CCSS Camp: Basic Training for PreK-5th Grade Teachers

USD 470 – Arkansas City

Sheryl Leeds

Principal IXL Elementary & Lincoln PALS Early Childhood Center

Cheryl Carter

Principal Jefferson Elementary & C-4 Elementary

Pam Barbour

Principal Roosevelt Elementary

Why CCSS Camp?

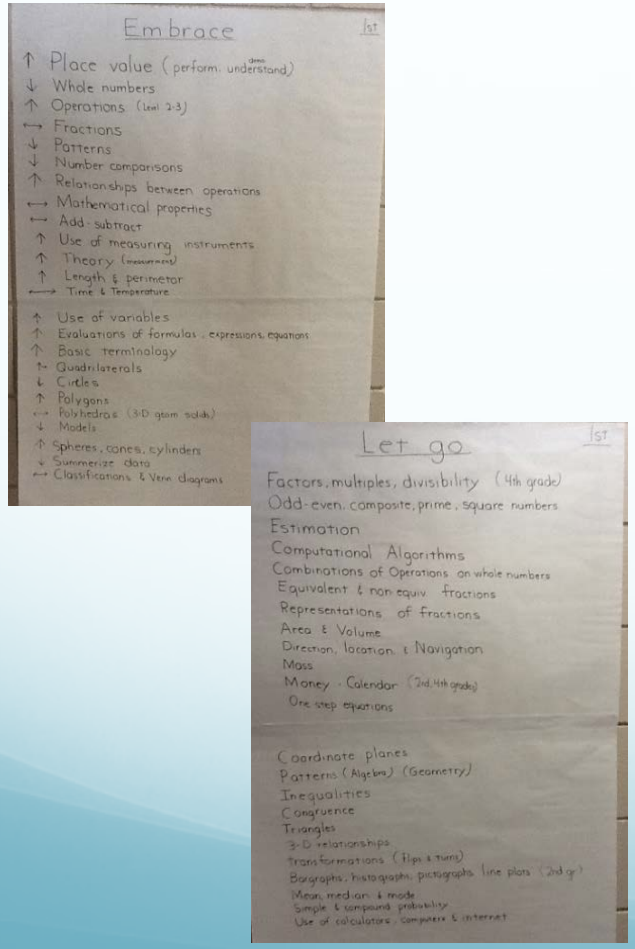
To Create:

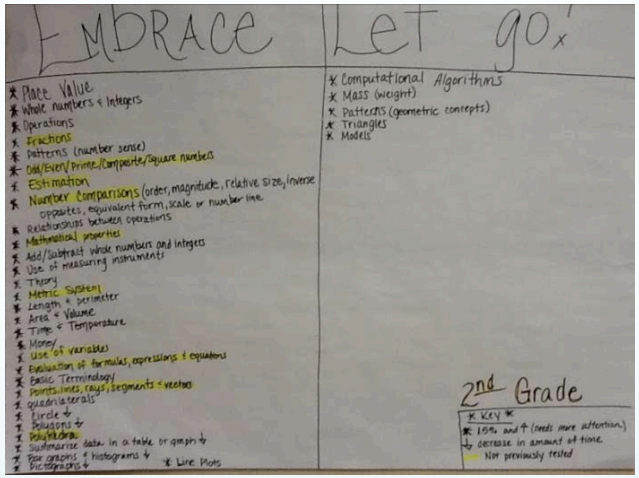
- Quarterly Pacing Calendar/Guide
- Curriculum Map
- Common Formative Assessments

