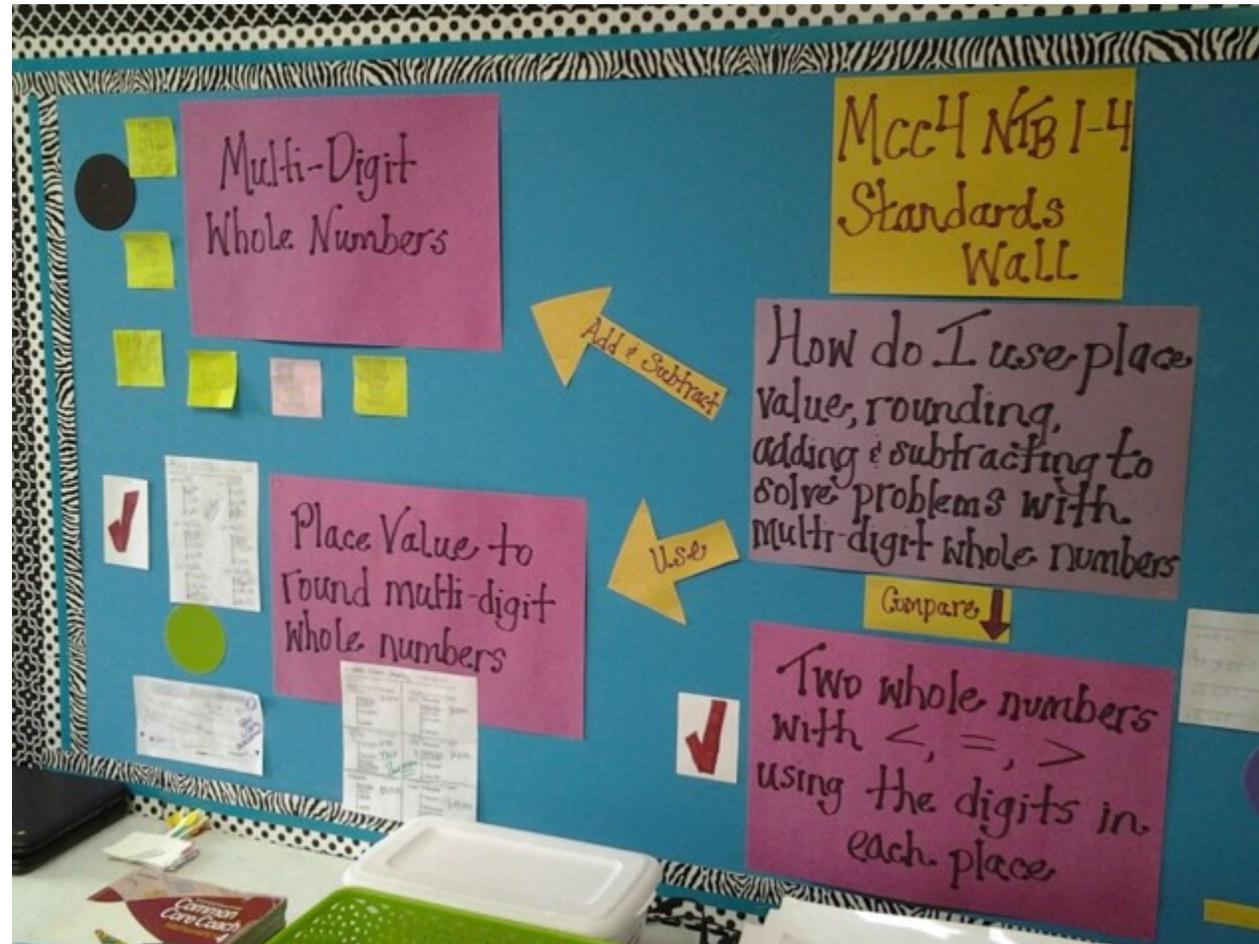


# Our Love for the Avocado: A Supply & Demand Story

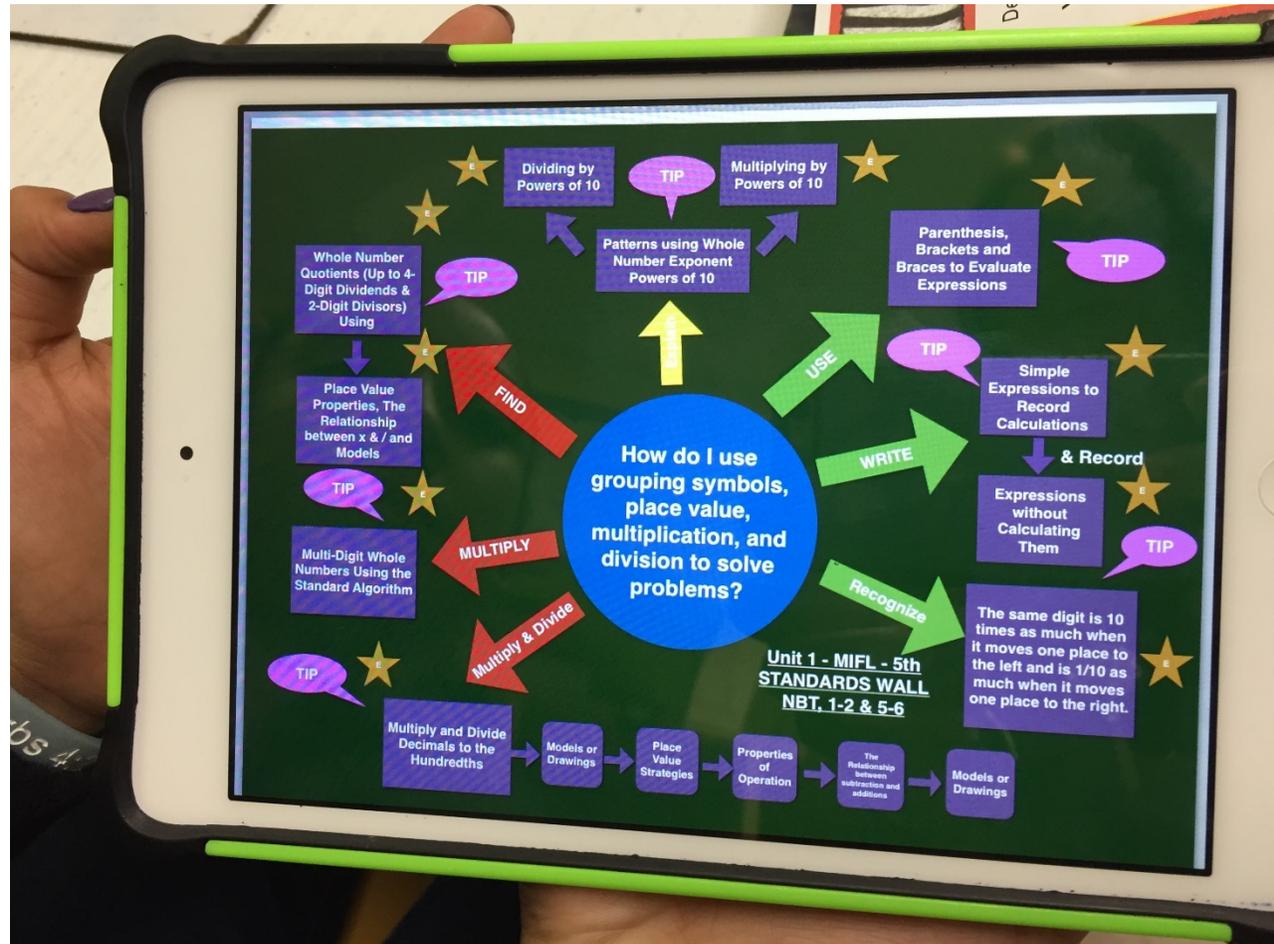
- Surging global demand
- Reduced harvests
- Per-capita consumption jumped from 3.5 pounds in 2006 to 6.9 pounds in 2015.
- Heatwaves & Flooding
- Cinco de Mayo



