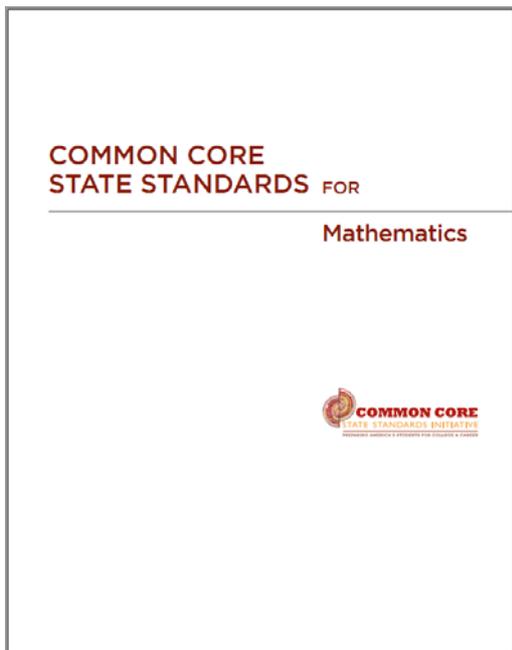


**Common Core State Standards:  
Extended School Day/School Violence  
Prevention Coordinator's Meeting**

**October 23<sup>rd</sup>, 2013**



The Common Core Learning Standards are not intended to be new names for old ways of doing business. They are a call to take the next step. ... It is time to recognize that standards are not just promises to our children, but promises we intend to keep.

CCSSM, p. 5

# Why does this matter?

Because it's what our students need

For every 100 ninth graders...



65 graduate from high school

37 enter college

24 are still enrolled in sophomore year

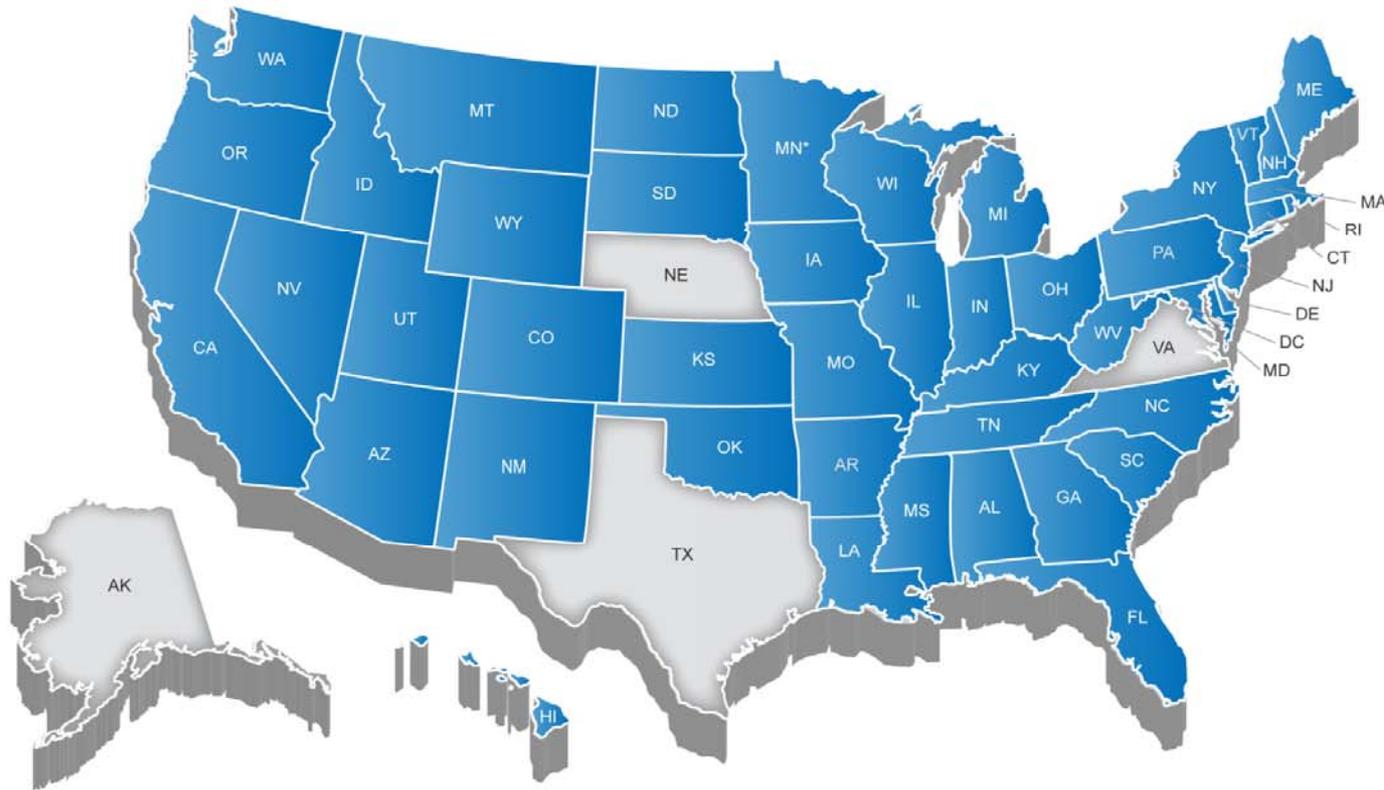
12 graduate with a degree in six

# ... and only 6 get a good job after graduation



Conley, David. 2012, "The Complexities of College and Career Readiness." [https://epiconline.org/files/pdf/07102012\\_Keene\\_NH.pdf](https://epiconline.org/files/pdf/07102012_Keene_NH.pdf)

# 46 States + DC Have Adopted the Common Core State Standards



\*Minnesota adopted the CCSS in ELA/literacy only

## College and Career Readiness Anchor Standards for Reading

The grades 6–12 standards on the following pages define what students should understand and be able to do by the end of each grade. They correspond to the College and Career Readiness (CCR) anchor standards below by number. The CCR and grade-specific standards are necessary complements—the former providing broad standards, the latter providing additional specificity—that together define the skills and understandings that all students must demonstrate.

### *Key Ideas and Details*

1. Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
2. Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.
3. Analyze how and why individuals, events, and ideas develop and interact over the course of a text.