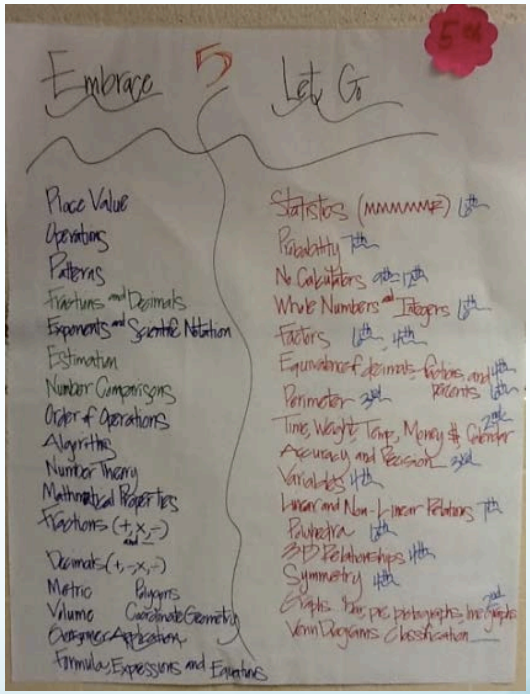
2012 – 2013 CCSS Camp

Survey of Enacted Curriculum - http://www.seconline.org

Embrace/Let Go Process & Gallery Walk of Posters







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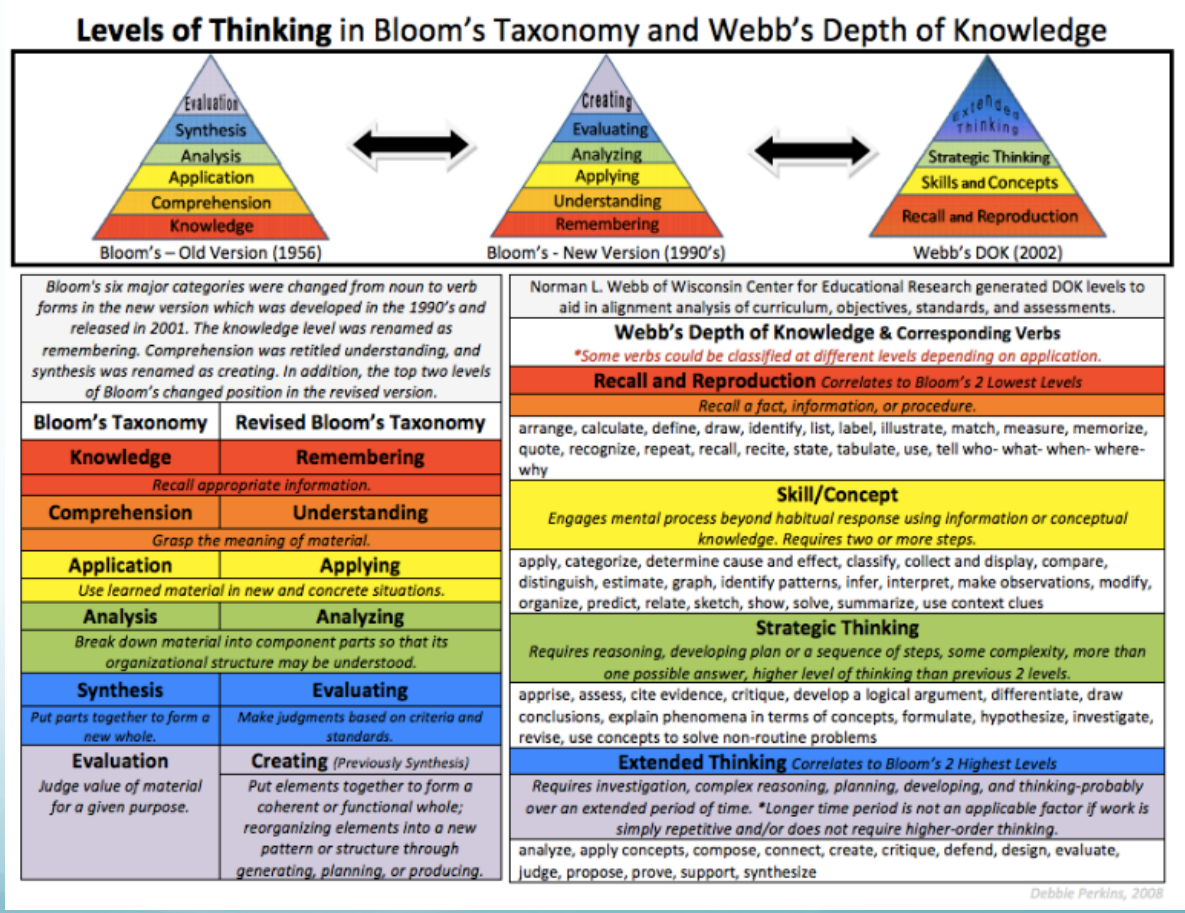
Bloom's Taxonomyhttp://www.lbschools.net/Main_Offices/Curriculum/Common_Core/docs/dok_blooms_comparison.pdf

Compared new to old



Levels of Thinking in Bloom's Taxonomy and Webb's Depth of Knowledge

Bloom's six major categories were changed from noun to verb forms in the new version which was developed in the 1990's and released in 2001. The knowledge level was renamed as remembering. Comprehension was retitled understanding, and synthesis was renamed as creating. In addition, the top two levels of Bloom's changed position in the revised version.