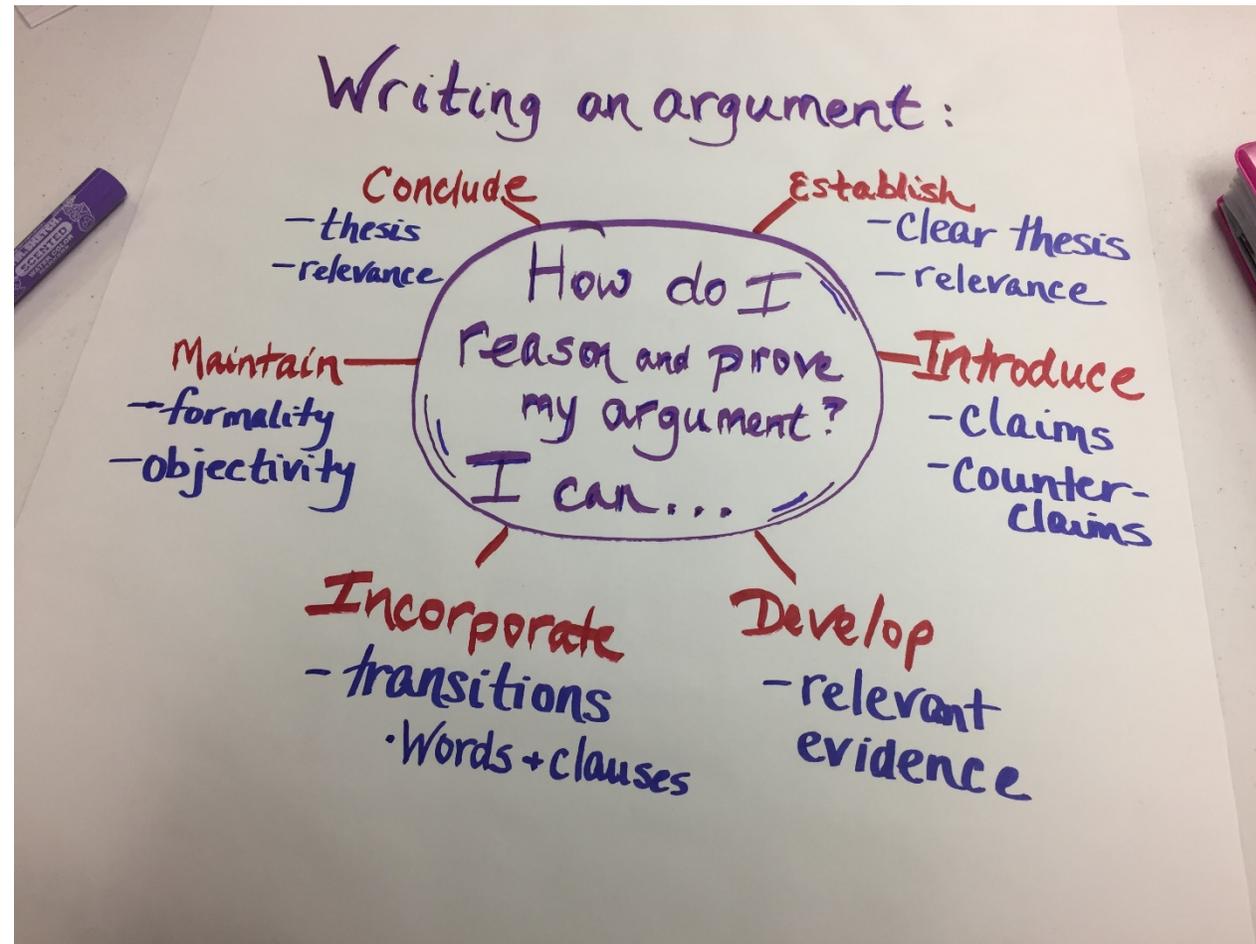
# Bleckley County



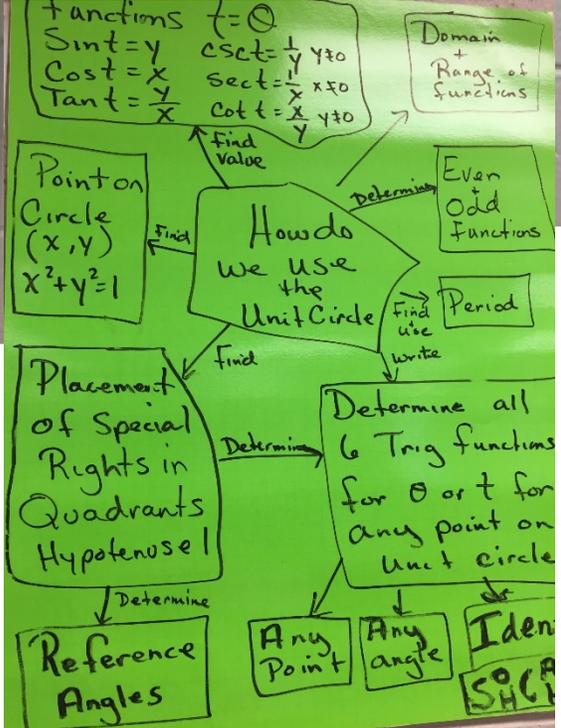
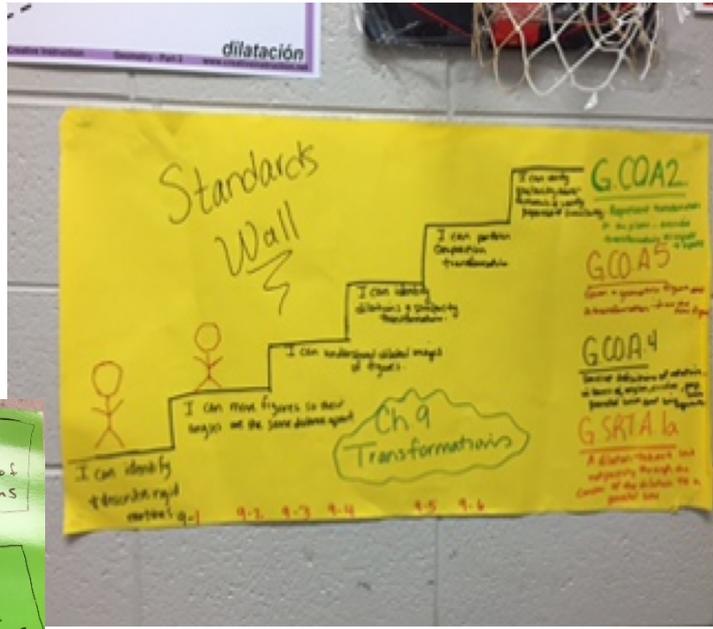
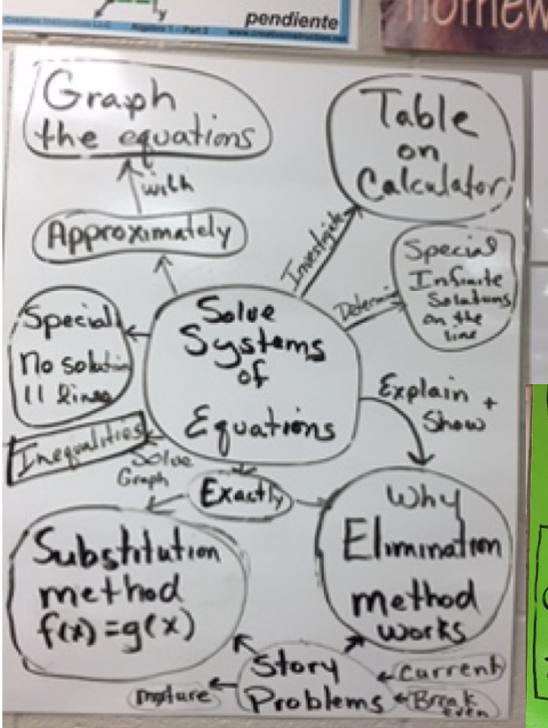
# Targets Digitally Presented...