### *Craft and Structure*

4. Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.
5. Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.
6. Assess how point of view or purpose shapes the content and style of a text.

### *Integration of Knowledge and Ideas*

7. Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.\*
8. Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence.
9. Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

### *Range of Reading and Level of Text Complexity*

10. Read and comprehend complex literary and informational texts independently and proficiently.

### **Responding to Literature**

11. Respond to literature by employing knowledge of literary language, textual features, and forms to read and comprehend, reflect upon, and interpret literary texts from a variety of genres and a wide spectrum of American and world cultures.

# Instructional Shifts Demanded by the Core

## 6 Shifts in ELA/Literacy

Balancing Informational and Literary Text  
Building Knowledge in the Disciplines  
Staircase of Complexity  
Text-based Answers  
Writing from Sources  
Academic Vocabulary

## 6 Shifts in Mathematics

Focus  
Coherence  
Fluency  
Deep Understanding  
Applications  
Dual Intensity

# ELA/Literacy Shift 1: Balancing Informational and Literary Text

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Build <b>content knowledge</b></li><li>• Exposure to the world through <b>reading</b></li><li>• Apply <b>strategies</b></li></ul>	<ul style="list-style-type: none"><li>• Balance <b>informational &amp; literary text</b></li><li>• <b>Scaffold</b> for informational texts</li><li>• Teach “<b>through</b>” and “<b>with</b>” informational texts</li></ul>

## What Parents and Care Providers Can Do...

- Read non-fiction books aloud or with your child
- Enjoy and discuss the details of non-fiction
- Have fun with non-fiction in front of your child

## TEXT #2

### *A Brief History of Wolves in the United States*

Cornelia N. Hutt  
Defenders of Wildlife

<http://kidsplanet.org/www/index.html>

Wolves once roamed across most of North America. Over hundreds of thousands of years they developed side by side with their **prey** and filled an important role in the web of life. **Opportunistic** hunters, wolves preyed on deer, elk and beaver, killing and eating the young, the sick, the weak and the old and leaving the fittest to survive and reproduce. **P1**

5 Wolf kills provided a source of food for numerous other **species** such as bears, foxes, eagles and ravens. Wolves even contributed to forest health by keeping deer and elk populations in check, thus preventing overgrazing and soil erosion.

Not surprisingly, the cultures which inhabited North America before the time of European exploration **revered** the wolf and its role in nature. Many **indigenous** groups **P2**  
10 relied on hunting as their major source of food and goods and were keenly **attuned** to their environment. The elements of the natural world, including the wolf, were important to their everyday lives and spirituality.

# TEXT #6

## *White Fang* Jack London Macmillan, 1906

<http://www.gutenberg.org/files/910/910-h/910-h.htm>

### Excerpt: Pt. II, C.h. I THE BATTLE OF THE FANGS

It was the she-wolf who had first caught the sound of men's voices and the whining **P1**  
of the sled-dogs; and it was the she-wolf who was first to spring away from the cornered  
man in his circle of dying flame. The pack had been **loath** to **forego** the kill it had hunted  
down, and it lingered for several minutes, making sure of the sounds, and then it, too,  
5 sprang away on the trail made by the she-wolf.

Running at the forefront of the pack was a large grey wolf—one of its several **P2**  
leaders. It was he who directed the pack's course on the heels of the she-wolf. It was he  
who snarled warningly at the younger members of the pack or slashed at them with his  
fangs when they **ambitiously** tried to pass him. And it was he who increased the pace  
10 when he sighted the she-wolf, now trotting slowly across the snow.

She dropped in alongside by him, as though it were her **appointed** position, and **P3**



***Red Riding Hood meets old Father Wolf***  
Gustave Dore



***Odin at Ragnarok***  
Emil Doepler, 1905



# ELA/Literacy Shift 2: Knowledge in the Disciplines

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Build content knowledge through text</li><li>• Handle <b>primary source</b> documents</li><li>• <b>Find evidence</b></li></ul>	<ul style="list-style-type: none"><li>• Shift identity: “<b>I teach reading.</b>”</li><li>• Stop <b>referring</b> and summarizing and start <b>reading</b></li></ul>

## What Parents and Care Providers Can Do...

- Supply series of texts on topics that interest your child
- Find books that explain how things work and why
- Discuss non-fiction texts and their ideas

# Interdisciplinary Research

## From Grade 5, Module 4, Unit 3

- Research teams to investigate natural disasters
- Connection to Social Studies
- Primary source documents
  - Response to disasters in the Western Hemisphere
  - United States
  - Red Cross
- Draft and revise an opinion speech
- “How Should Aid Be Prioritized Following a Natural Disaster in a Neighboring Country?”
  - Speech to the class

This written and public speaking performance task centers on NYSP12 ELA Standards RI.5.7, RI.5.9, W.5.1, W.5.4, W.5.5, W.5.7, W.5.8, W.5.9, SL.5.4, SL.5.6, L.5.1, L.5.2, L.5.3, and L.5.6.



## A Growing Global Need

Global trends such as rapid population growth, unplanned urbanization, environmental degradation and climate change have caused an increase in the frequency and severity of natural disasters. Communities living in disaster-prone areas are the most at risk, and often the least able to cope with the effects of disaster.

The American Red Cross helps vulnerable people worldwide prevent, prepare for and respond to disasters. Through our emergency disaster response efforts, we provide relief and recovery assistance to millions of people annually.