Bloom's Taxonomy	Revised Bloom's Taxonomy
Knowledge	**Remembering**
Recall appropriate information.	
Comprehension	**Understanding**
Grasp the meaning of material.	
Application	**Applying**
Use learned material in new and concrete situations.	
Analysis	**Analyzing**
Break down material into component parts so that its organizational structure may be understood.	
Synthesis	**Evaluating**
Put parts together to form a new whole.	*Make judgments based on criteria and standards.*
Evaluation	**Creating** *(Previously Synthesis)*
Judge value of material for a given purpose.	*Put elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing.*

Norman L. Webb of Wisconsin Center for Educational Research generated DOK levels to aid in alignment analysis of curriculum, objectives, standards, and assessments.

Webb's Depth of Knowledge & Corresponding Verbs

**Some verbs could be classified at different levels depending on application.*

Recall and Reproduction *Correlates to Bloom's 2 Lowest Levels*

Recall a fact, information, or procedure.

arrange, calculate, define, draw, identify, list, label, illustrate, match, measure, memorize, quote, recognize, repeat, recall, recite, state, tabulate, use, tell who- what- when- where- why

Skill/Concept

Engages mental process beyond habitual response using information or conceptual knowledge. Requires two or more steps.

apply, categorize, determine cause and effect, classify, collect and display, compare, distinguish, estimate, graph, identify patterns, infer, interpret, make observations, modify, organize, predict, relate, sketch, show, solve, summarize, use context clues

Strategic Thinking

Requires reasoning, developing plan or a sequence of steps, some complexity, more than one possible answer, higher level of thinking than previous 2 levels.

apprise, assess, cite evidence, critique, develop a logical argument, differentiate, draw conclusions, explain phenomena in terms of concepts, formulate, hypothesize, investigate, revise, use concepts to solve non-routine problems

Extended Thinking *Correlates to Bloom's 2 Highest Levels*

*Requires investigation, complex reasoning, planning, developing, and thinking-probably over an extended period of time. *Longer time period is not an applicable factor if work is simply repetitive and/or does not require higher-order thinking.*

analyze, apply concepts, compose, connect, create, critique, defend, design, evaluate, judge, propose, prove, support, synthesize

Debbie Perkins, 2008

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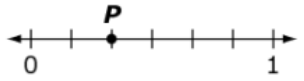
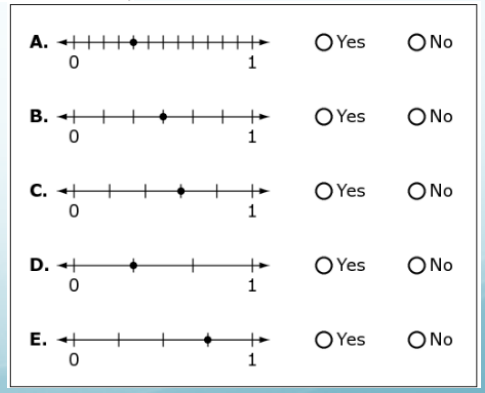
Constructed Response vs Selected Response

Jamal is filling bags with sand. All of the bags are the same size. Each bag must weigh less than 50 pounds. One sand bag weighs 57 pounds and another sand bag weighs 41 pounds. Explain whether Jamal can pour sand from one bag into the other so that the weight of each bag is less than 50 pounds.

Look at point *P* on the number line.



Look at number lines A – E. Is the point on each number line equal to the number shown by *P*? Choose Yes or No.



Process of creating an assessment

Example/Non-example and how to change

2012 - 2013 CCSS Camp cont'd

Lexiles

Compared New & Old

Grade Band	Current Lexile Band	"Stretch" Lexile Band
K – 1	N/A	N/A
2 – 3	450L – 725L	420L – 820L
4 – 5	645L – 845L	740L – 1010L
6 – 8	860L – 1010L	925L – 1185L
9 – 10	960L – 1115L	1050L – 1335L
11 – CCR	1070L – 1220L	1185L – 1385L