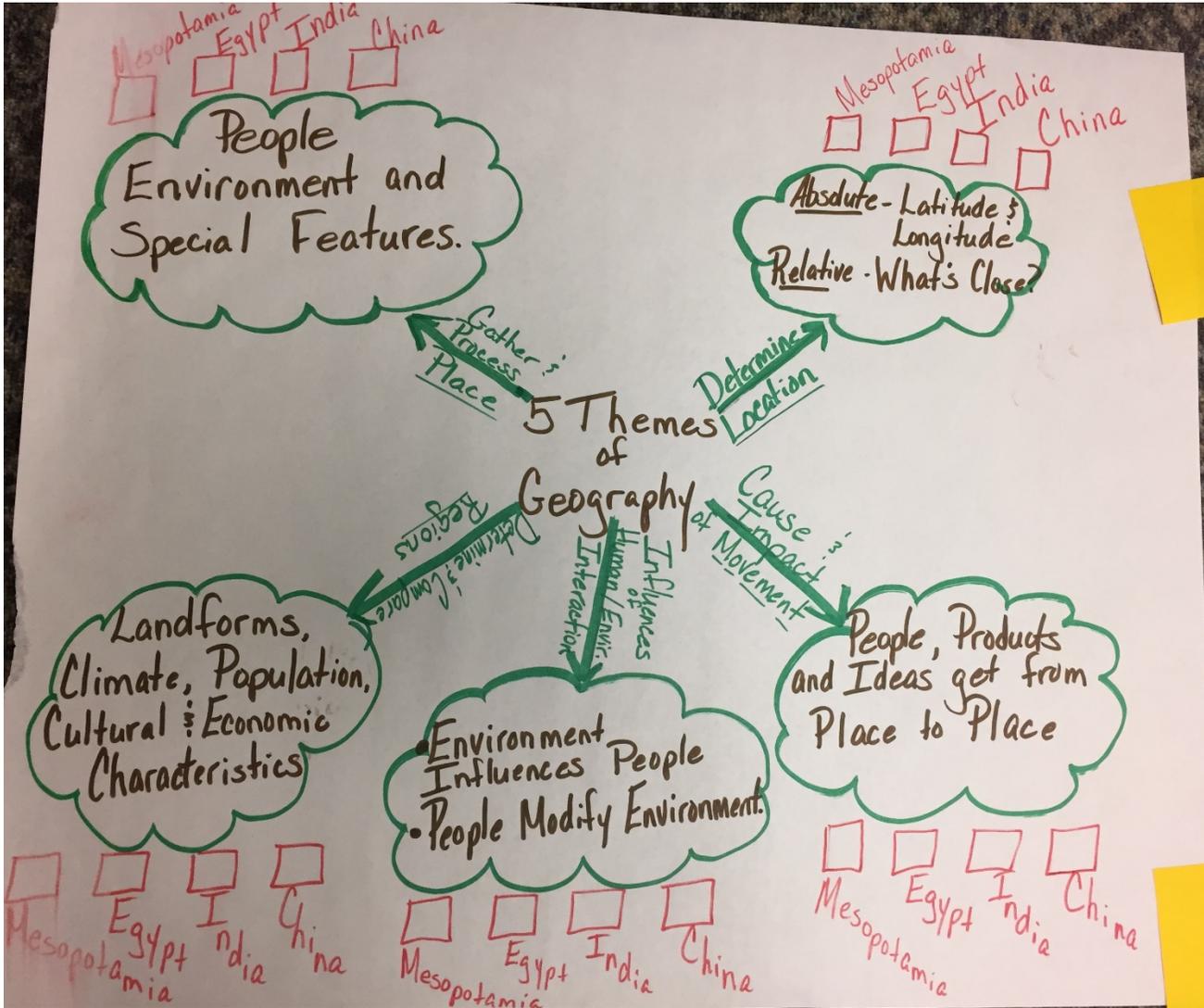
# Mansfield Ohio PD Session



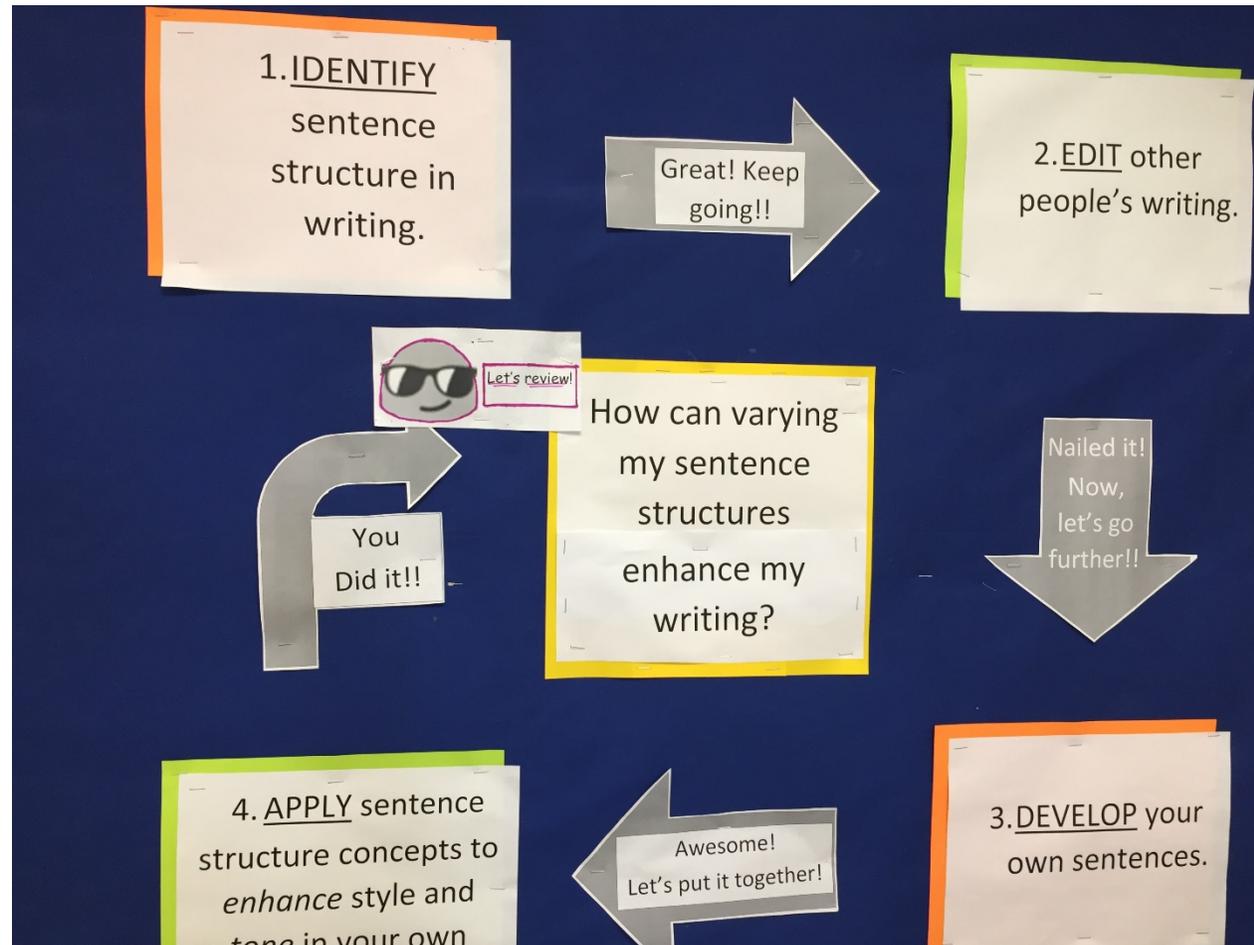
# Baldwin High School



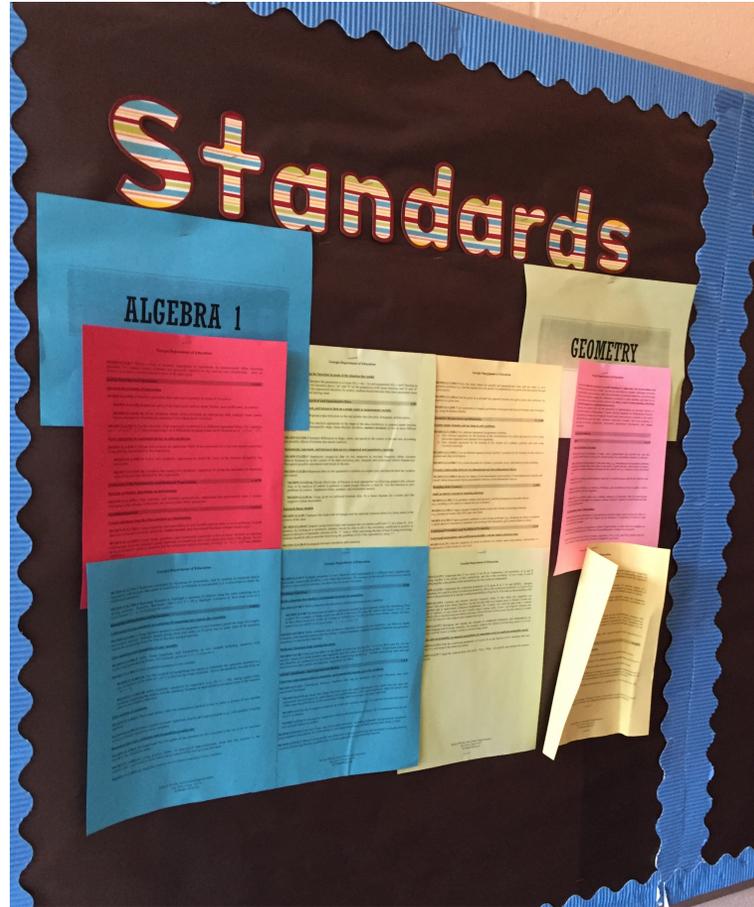
# Mansfield, OH PD



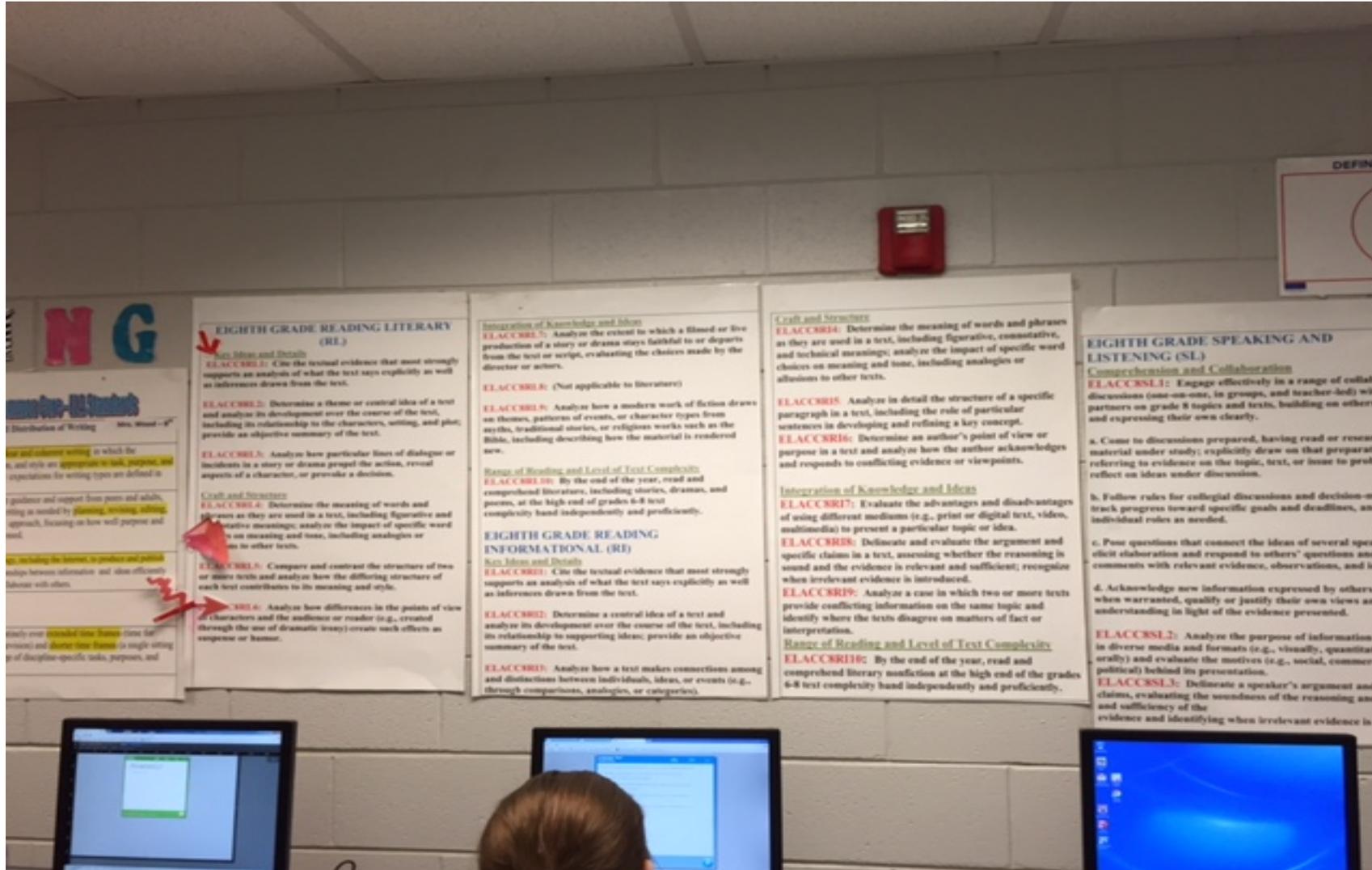
# Banks County



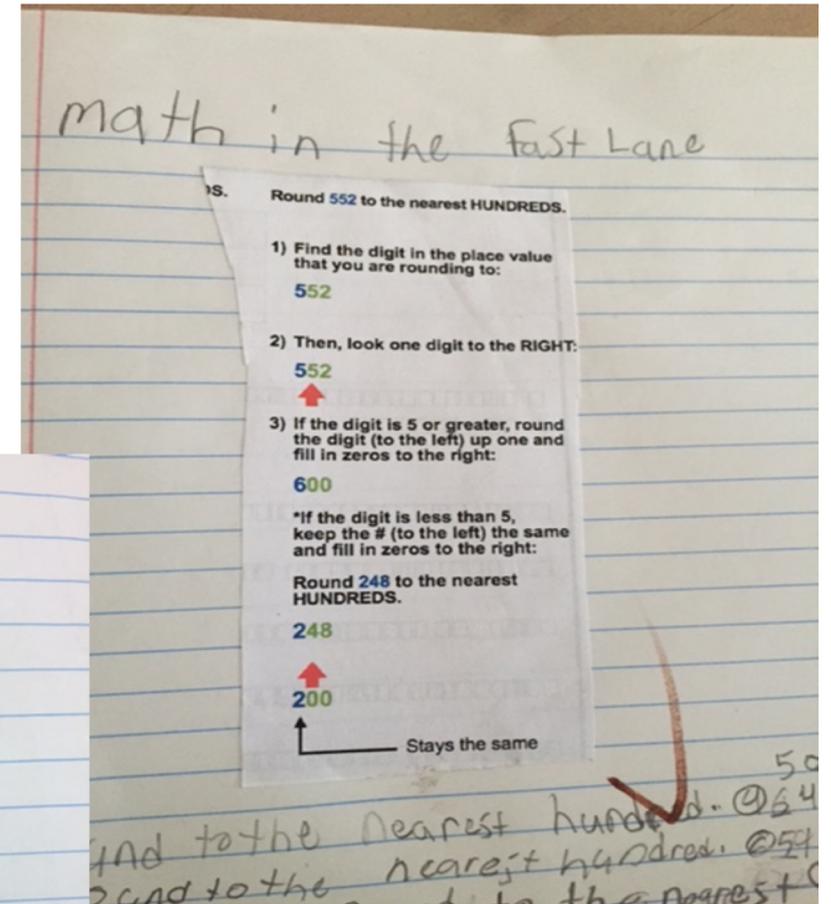
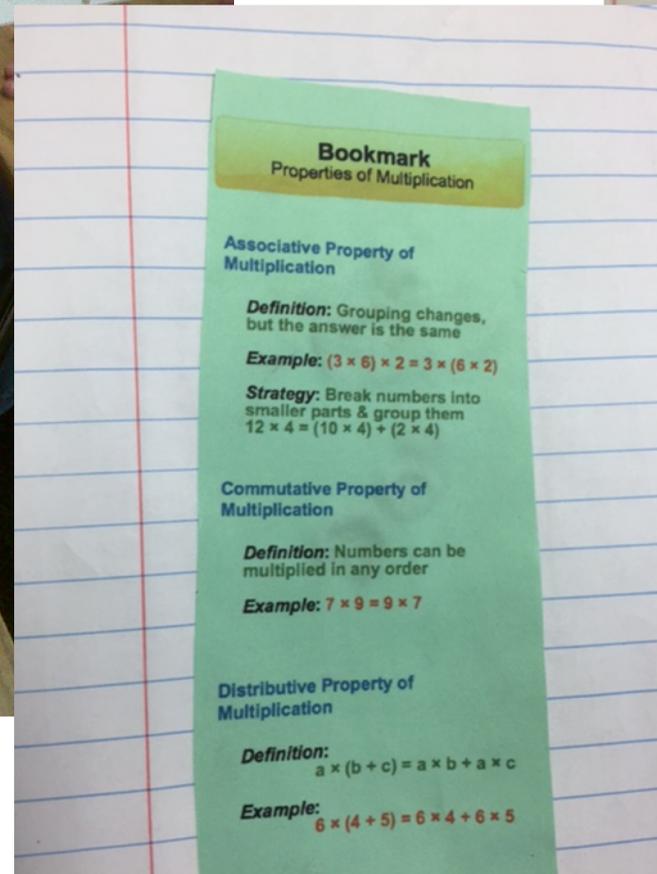
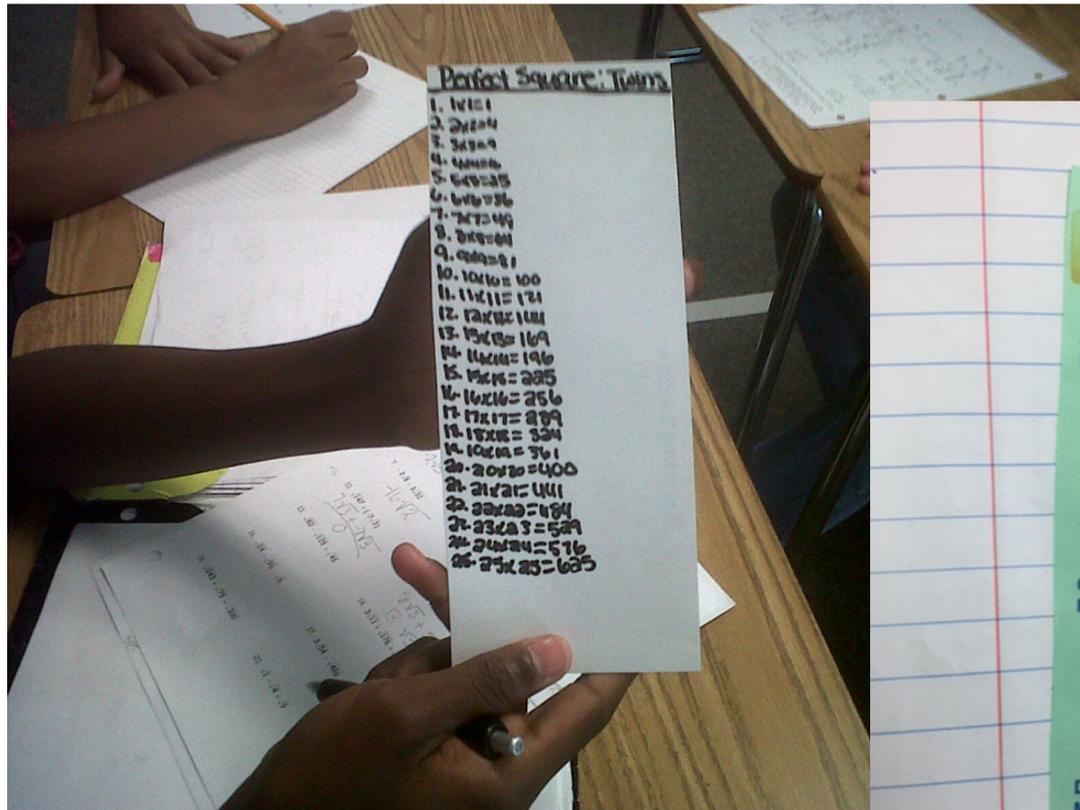
# What's Expected of Me as a Learner?



# How Can I be Successful Today?



# Scaffolding Prerequisite Skills



# Scaffolding

$10^2$  → exponent  
 (base) means  $10 \times 10 = 100$

$10^3$  → exponent  
 (base) means  $10 \times 10 \times 10 = 1000$

$7 \times 10^0 = 7 \times 1 = 7$   
 $7 \times 10^1 = 7 \times 10 = 70$   
 $7 \times 10^2 = 7 \times 100 = 700$   