## The Red Cross Advantage

In collaboration with the global Red Cross network, the American Red Cross is constantly monitoring disasters around the globe. When disasters occur, the local Red Cross or Red Crescent can often handle crises alone. Other times, they need a helping hand and request assistance through the global Red Cross system. This



specializing in specific disaster services. A Relief ERU

[http://www.redcross.org/images/MEDIA\\_CustomProductCatalog/m16740817\\_Fact\\_Sheet-\\_Disaster\\_Response\\_Feb\\_2013.pdf](http://www.redcross.org/images/MEDIA_CustomProductCatalog/m16740817_Fact_Sheet-_Disaster_Response_Feb_2013.pdf)

- 20 pages
- Statistics
- Photos
- Quotes
- Facts

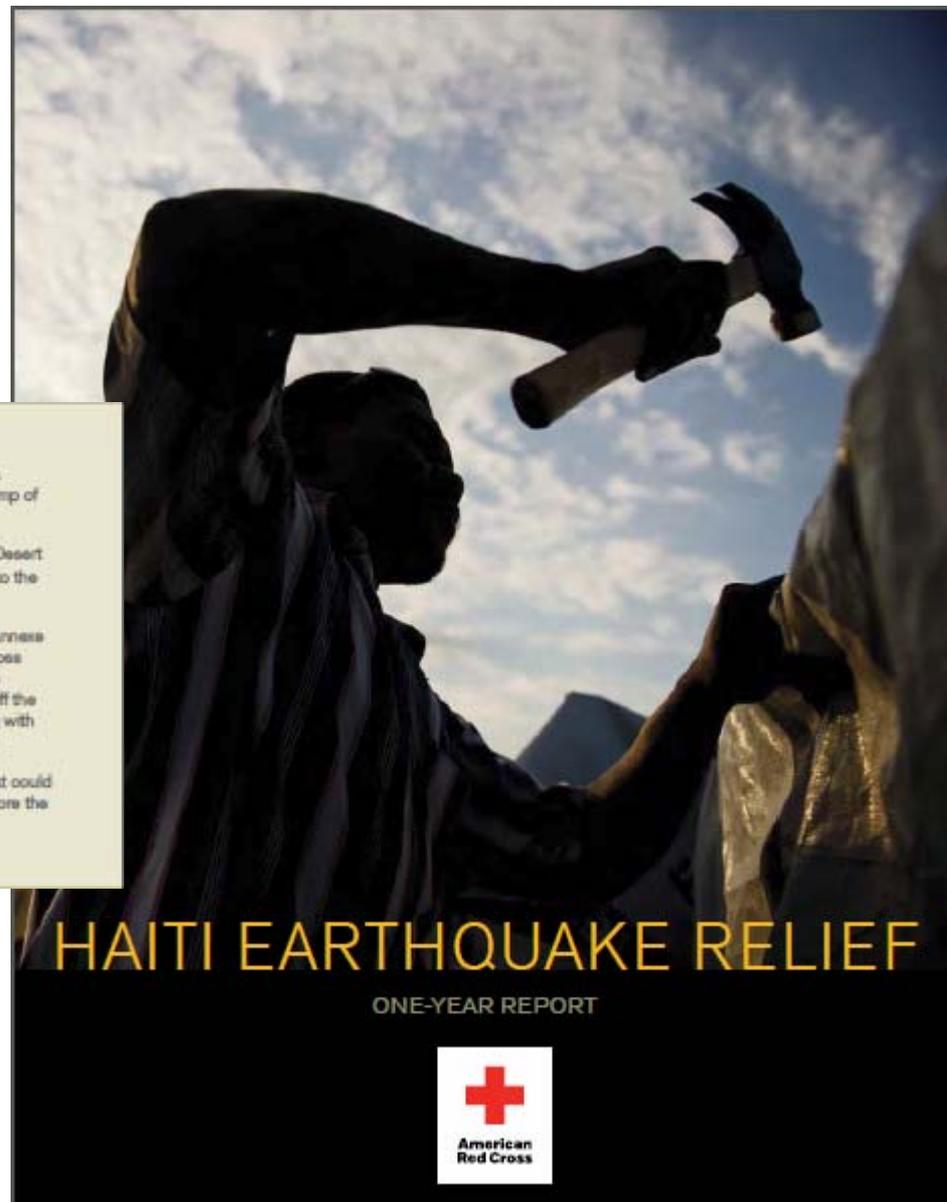
### Helping Haitians Help Themselves: One Red Cross Worker's Story

Desert Jean Daniel started working for the Red Cross as a carpenter building transitional homes. Now a supervisor, the father of four is among more than 100 workers the Red Cross has hired from the tent camp of L'Anness de la Mairie to build new homes for camp residents.

"It's very important to have people from the community helping to build the homes," Desert said. "It makes sure that people are invested in their work, and it also brings money to the camp."

Like so many settlements that sprang up in Port-au-Prince after the earthquake, L'Anness de la Mairie is packed with families living under tarps and tents. The global Red Cross network is building approximately 350 semi-permanent homes here, funded by the American Red Cross and other Red Cross societies. These homes are elevated off the ground to offer added protection from heavy rains. The Red Cross is also working with the community to improve drainage on the site in order to prevent future flooding.

His experience with the Red Cross has given Desert hope. "It's the best thing that could have happened to me," he said. "I used to work on electronics and carpentry before the earthquake, and now I can use those skills to help the community."



# ELA/Literacy Shift 3: Staircase of Complexity

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Re-read</li><li>• Read material at <b>own level to enjoy</b></li></ul>	<ul style="list-style-type: none"><li>• More <b>complex texts</b> at every grade level</li><li>• Give students <b>less to read</b>, let them re-read</li><li>• <b>More time</b> on more complex texts</li><li>• Provide <b>scaffolding &amp; strategies</b></li></ul>
<p><u>What Parents and Care Providers Can Do...</u></p> <ul style="list-style-type: none"><li>• Know what is grade-level appropriate</li><li>• Provide challenging texts as well as books they can read easily</li><li>• Read challenging books with your child</li><li>• Show that challenging books are worth reading</li></ul>	

# Reading After School

- Start a book club/reading group
- Read aloud
- Fiction and non-fiction
- Varied difficulty level
- Reading logs
- Discussion
- Questioning
- Encouragement
- Vocabulary



# ELA/Literacy Shift 4: Text Based Answers

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Find evidence to <b>support their argument</b></li><li>• Form own <b>judgments and become scholars</b></li><li>• Conducting reading as a close reading of the text</li><li>• Engage with the <b>author and his/her choices</b></li></ul>	<ul style="list-style-type: none"><li>• Facilitate <b>evidence based conversations</b> about text</li><li>• <b>Plan and conduct rich conversations</b></li><li>• <b>Keep students in the text</b></li><li>• Identify questions that are text-dependent, <b>worth asking/exploring</b>, deliver richly</li><li>• Spend much more time preparing for instruction by <b>reading deeply</b>.</li></ul>