2012 - 2013 CCSS Camp cont'd

Key Vocabulary for Math http://www.emsd37.org/files/Common Core Vocab Math.pdf

Common Core Mathematics Vocabulary Terms

Kindergarten		First Grade		Second Grade	
Count	Sort	Addition	Centimeter	Addition facts	Dollar
Ones	Above	Subtraction	Inch	Hundreds	Quarter (coin)
Tens	Below	Sum	Hours	Skip count	Half Dollar (coin)
Forward	Beside	Difference	Half hour	Expanded form	Cents
Zero	In front of	Group	Minutes	Standards form	Line plot
Greater than	Behind	Counting On	Digital	Number names	Picture graph
Less than	Next to	Making ten	Clock	Value	Bar graph
Equal	Square	Doubles	Trapezoid	Ruler	Angles
Addition	Circle	Combinations	Half-circle	Yardstick	Faces
Subtraction	Triangle	Equal sign	Quarter-circle	Meterstick	Quadrilaterals
Length	Rectangle	True	Cube	Measuring tape	Pentagon
Weight	Flat shape	False	Right rectangular	Foot	Hexagon
More	Solid shape	Unknown	prism	Yard	Rows
Less	Corners	Digits	Cone	Meter	Columns
Taller	Sides	Two-digit number	Cylinder	Number line	Thirds
Shorter	Penny?	Greater than sign	Half	A.M.	Halves
Longer	Dime?	Less than sign	Fourth	P.M.	
Larger		Mental math	Quarter (fraction)		
Smaller		Unit	Nickel?		

Common Core Mathematics Vocabulary Terms

Third Grade		Fourth Grade		Fifth Grade	
Multiply	Fraction bar	Estimation	Table	Parentheses	
Product	Numerator	Factor pairs	Line plot	Brackets	
Divide	Denominator	Multiples	Angle	Braces	
Quotient	Elapsed time	Prime	Ray	Numerical expression	
Remainder	Open number line	Composite	Endpoint	Evaluate	
Array	Gram	Sequence	Degrees	Ordered pairs	
Unknown	Kilogram	Area model	Protractor	Coordinate plane	
Equal shares	Liter	Equation	Points	Powers of 10	
Factor	Scale (of graph)	Equivalent fractions	Lines	Decimal point	
Variable	Unit square	Mixed number	Line segments	Thousandths	
Pattern	Area	Improper fraction	Right angle	Volume	
Even	Perimeter	Decimal	Acute angle	Origin	
Odd	Rhombus	Hundredths	Obtuse angle	x-coordinate	
Round	Quadrilaterals	Tenths	Perpendicular lines	y-coordinate	
Unit fraction	Formula	Pound	Parallel lines	x-axis	
Equivalent		Ounce	Right triangle	y-axis	
Whole number		Conversion	Line of symmetry	formula	

Curriculum Mapping/Pacing Calendar

2012 - 2013 CCSS Camp cont'd

Assessment Design

Identified quarterly standards to be assessed & created assessments with a mixture of selected response & constructed response questions.

Daily Parking Lot

"I wonder . . ."

"I learned . . ."

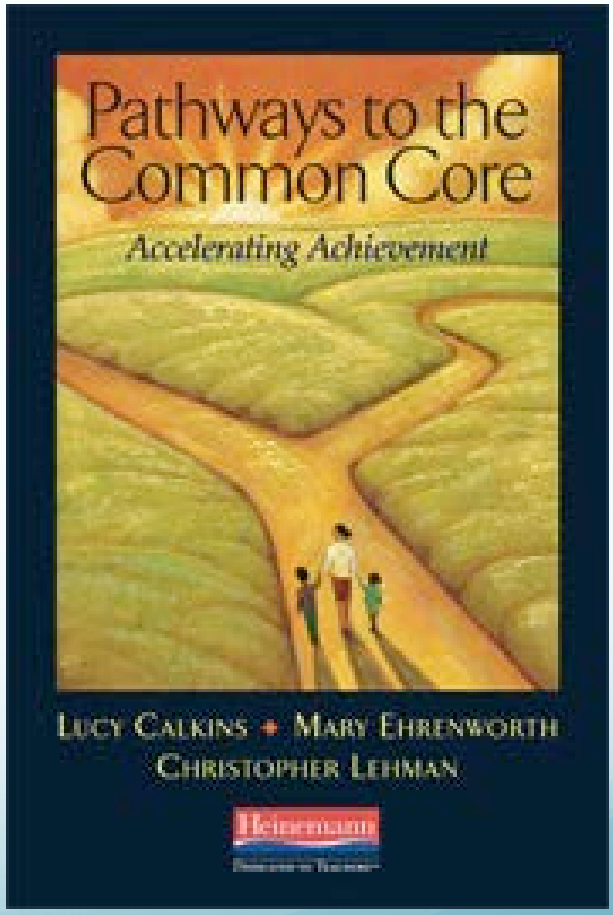
"I'm worried about . . ."