 $7 \times 10^3 = 7 \times 1000 = 7000$   
 $7 \times 10^4 = 7 \times 10,000 = 70,000$

\*Hint: the number of zeros matches the exponent...

Increasing	Decreasing
$10^0 = 1$	1
$10^1 = 10$	0.1
$10^2 = 100$	0.01
$10^3 = 1000$	

When multiplying...  
 Decimal moves left  
 Decimal moves right

$-128032 \times 40$   
 $170$   
 $-16032 \times 5$   
 $10$   
 Quotient = 45 R 10

To find Area of a rectangle...  
 $A = L \times W$   
 $A = 13 \text{ yd} \times 8 \text{ yd}$   
 $A = 104 \text{ yd}^2$

$\times 10$   
 greater  
 $30 \xrightarrow{\times 10} 3$

$\times \frac{1}{10} (\div 10)$   
 smaller  
 $3 \xrightarrow{\div 10} 0.3$

## Place Value

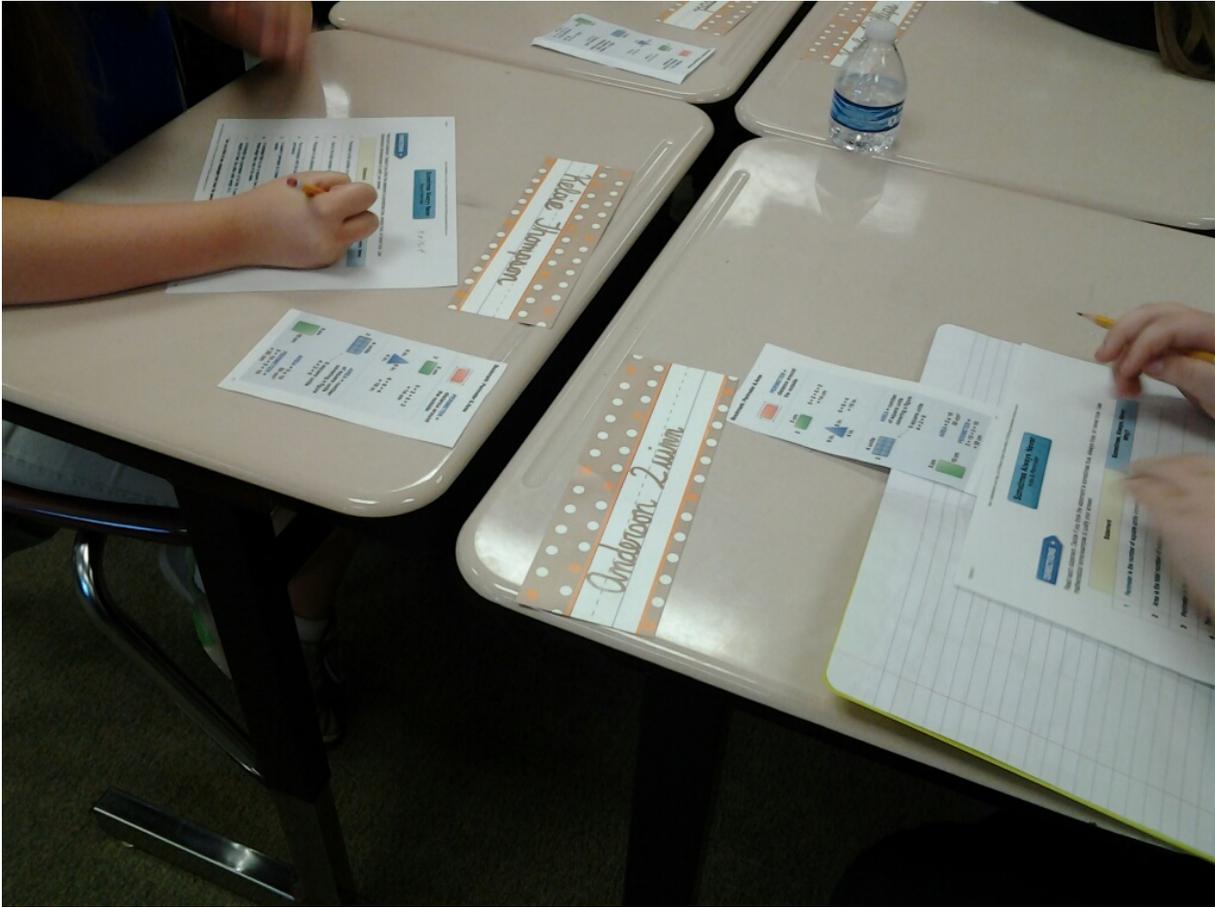
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	5	6	4	7	9	8