## What Parents and Care Providers Can Do...

- Talk about texts
- Demand evidence in everyday discussions and disagreements
- Read aloud or read the same book as your child and discuss
- Discuss predictions

# ELA/Literacy Shift 5: Writing from Sources

## What the Student Does...

- **Generate informational** texts
- **Make arguments using evidence**
- **Organize** for persuasion
- Compare **multiple sources**

## What the Teacher Does...

- Spending much less time on **personal narratives**
- Present opportunities to write from **multiple sources**
- Give **opportunities to analyze, synthesize** ideas
- Develop students' voice so that they can **argue a point with evidence**

## What Parents and Care Providers Can Do...

- Encourage writing at home and outside of school
- Write “books” together using evidence and detail
- Review samples of exemplar student writing



<b>CLAIM:</b> Venus Williams argues that although Wimbledon outwardly appears to value men and women equally, really they are promoting a message that women's roles and achievements are less important.			
<b>Point 1</b> Wimbledon's public image of gender equality		<b>Point 2</b> The true message of Wimbledon's policies	
<b>A Supporting Evidence</b> "winners receive the same trophy and honorary membership"  (Reference: line 44 )	<b>B Supporting Evidence</b> "the two photographs of last year's men's and women's champions are hung side by side, proudly and equally"  (Reference: lines 45-46 )	<b>A Supporting Evidence</b> "undeserving of the same amount of prize money"  (Reference: line 16 )	<b>B Supporting Evidence</b> "the winner of the ladies' singles receives £30,000 less than the men's winner"  (Reference: lines 28-29 )
<b>C Supporting Evidence</b> "in the eyes of the general public the men's and women's games have the same value."  (Reference: lines 61-62 )	<b>D Supporting Evidence</b> "Wimbledon treats men and women the same in so many other respects"  (Reference: lines 43-44 )	<b>C Supporting Evidence</b> "Wimbledon has argued that women's tennis is worth less for a variety of reasons; it says, for example, that because men play a best of five sets game they work harder for their prize money"  (Reference: lines 52-54 )	<b>D Supporting Evidence</b> "It can only be trying to make a social and political point, one that is out of step with modern society"  (Reference: lines 88-89 )

# ELA/Literacy Shift 6: Academic Vocabulary

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Use <b>high octane words</b> across content areas</li><li>• Build “<b>language of power</b>” database</li></ul>	<ul style="list-style-type: none"><li>• Develop students’ ability to <b>use and access words</b></li><li>• <b>Sequence texts</b> so that students encounter high-octane words within a particular domain over and over in increasingly complex contexts</li></ul>

## What Parents and Care Providers Can Do...

- Read often and constantly with young children
- Read multiple books on the same topic
- Talk to your children, read to them, listen to them, sing with them, make up silly rhymes and word games

# Reinforcing Vocabulary

## Content Area Example: Business

### Vocabulary Words

market price  
capitalism  
capital  
free enterprise  
supply  
scarcity  
interest  
labor  
land

### Summary/Reflection

I chose my words based on a conversation with my father. I will admit that, at first, I thought all the words could go under either category my teacher gave us. After I started talking to my dad and then my group, I saw that all the factors of production really makes sense to me.

Without labor, nothing would be produced.

Without land, we wouldn't have trees and materials to possibly produce anything or maybe just not room to make a factory.

Capital is needed to often start production.

My mind changed a lot about supply. I thought it would have an even higher value on production than scarcity but I'm not so sure anymore.

### Relating to factors of production

labor  
land  
capital  
scarcity  
supply

Relating to a Market Economy  
capitalism  
interest  
free enterprise  
market price

- Have a “word of the day”
- Analyze/define specific words from the texts students are reading
- Help students with context clues
- Bring in word games
- Dictionaries/thesauruses

## Types of Analogies

Part to whole	battery : flashlight :: hard drive : computer
Cause and effect	fatigue : yawning :: itching : scratching
Person to situation	mother : home :: teacher : school
Synonym	obese : fat :: slender : thin
Antonym	poverty : wealth :: sickness : health
Geography	Chicago : Illinois :: Denver : Colorado
Measurement	pound : kilogram :: quart : liter
Time	March : spring :: December : winter

# Curriculum and Module Use

- Curriculum is a local responsibility in New York State.
- Modules are free, optional and adaptable.
- All of the ELA and Mathematics modules and curriculum materials are available on EngageNY at <http://www.engageny.org>.
- If creating your own curriculum/lessons, there are several resources on EngageNY to guide development.

# Turn and Talk: ELA

- How can your afterschool program help students achieve the Common Core Learning Standards for English Language Arts?
- What resources do you have?
- What do you need?



# Mathematics Shift 1: Focus

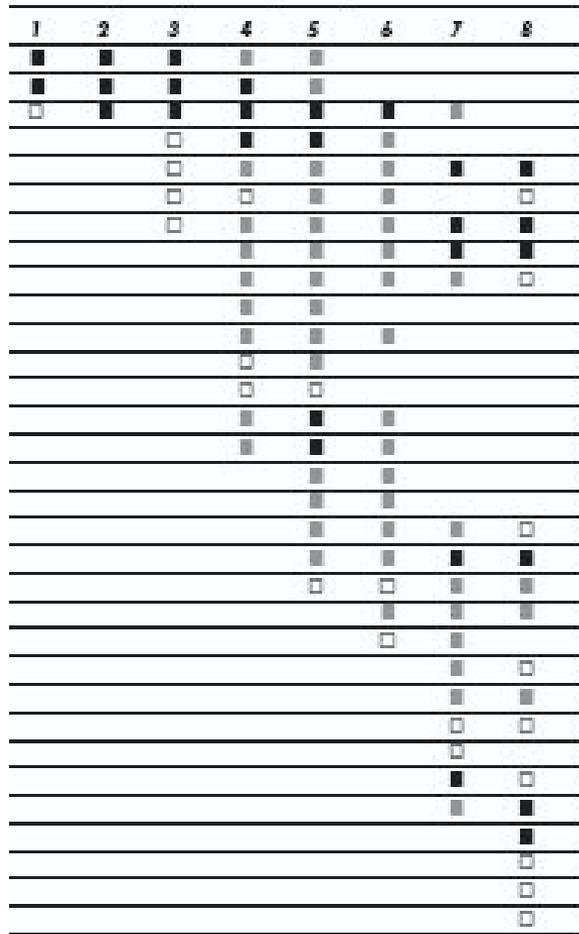
What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Spend more time on fewer concepts.</li><li>• Thinking and reflecting about problems that require a longer amount of time than traditional problems.</li></ul>	<ul style="list-style-type: none"><li>• Excise content from the curriculum, spend more time on fewer topics allowing for more depth.</li><li>• Focus instructional time on priority concepts</li></ul>