2012 - 2013 District-wide Planned Collaboration

Monthly grade level meetings PK-5

Book study ***The Path to Common Core*** – *Accelerating Achievement* by Lucy Calkins, Mary Ehrenworth, Christopher Lehman

Reviewed curriculum maps



2012 - 2013 District-wide Planned Collaboration cont'd

Conducted Once per Quarter

Rigor and relevance of curriculum maps examined

Common assessments revised to increase rigor

Grade cards were designed to align with CCSS & curriculum maps

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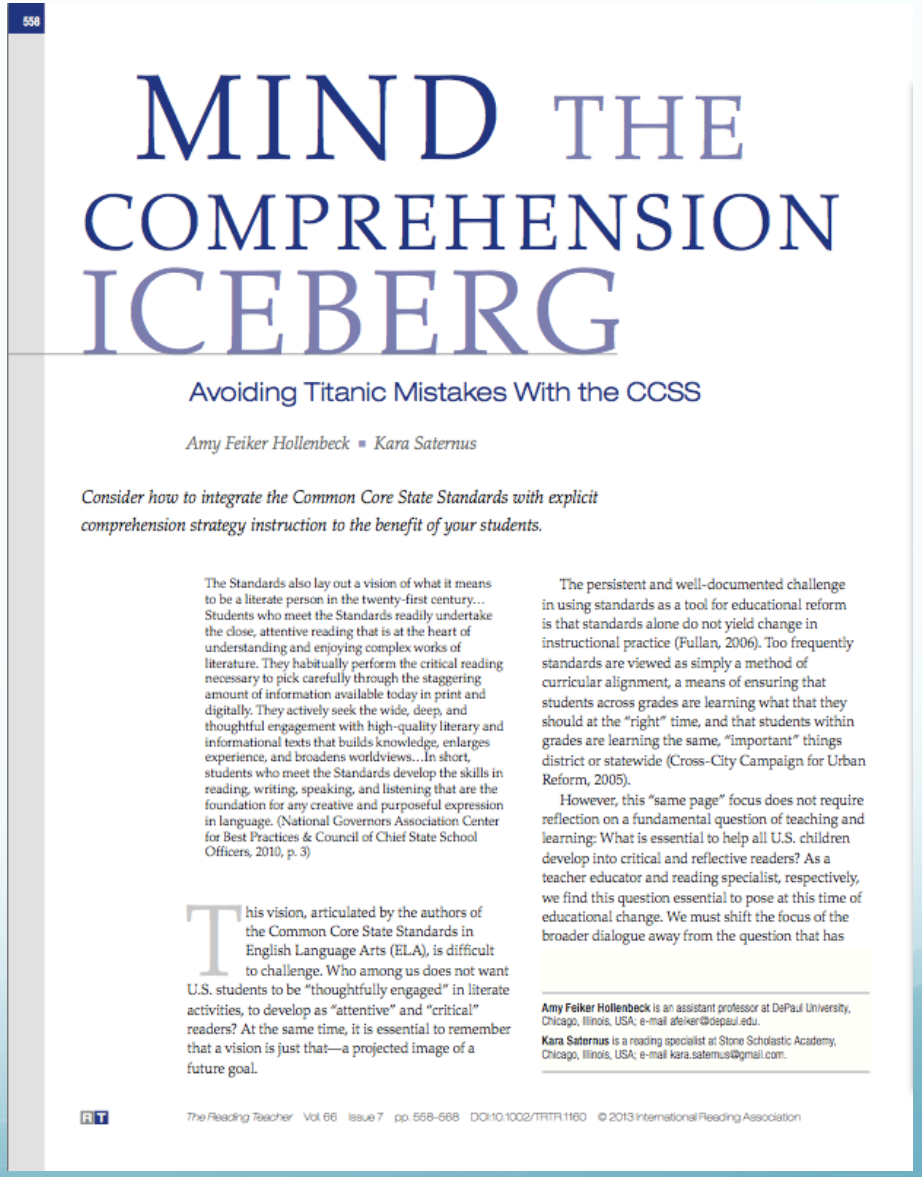
Reading

- "Mind the Comprehension Iceberg – Avoiding Titanic Mistakes With the CCSS"
- by Amy Feiker Hollenbeck & Kara Saternus



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MIND THE COMPREHENSION ICEBERG

Avoiding Titanic Mistakes With the CCSS

Amy Feiker Hollenbeck ▪ Kara Saternus

Consider how to integrate the Common Core State Standards with explicit comprehension strategy instruction to the benefit of your students.