one million, five hundred sixty-four thousand, seven hundred ninety-eight

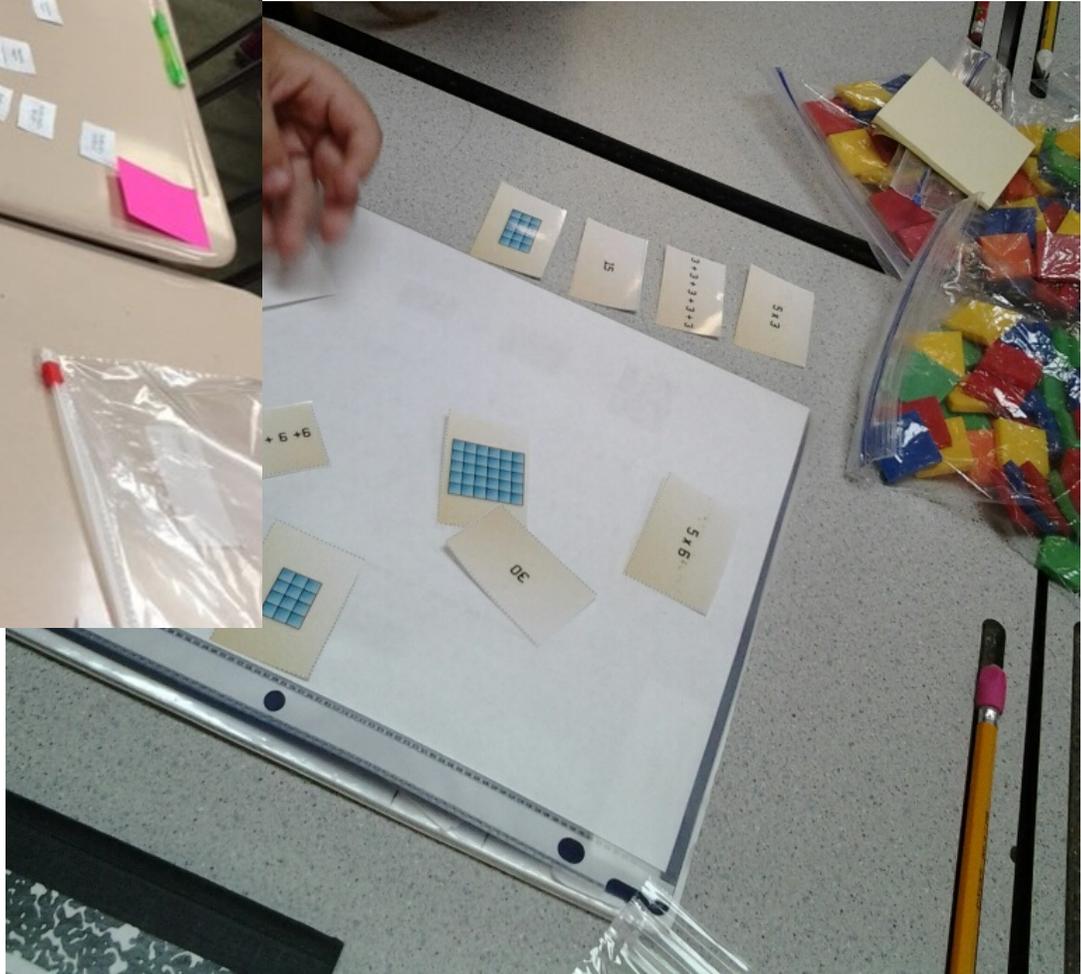
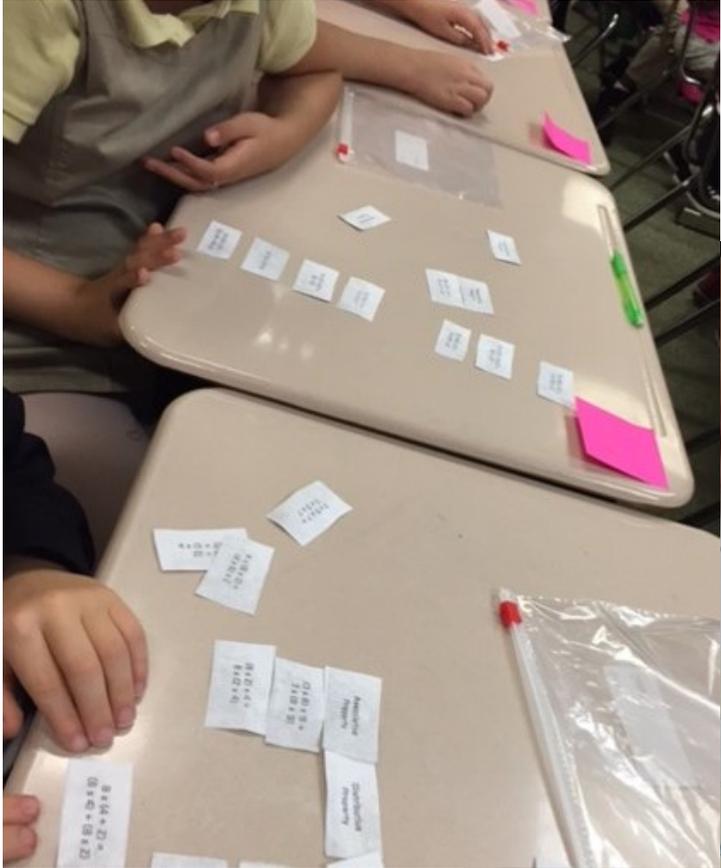
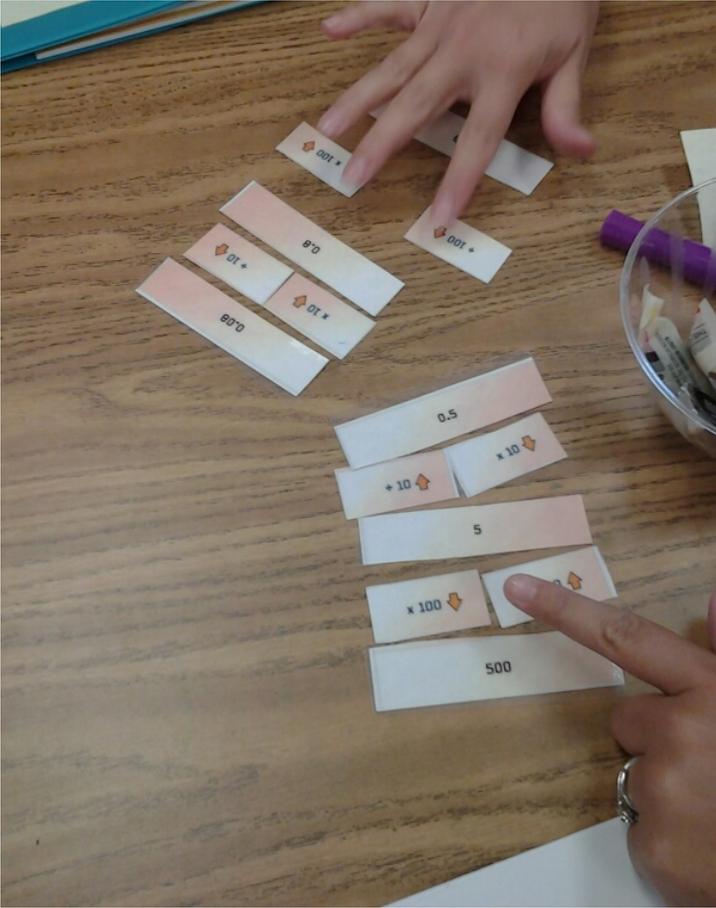
Write your number here:

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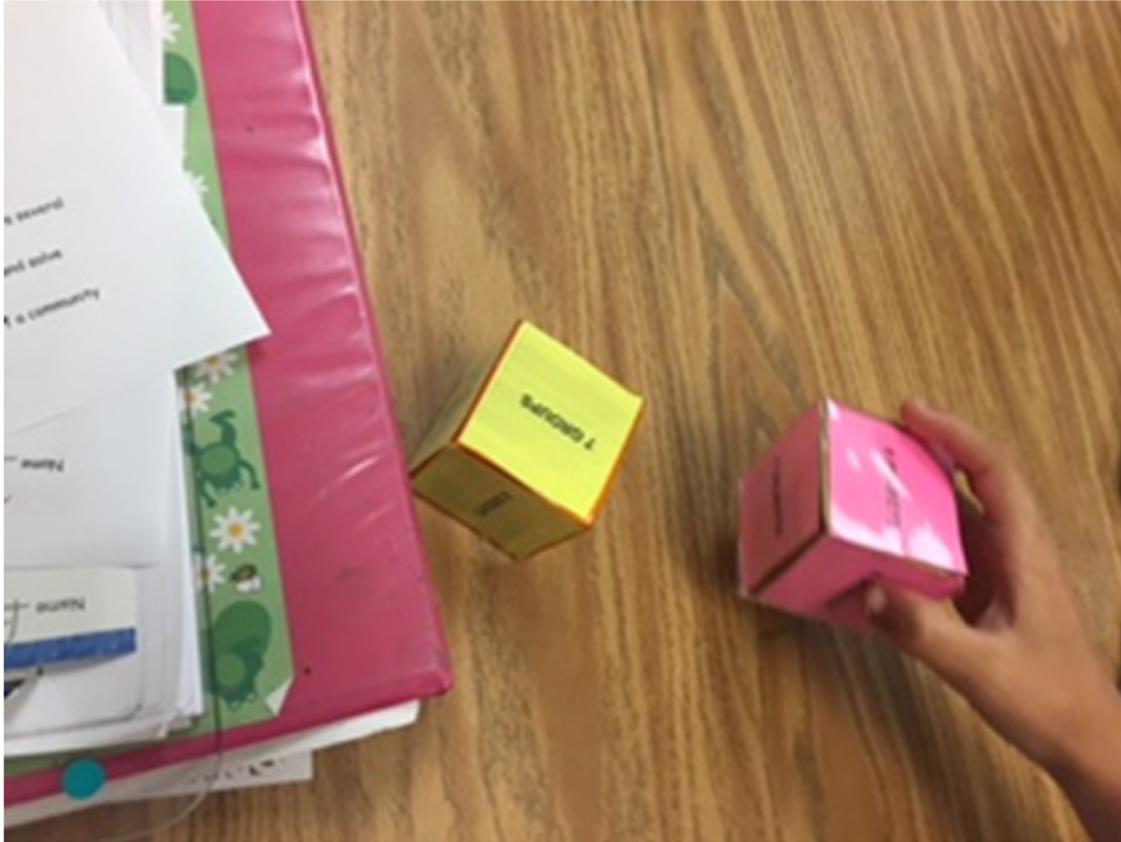
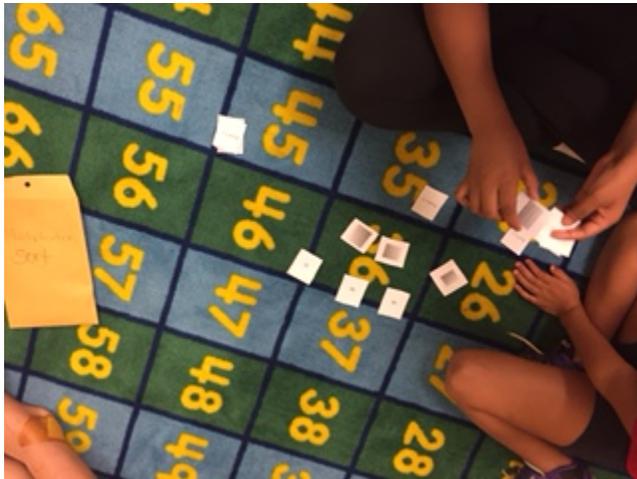
# Scaffolding in Action