## What Parents and Care Providers can Do:

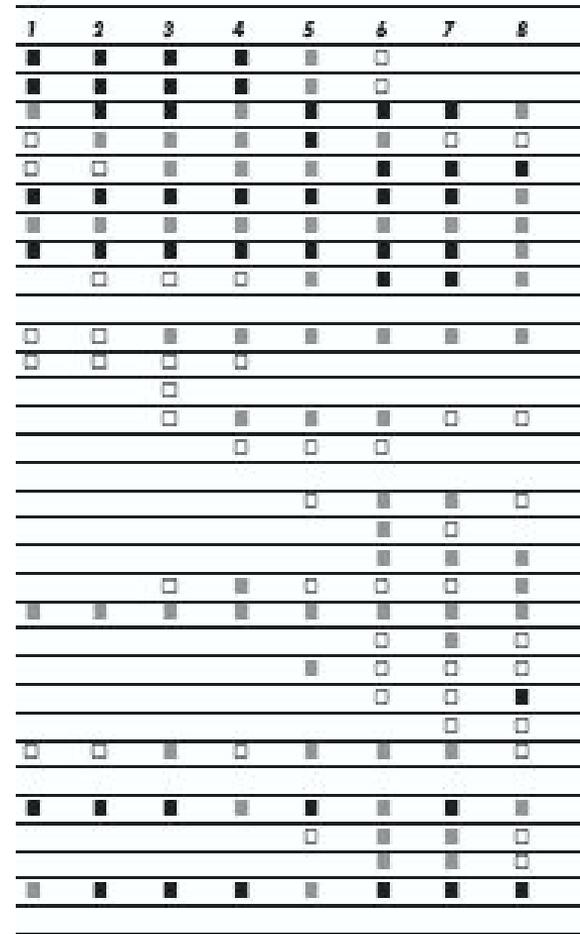
- Know what the priority work is for your child at their grade level

# The shape of math in A+ countries

Mathematics topics intended at each grade by at least two-thirds of A+ countries



Mathematics topics intended at each grade by at least two-thirds of 21 U.S. states



# Domains in the Common Core

K 1<sup>st</sup> Grade 2<sup>nd</sup> Grade 3<sup>rd</sup> Grade 4<sup>th</sup> Grade 5<sup>th</sup> Grade 6<sup>th</sup> Grade 7<sup>th</sup> Grade 8<sup>th</sup>Grade

Counting and  
Cardinality

Operations and Algebraic Thinking

Number and Operations in Base 10

Measurement and Data

Geometry

Number and Operations-  
Fractions

Ratio/Proportions

The Number System

Expressions and Equations

Statistics and Probability

Functions

[Back](#)

**Understand place value.**

1. Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
  - a. 100 can be thought of as a bundle of ten tens — called a “hundred.”
  - b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).
2. Count within 1000; skip-count by 5s, 10s, and 100s.
3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
4. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using  $>$ ,  $=$ , and  $<$  symbols to record the results of comparisons.

**Use place value understanding and properties of operations to add and subtract.**

5. Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
6. Add up to four two-digit numbers using strategies based on place value and properties of operations.
7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.
8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
9. Explain why addition and subtraction strategies work, using place value and the properties of operations.<sup>1</sup>

<sup>1</sup> Explanations may be supported by drawings or objects.

# High School Domains

## Algebra I

- Number and Quantity
- Algebra
- Functions
- Statistics and Probability
- Modeling

## Algebra II

- Number and Quantity
- Algebra
- Functions
- Geometry
- Statistics and Probability
- Modeling

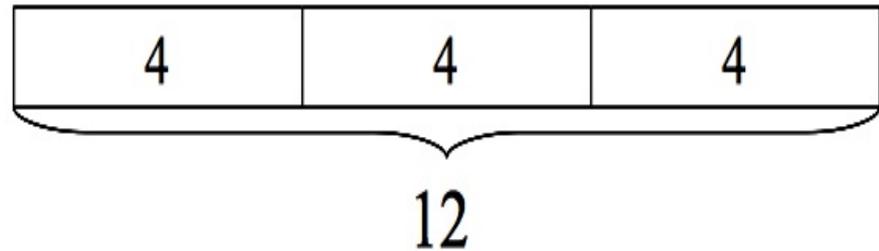
## Geometry

- Geometry
- Modeling

# Mathematics Shift 2: Coherence

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• <b>Build on knowledge</b> from year to year, in a coherent learning progression</li></ul>	<ul style="list-style-type: none"><li>• Connect the threads of math focus <b>areas across grade</b> levels</li><li>• <b>Connect to the way content was taught the year before</b> and the years after</li><li>• Focus on <b>priority progressions</b></li></ul>
<p><b><u>What Parents and Care Providers can Do:</u></b></p> <ul style="list-style-type: none"><li>• Be aware of what your child struggled with last year and how that will effect ongoing learning</li><li>• Advocate for your child</li><li>• Ensure that support is given for “gap” skills, such as negative numbers, fractions, etc.</li></ul>	

Tape Diagram: Looks like a segment of tape used to illustrate number relationships.