> The Standards also lay out a vision of what it means to be a literate person in the twenty-first century… Students who meet the Standards readily undertake the close, attentive reading that is at the heart of understanding and enjoying complex works of literature. They habitually perform the critical reading necessary to pick carefully through the staggering amount of information available today in print and digitally. They actively seek the wide, deep, and thoughtful engagement with high-quality literary and informational texts that builds knowledge, enlarges experience, and broadens worldviews…In short, students who meet the Standards develop the skills in reading, writing, speaking, and listening that are the foundation for any creative and purposeful expression in language. (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010, p. 3)

This vision, articulated by the authors of the Common Core State Standards in English Language Arts (ELA), is difficult to challenge. Who among us does not want U.S. students to be "thoughtfully engaged" in literate activities, to develop as "attentive" and "critical" readers? At the same time, it is essential to remember that a vision is just that—a projected image of a future goal.

The persistent and well-documented challenge in using standards as a tool for educational reform is that standards alone do not yield change in instructional practice (Fullan, 2006). Too frequently standards are viewed as simply a method of curricular alignment, a means of ensuring that students across grades are learning what that they should at the "right" time, and that students within grades are learning the same, "important" things district or statewide (Cross-City Campaign for Urban Reform, 2005).

However, this "same page" focus does not require reflection on a fundamental question of teaching and learning: What is essential to help all U.S. children develop into critical and reflective readers? As a teacher educator and reading specialist, respectively, we find this question essential to pose at this time of educational change. We must shift the focus of the broader dialogue away from the question that has

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RT *The Reading Teacher* Vol. 66 Issue 7 pp. 558–568 DOI:10.1002/TRTR.1160

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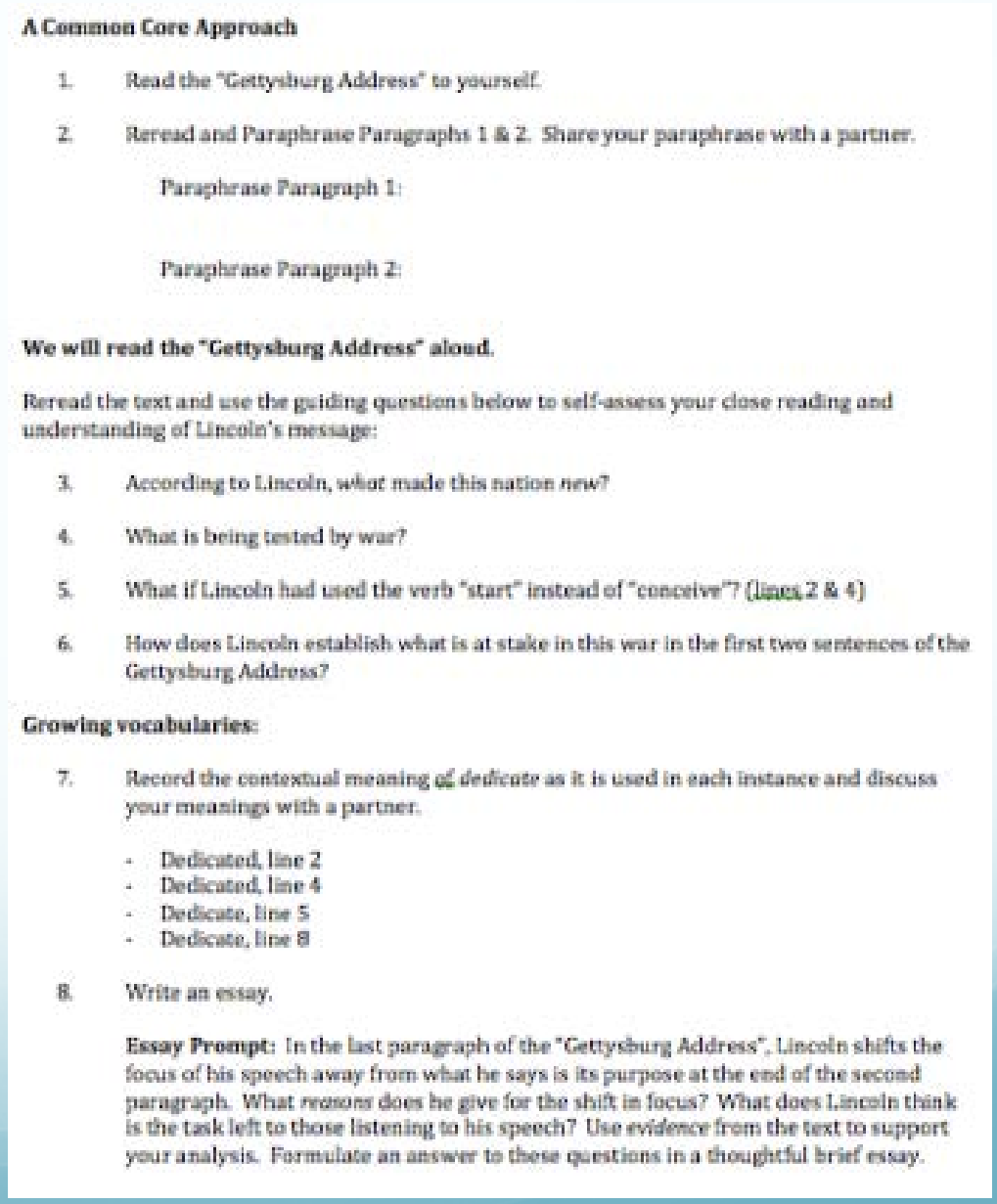
CLOSE Reading Activity