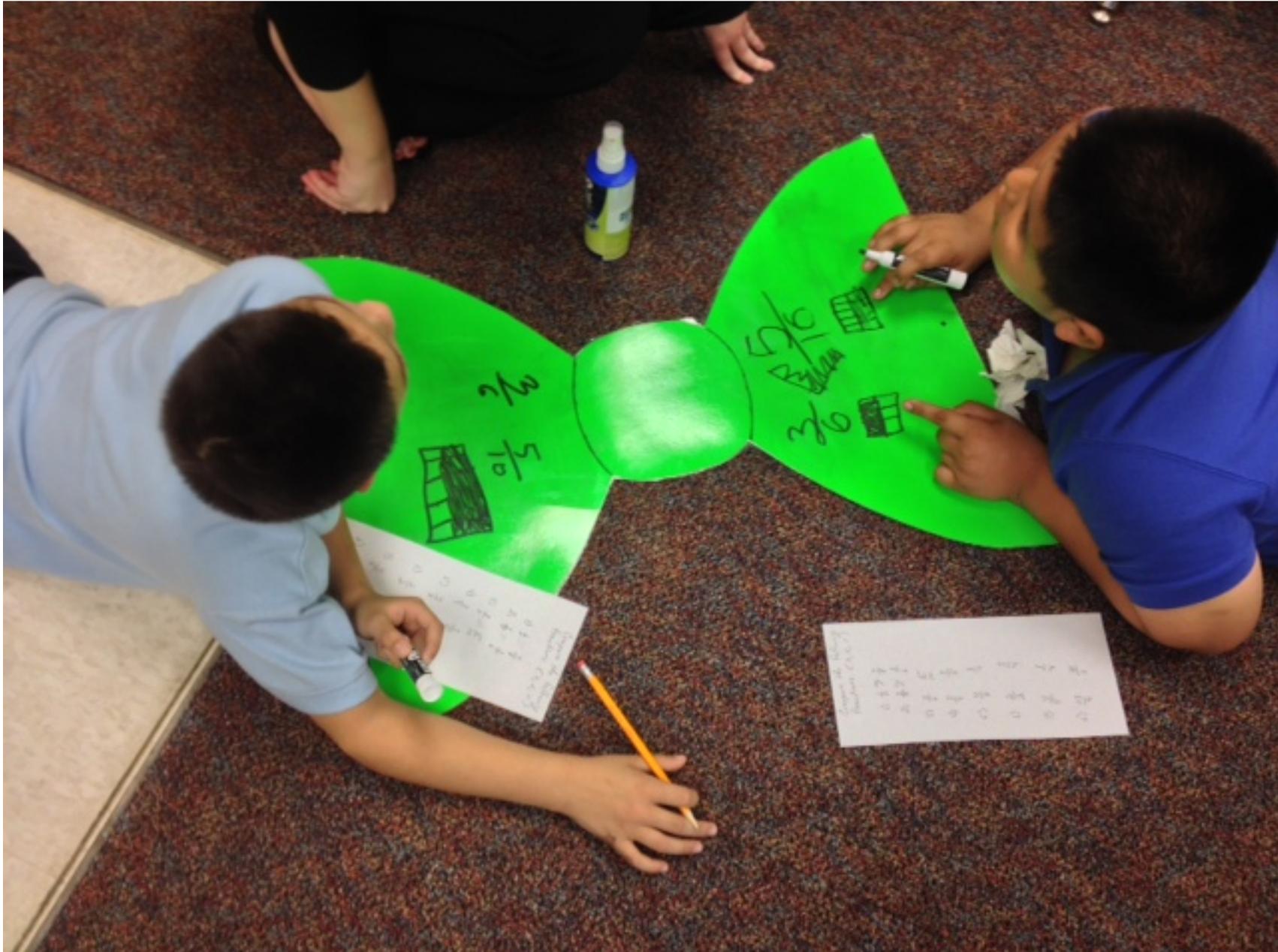


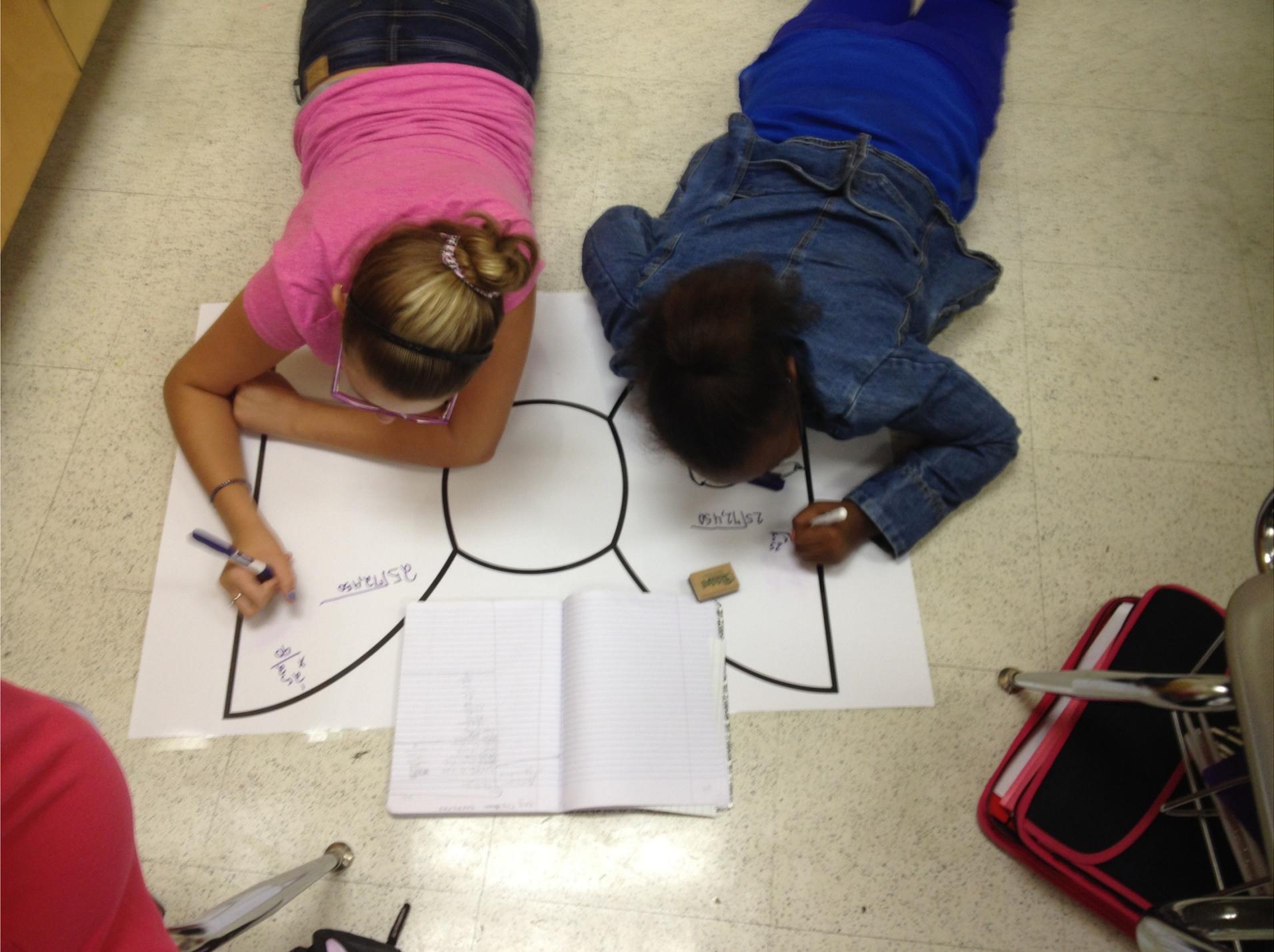
# Sorting



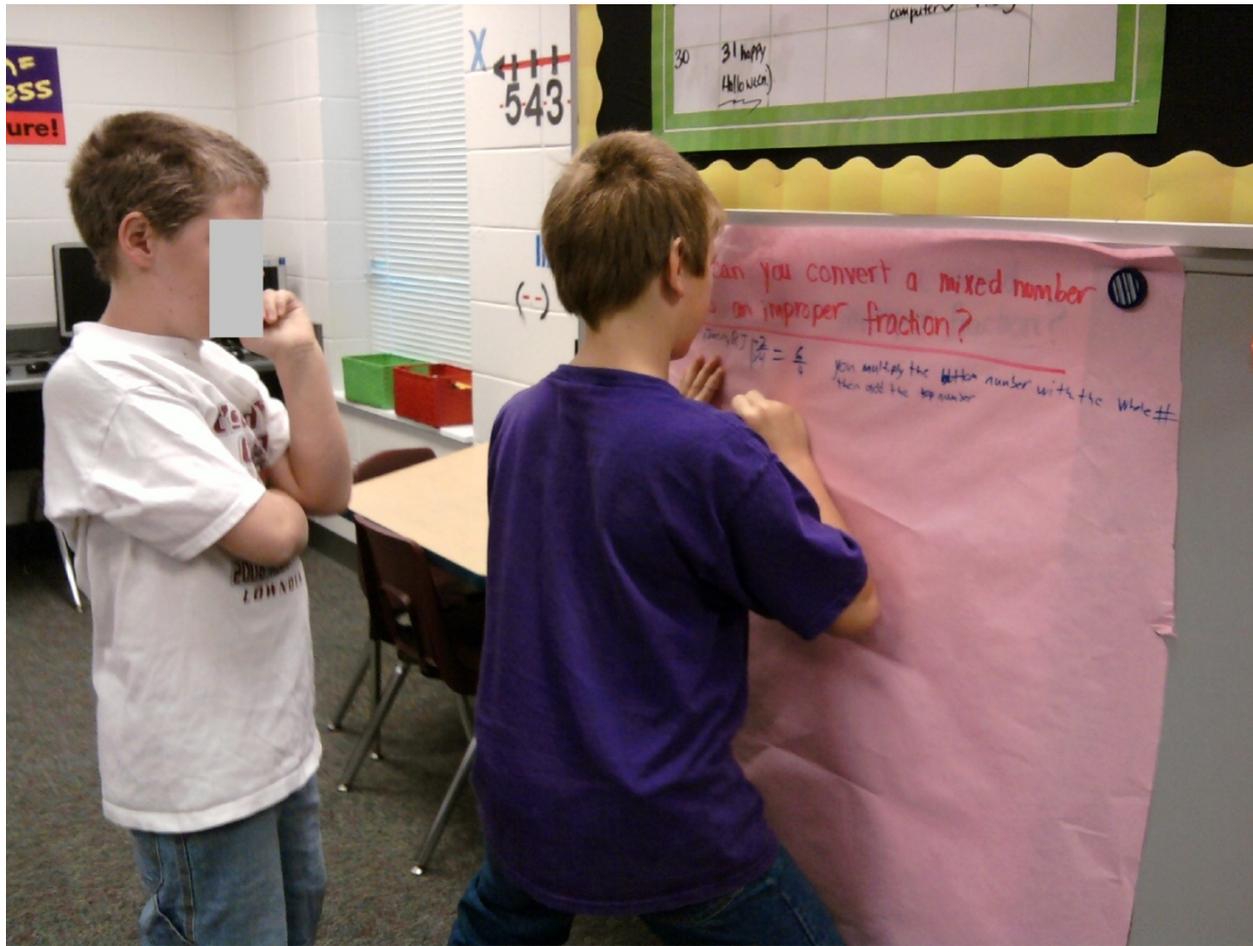