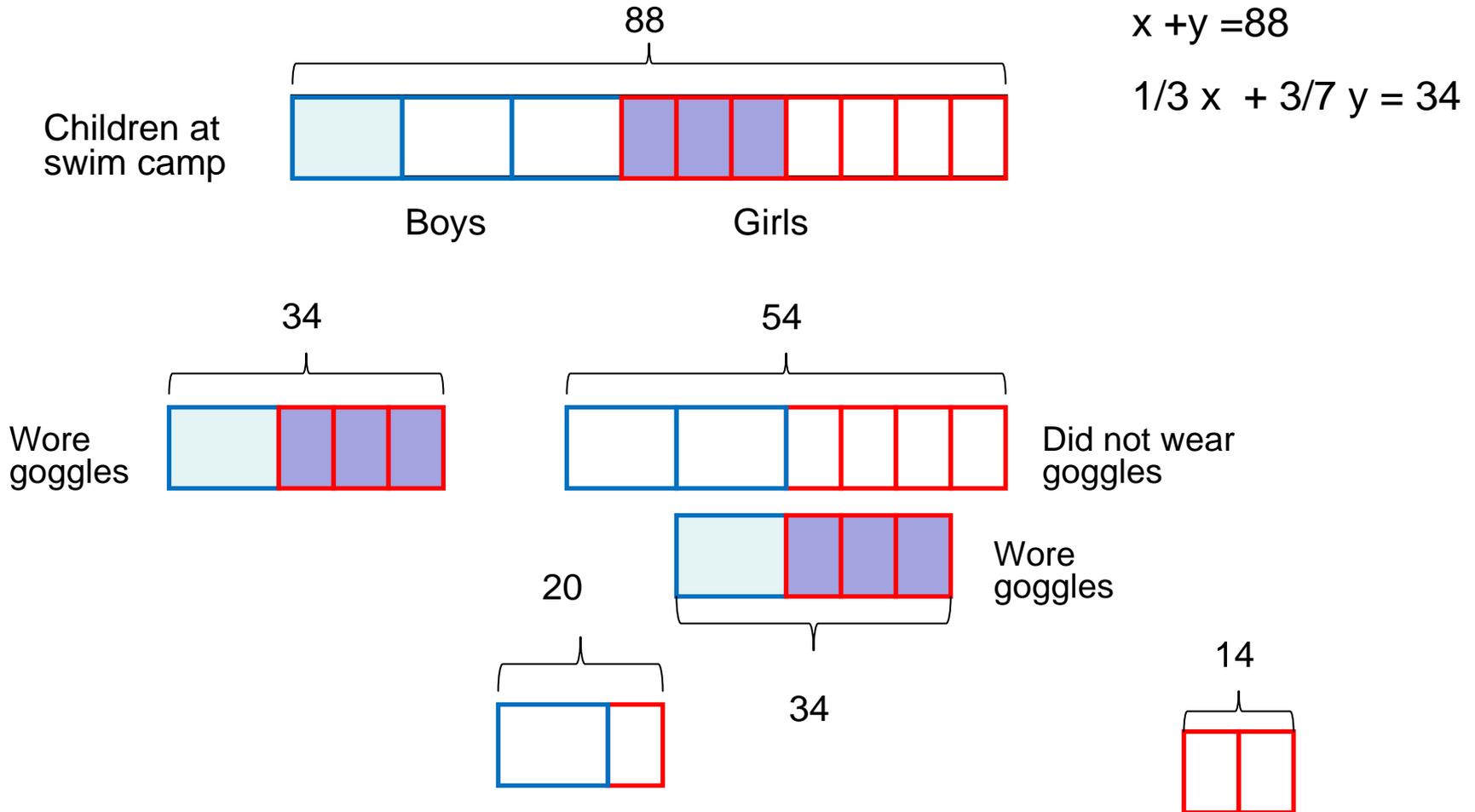
Sara brought 4 apples to school. After Mark brings her some more apples, she has 9 apples altogether. How many apples did Mark bring her?



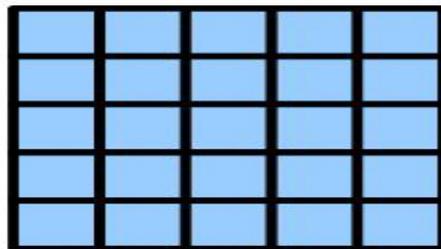
9 apples



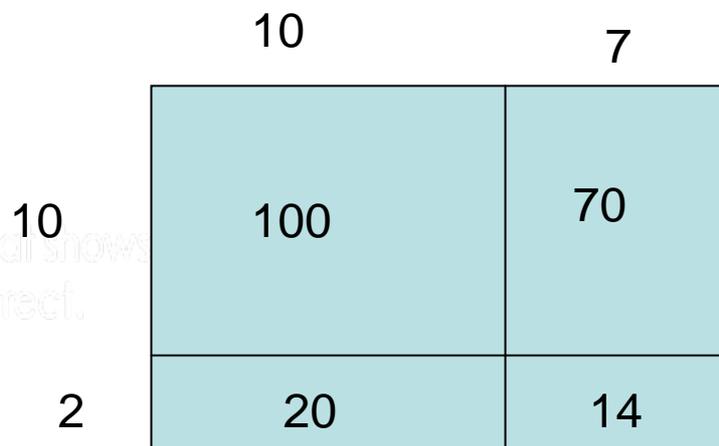
88 children were in swimming camp. One-third of the boys and three-sevenths of the girls wore goggles. If 34 students wore goggles, how many girls wore goggles?



Draw a 12 x 17 **array** (rectangle). Are there easier multiplication facts that would help you determine 12 x 17 if you did not know the answer? Use your grid paper and draw arrays for these facts that you could either split or add to help you fill a 12 x 17 array.



What is  $\frac{2}{3} \times \frac{4}{5}$ ?  
 Draw a picture that shows your answer is correct.

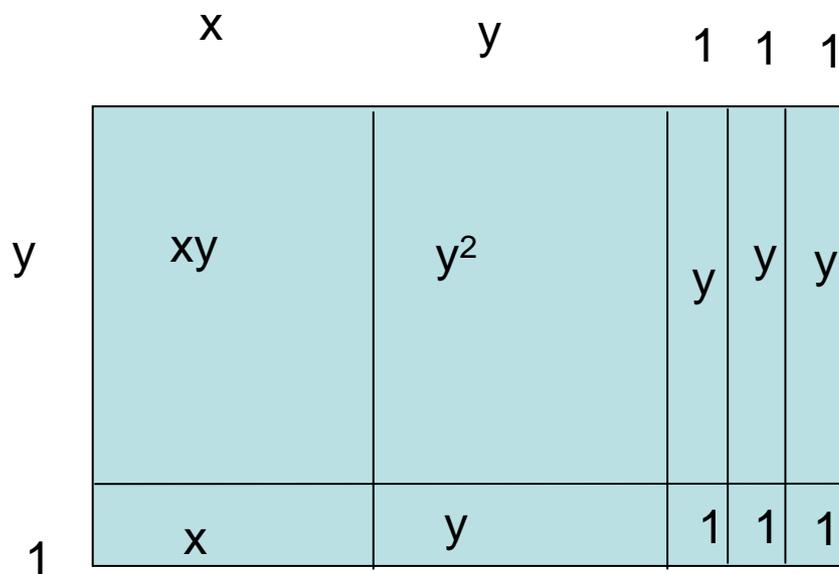


$$\begin{array}{r}
 (10 \times 10) + (10 \times 7) + (2 \times 10) + (2 \times 7) \\
 100 \quad + \quad 70 \quad + \quad 20 \quad + \quad 14 \\
 \hline
 204
 \end{array}$$