Created 2 Lessons per Grade per Building



A Common Core Approach

1. Read the "Gettysburg Address" to yourself.
2. Reread and Paraphrase Paragraphs 1 & 2. Share your paraphrase with a partner.

   Paraphrase Paragraph 1:

   Paraphrase Paragraph 2:

We will read the "Gettysburg Address" aloud.

Reread the text and use the guiding questions below to self-assess your close reading and understanding of Lincoln's message:

3. According to Lincoln, *what* made this nation *new*?
4. What is being tested by war?
5. What if Lincoln had used the verb "start" instead of "conceive"? (lines 2 & 4)
6. How does Lincoln establish what is at stake in this war in the first two sentences of the Gettysburg Address?

Growing vocabularies:

7. Record the contextual meaning of *dedicate* as it is used in each instance and discuss your meanings with a partner.

   - Dedicated, line 2
   - Dedicated, line 4
   - Dedicate, line 5
   - Dedicate, line 8

8. Write an essay.

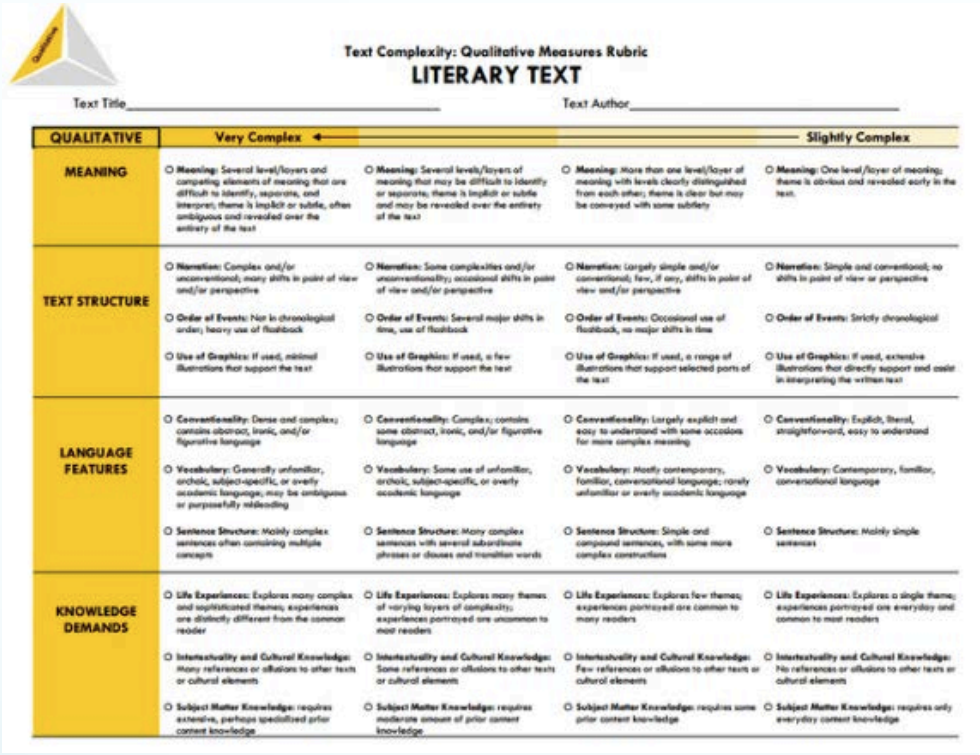
   Essay Prompt: In the last paragraph of the "Gettysburg Address", Lincoln shifts the focus of his speech away from what he says is its purpose at the end of the second paragraph. What *reasons* does he give for the shift in focus? What does Lincoln think is the task left to those listening to his speech? Use *evidence* from the text to support your analysis. Formulate an answer to these questions in a thoughtful brief essay.