# Veal 3



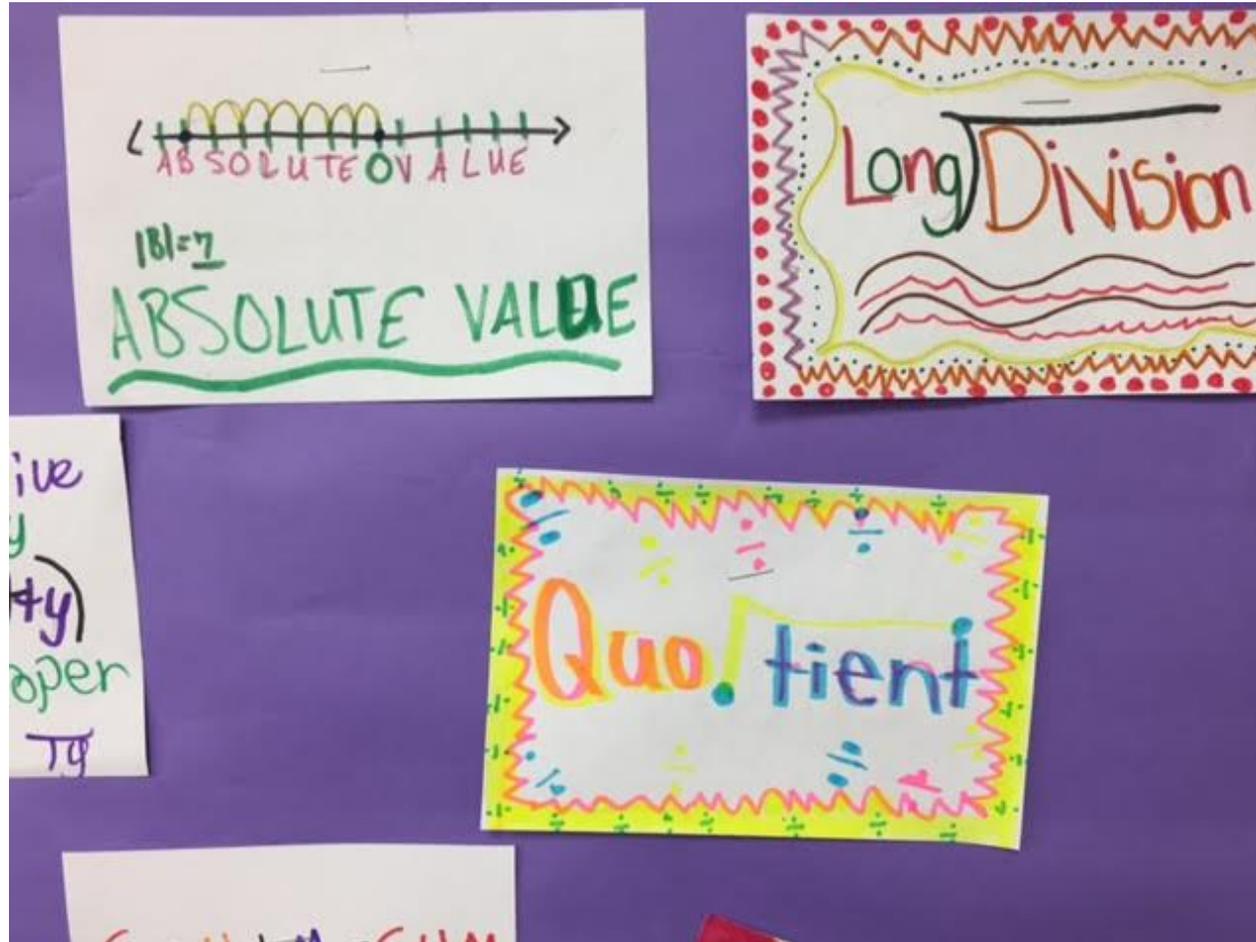


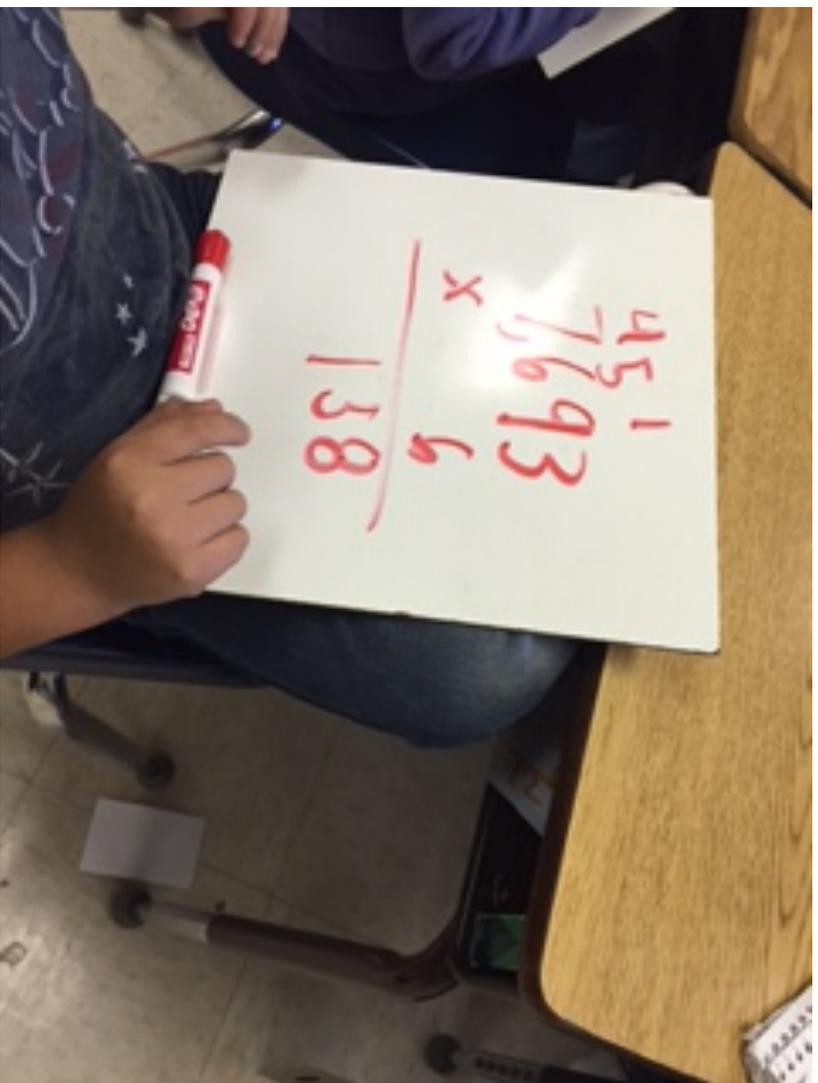


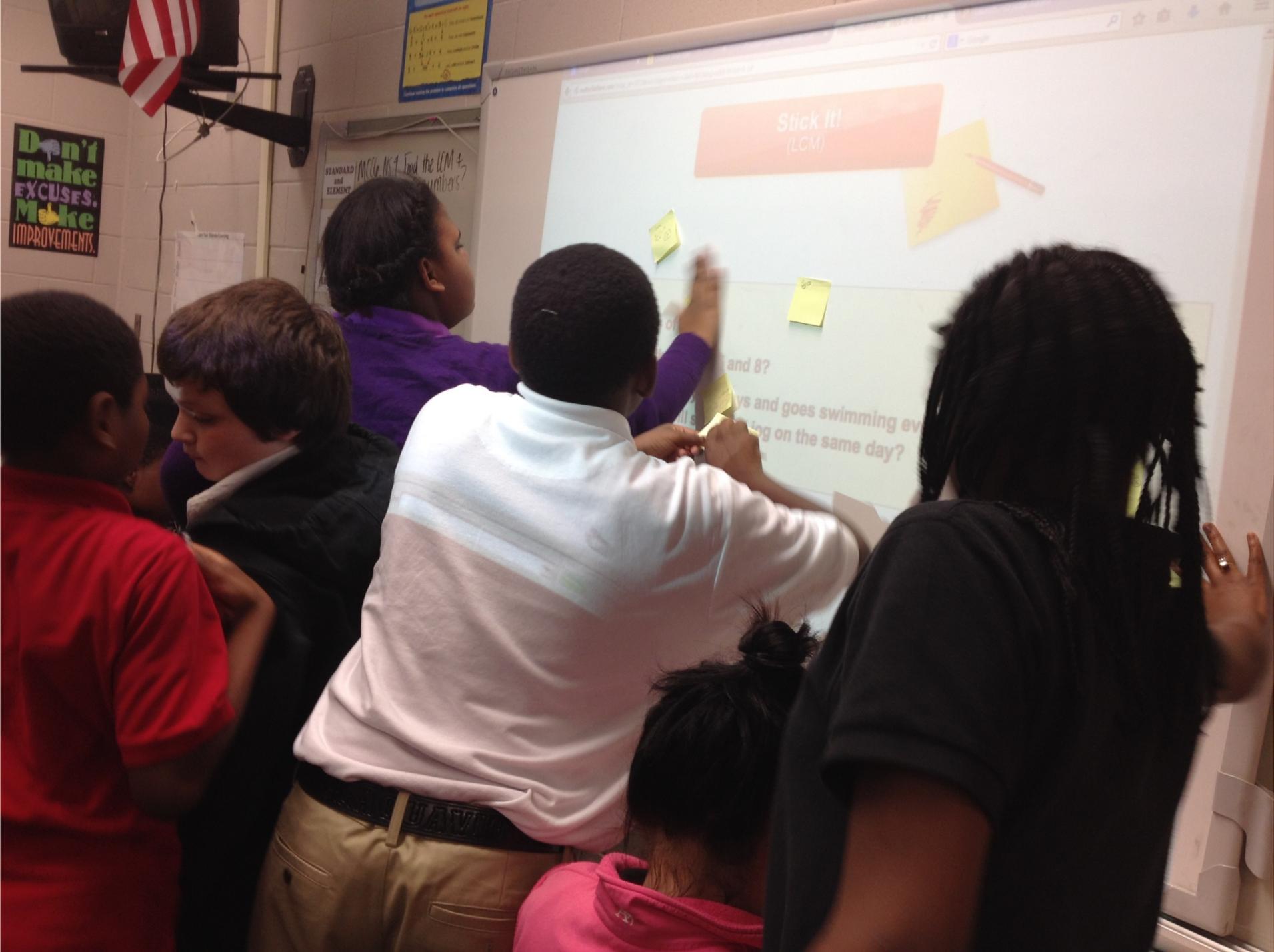
# Carousel, Ms. Huguley, Echols Co.