This leads into the distributive property  
 $10(10+7) + 2(10+7)$   
 $(10+2)(10+7)$

$(x+y+3)(y+1)$  is equivalent to

$$xy + y^2 + 4y + x + 3$$



Where can I find these instructional tools/modeling strategies ?

**HOW TO IMPLEMENT THE STORY OF UNITS** [EngageNY](https://www.engageny.org/)

# Mathematics Shift 3: Rigor - Fluency

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Spend <b>time practicing</b>, with intensity, skills (in high volume)</li></ul>	<ul style="list-style-type: none"><li>• Push students to know basic skills at a greater level of fluency</li><li>• Focus on the <b>listed fluencies</b> by grade level</li><li>• Uses <b>high quality problem sets</b>, in high volume</li></ul>

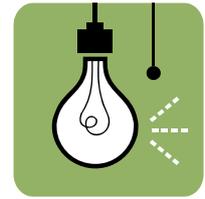
## What Parents and Care Providers Can Do:

- Push children to know, understand and memorize basic math facts
- Know all of the fluencies your child should have
- Prioritize learning the fluencies your child finds most difficult

# Key Fluencies

Grade	Required Fluency
K	Add/subtract within 5
1	Add/subtract within 10 Add/subtract within 20
2	Add/subtract within 100 (pencil and paper)
3	Multiply/divide within 100 Add/subtract within 1000
4	Add/subtract within 1,000,000
5	Multi-digit multiplication
6	Multi-digit division Multi-digit decimal operations
7	Solve $px + q = r$ , $p(x + q) = r$
8	Solve simple $2 \times 2$ systems by inspection

**Sprints** are designed to develop “automaticity” with previous learned material in an adrenaline-rich motivating classroom experience. Automatic “light switch” ON , Ready to GO



**Type of  
Sprint  
#1**

**Red Light/Green Light: Counting by  
Ones (5 minutes)**

Say a number between 1 and 100. When you say “green light,” students begin running in place and counting aloud together, beginning with the number you said. When you say “red light,” they stop counting and freeze. Any students who are still moving or counting after you say “red light” sit down until the next game. Continue playing with a new starting number every time you say “green light.” Play until only a few students are standing, or when you see fit. Then instruct the whole class to stand and start the game again.

**Type of  
Sprint  
**#2****

\*Write the number of dots. Find 1 or 2 groups that make finding the total number of dots easier!

1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7			22		
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Number Bond Dash!

Directions: Do as many as you can in 90 seconds. Write the amount you finished here:

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

11.

12.

13.

14.

15.

16.

17.

18.

19.

20.

21.

22.

23.

24.

25.

© Kelly Spinks

Teacher takes on a role of athletic coach...

- 60-90 seconds, students do as many as they can
- Teacher goes over answers, students keep track of number correct (GOAL)
- Break for physical exercise
- Repeat



# Mathematics Shift 4: Rigor - Deep Understanding

What the Student Does...	What the Teacher Does...
<ul style="list-style-type: none"><li>• Show <b>mastery of material</b> at a deep level</li><li>• <b>Articulate</b> mathematical reasoning</li><li>• Demonstrate deep conceptual understanding of <b>priority concepts</b></li></ul>	<ul style="list-style-type: none"><li>• Create opportunities for students to understand the “answer” from a <b>variety of access points</b></li><li>• Ensure that <b>EVERY student GETS IT</b> before moving on</li><li>• <b>Get smarter</b> in concepts being taught</li></ul>

## What Parents and Care Providers Can Do:

- Ask questions and review homework to see whether your child understands *why* as well as *what* the answer is.
- Provide time for your child to work on math skills at home

# Mathematics Shift 5: Rigor- Application

## What the Student Does...

- Apply math in other content areas and situations, as relevant
- Choose the right math concept to solve a problem when not necessarily prompted to do so

## What the Teacher Does...

- Apply math including areas where its not directly required (i.e. in science)
- Provide students with **real world experiences** and opportunities to apply what they

## What Parents and Care Providers Can Do:

- Ask your child to do the math that comes up in daily life

# Mathematics Shift 6: Rigor - Dual Intensity

## What the Student Does...

- Practice math skills with an intensity that results in **fluency**
- Practice math concepts with an intensity that forces **application** in novel situations

## What the Teacher Does...

- Find the dual intensity between understanding and practice **within different periods or different units**
- Be ambitious in demands for **fluency and practice**, as well as the range of application

## What Parents and Care Providers Can Do:

- Show how to apply math in real world situations
- Know and show which math skills to use for which situation

**Word  
Walls**

operations  
add  
addend  
sum  
difference  
subtract  
unknown  
estimate  
equation  
strategy  
column  
row  
factor  
equal shares  
array  
multiple  
multiply  
product  
divide  
remainder  
quotient  
digit  
greater than  
less than

ones place  
tens place  
hundreds  
place  
round  
pattern  
rule  
sequence  
decreasing  
increasing  
term  
whole  
one-half  
one-third  
one-fourth  
one-sixth  
one-eighth  
numerator  
denominator  
equivalent  
unit fraction  
hour  
second  
minute

quadrilateral  
pentagon  
hexagon  
2-dimensional  
sides  
vertices  
polygon  
parallelogram  
parallel  
edge  
congruent  
similar  
base  
face  
symmetrical  
3-dimensional  
curved surface  
flat surface  
pyramid  
cube  
cone  
cylinder  
sphere  
rectangular prism



# Baseball Jerseys

Bill wants to order new jerseys for his baseball team. He sees the following advertisements for two printing companies, 'PRINT IT' and 'TOP PRINT'. Bill doesn't know which company to choose.