# Word Art







Stick It!  
(LCM)

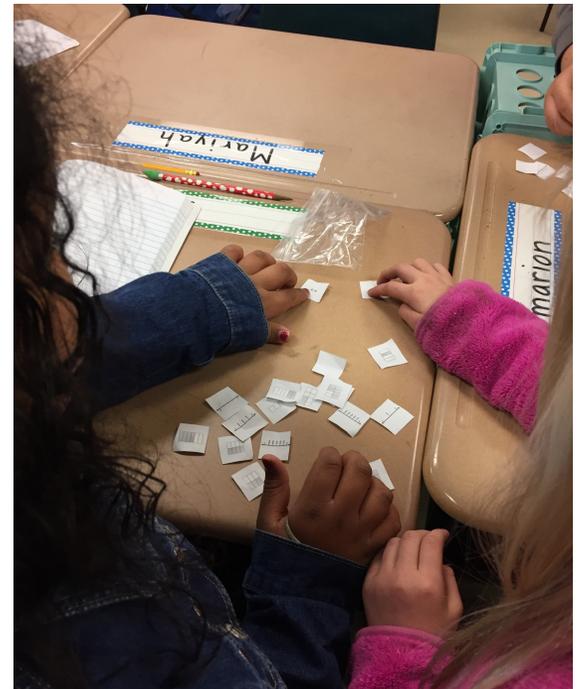
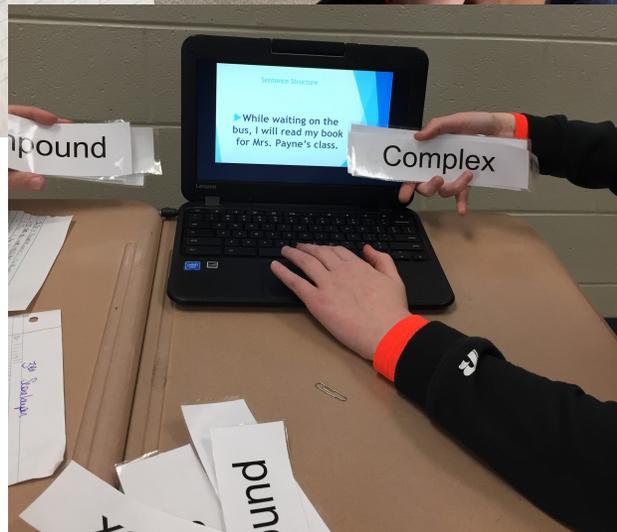
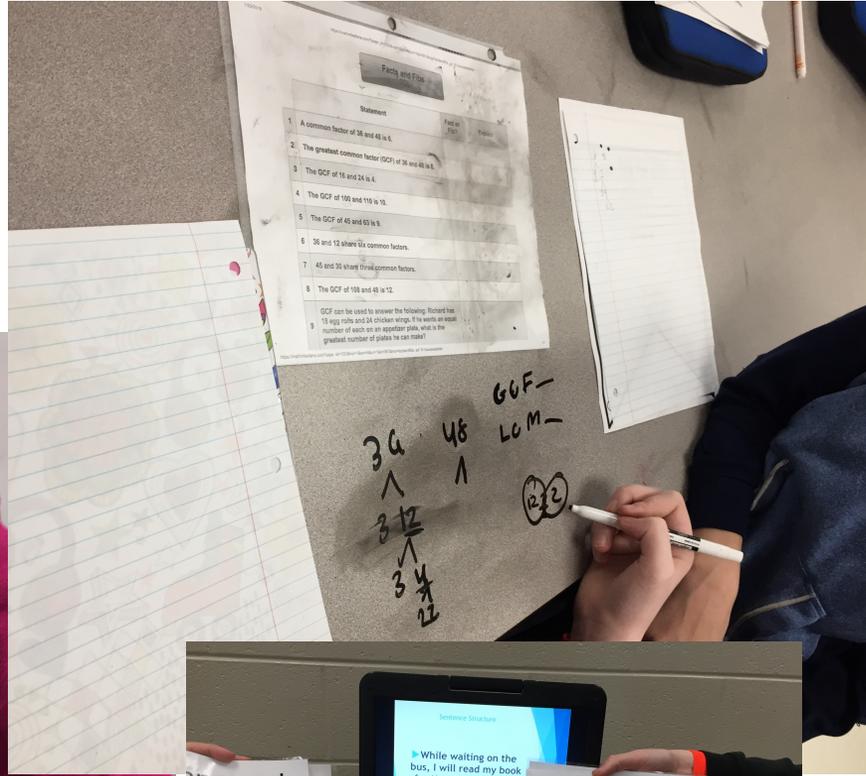
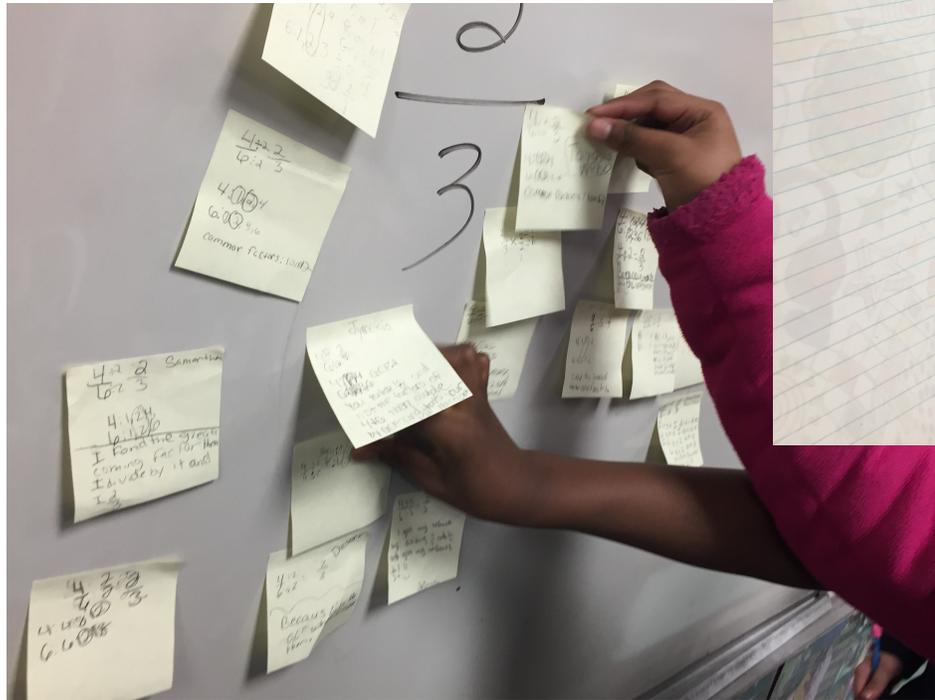
STANDARD  
and  
ELEMENT

Grade MS-7 Find the LCM of numbers?

and 8?  
ys and goes swimming ev  
ing on the same day?

Don't  
make  
EXCUSES.  
Make  
IMPROVEMENTS.

# Acceleration Looks Like...

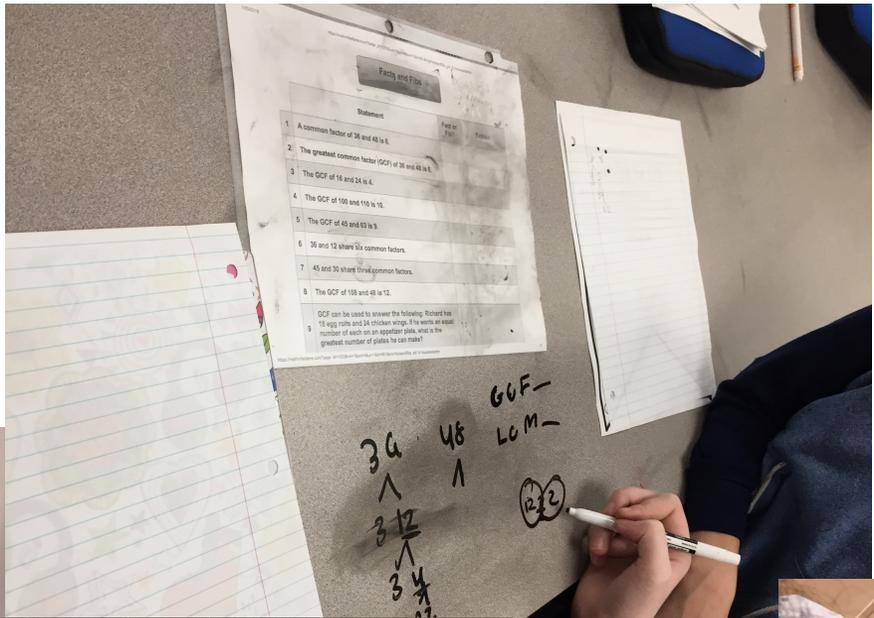
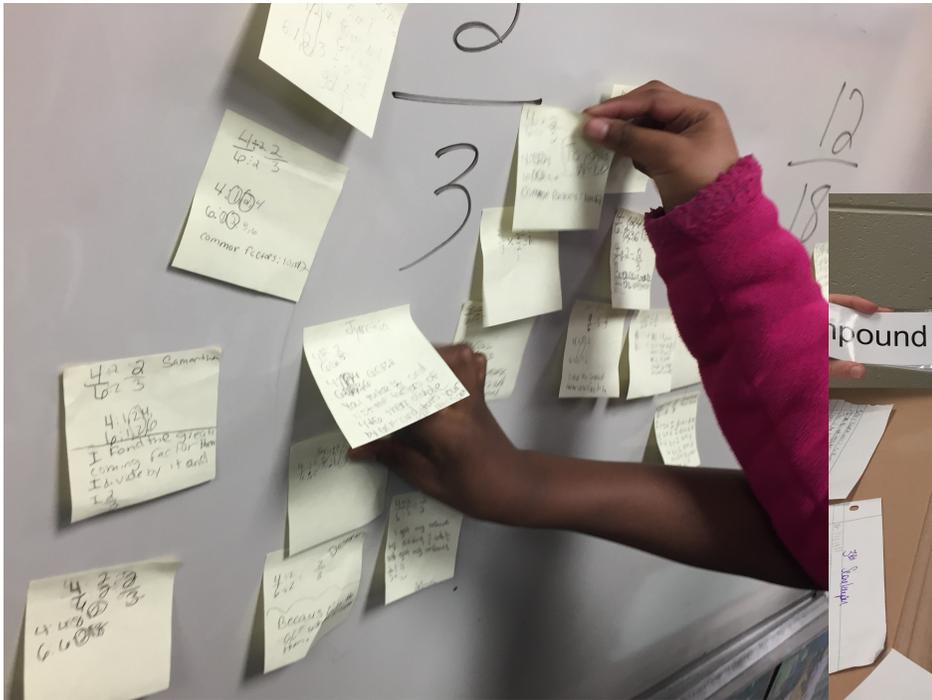


What subject made YOU cry?



What if...





## Acceleration:

Select students establish prior knowledge that will enable them to learn better with their peers.

Remediation is tactically for prerequisite skills essential for new learning.

Vocabulary development is jumpstarted to begin the journey of six exposures.

# Potential Advantages to Acceleration Model

Learning is risky business:

- Correlation between self-efficacy and work ethic. If there is a self-perception that failure will likely follow work...
- Linkage to prior knowledge
- Increased memory storage
- Sense of classroom community, even leadership in learners
- Additional exposure to vocabulary

# Self-Efficacy & Tenacity

- “...those who feel self-efficacious about learning or performing a task competently are apt to participate more readily, work harder, persist longer when they encounter difficulties, and achieve at higher levels.”

- Schunk & Meece, *Self-Efficacy Beliefs of Adolescents*, 2005

# Nuts & Bolts

- When?
- How?
- Who?
- Challenges?
- Pros/Cons?
- Getting Started...

Questions?