## PRINT IT



Get your baseball jerseys printed with your own team names here.  
Only \$21 per jersey.

## TOP PRINT



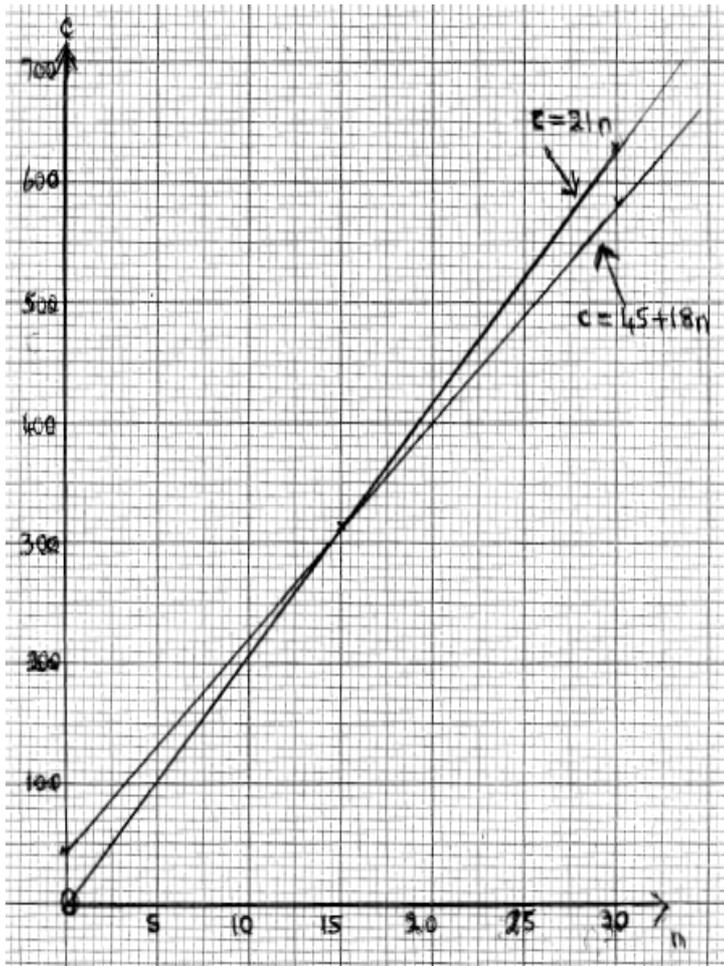
We will print your baseball jerseys - just supply us with your design.  
Pay a one-off setting up cost of \$45; we will then print each jersey for only \$18!

VS

## Task 1

Give Bill some advice on which company he should buy from.  
When should he choose 'PRINT IT'?  
When should he choose 'TOP PRINT'? Explain your answer fully.

Students are not directed on how to solve, they come up with their own method of solution.



Number of Jerseys	Cost at 'Print it'	Cost at Top Print
5	\$105	\$135
10	\$210	\$245
15	\$315	\$315 ←
20	\$430	\$405
16	\$336	\$333

Top print cheaper more than 15 Jerseys.

Print it cost  $\$21n$   
 Top print cost  $\$45 + 18n$

$$21n = 45 + 18n$$

$$3n = 45$$

$$n = 15$$

$n = 16$  Print it  $\$336$  Top Print  $\$333$

## Task 2

A third company called 'VALUE PRINTING' wants to start trading. It wants its prices to be between those of 'PRINT IT' and 'TOP PRINT'. This company never wants to be the most expensive and never wants to be the cheapest.

Can you complete this poster for the new Company ? Defend your answer mathematically.

### VALUE PRINTING



We print baseball jerseys.  
Pay a one-off set up cost of \$.....  
Then each jersey will cost \$.....

**Old Problem:** Solve the following system of equations  $y = \frac{1}{2}x + 6$   $y = x - 2$  graphically.

**Common Core:** Developing the “**Habits of the Mind**”

### Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

# **Turn and Talk: Mathematics**

- **What can your after school programs do to support the mathematical instructional shifts that are occurring in the classroom ?**
- **What resources do you need ?**
- **How can we help ?**

# Math Night

- Estimation Jar
- Tangrams and Grandfather Tang's Story (Deconstructing Shapes)
- Multiplication and Division themed bugs (4 x 3 legs) (16 / 4 antennae)
- Ordered pair graphs for constellations
- Volume and surface area utilizing nets...take a cube and determine the least amount of cuts needed to create a 2D shape that is not detached.
- Patterns...beads...predict what color would the 100<sup>th</sup> bead be ?
- Simultaneous Puzzles  $\bigcirc + \square = 8$        $\bigcirc - \square = 4$

# **Additional Resources**

**All available on EngageNY ([www.engageny.org](http://www.engageny.org))**

- **Common Core State Standards**
- **Publisher's Criteria for ELA and Mathematics**
- **New York State Metrics and Expectations**
- **Video Library-with classroom examples**
- **Parent Resources: Guide to Common Core Standards, Educational Activities**
- **NYS Assessment Resources**
- **ELA and Mathematics Curriculum Modules**
- **Progressions Documents for the Common Core Math Standards University of Arizona –Institute for Math and Education**
- **Illustrative Mathematics**

# Thank You!

**Susan Brockley, Mathematics Associate**

**[sbrockle@mail.nysed.gov](mailto:sbrockle@mail.nysed.gov)**

**Kristen Sikora, English Language Arts Associate**

**[Ksikora@mail.nysed.gov](mailto:Ksikora@mail.nysed.gov)**

**John Svendsen, Mathematics Associate**

**[jsvendse@mail.nysed.gov](mailto:jsvendse@mail.nysed.gov)**

**Erik Sweet, English Language Arts Associate**

**[esweet@mail.nysed.gov](mailto:esweet@mail.nysed.gov)**

**Office of Curriculum & Instruction: 518-474-5922**

**<http://www.p12.nysed.gov/ciai/>**