2013 - 2014 CCSS Camp cont'd

Text Complexity

http://www.teachingchannel.org/videos/simplifying-text-complexity?referral_code=IYM6wQaym0PFPWSdL3sE

2013 - 2014 CCSS Camp cont'd



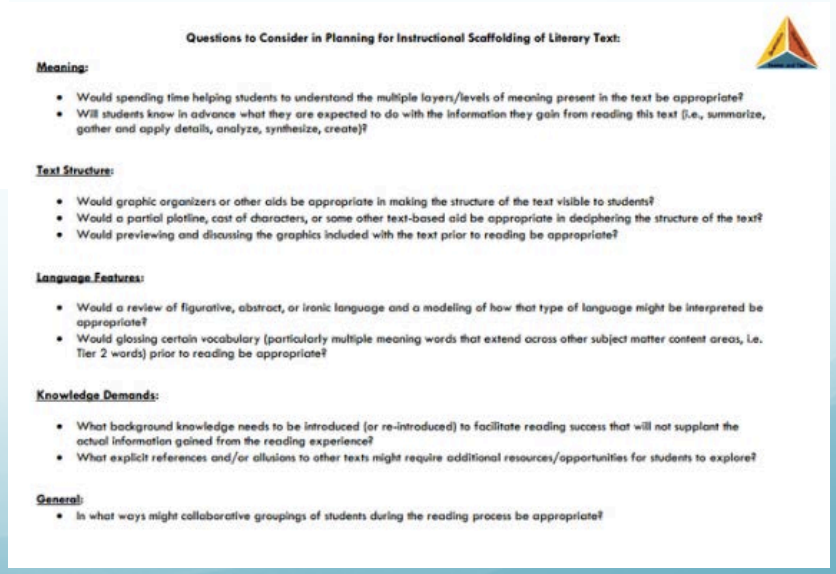
Text Complexity: Qualitative Measures Rubric

LITERARY TEXT

Text Title_____ Text Author_____

QUALITATIVE	Very Complex ←			→ Slightly Complex
MEANING	○ **Meaning:** Several level/layers and competing elements of meaning that are difficult to identify, separate, and interpret; theme is implicit or subtle, often ambiguous and revealed over the entirety of the text	○ **Meaning:** Several levels/layers of meaning that may be difficult to identify or separate; theme is implicit or subtle and may be revealed over the entirety of the text	○ **Meaning:** More than one level/layer of meaning with levels clearly distinguished from each other; theme is clear but may be conveyed with some subtlety	○ **Meaning:** One level/layer of meaning; theme is obvious and revealed early in the text.
TEXT STRUCTURE	○ **Narration:** Complex and/or unconventional; many shifts in point of view and/or perspective	○ **Narration:** Some complexities and/or unconventionality; occasional shifts in point of view and/or perspective	○ **Narration:** Largely simple and/or conventional; few, if any, shifts in point of view and/or perspective	○ **Narration:** Simple and conventional; no shifts in point of view or perspective
	○ **Order of Events:** Not in chronological order; heavy use of flashback	○ **Order of Events:** Several major shifts in time, use of flashback	○ **Order of Events:** Occasional use of flashback, no major shifts in time	○ **Order of Events:** Strictly chronological
	○ **Use of Graphics:** If used, minimal illustrations that support the text	○ **Use of Graphics:** If used, a few illustrations that support the text	○ **Use of Graphics:** If used, a range of illustrations that support selected parts of the text	○ **Use of Graphics:** If used, extensive illustrations that directly support and assist in interpreting the written text
LANGUAGE FEATURES	○ **Conventionality:** Dense and complex; contains abstract, ironic, and/or figurative language	○ **Conventionality:** Complex; contains some abstract, ironic, and/or figurative language	○ **Conventionality:** Largely explicit and easy to understand with some occasions for more complex meaning	○ **Conventionality:** Explicit, literal, straightforward, easy to understand
	○ **Vocabulary:** Generally unfamiliar, archaic, subject-specific, or overly academic language; may be ambiguous or purposefully misleading	○ **Vocabulary:** Some use of unfamiliar, archaic, subject-specific, or overly academic language	○ **Vocabulary:** Mostly contemporary, familiar, conversational language; rarely unfamiliar or overly academic language	○ **Vocabulary:** Contemporary, familiar, conversational language
	○ **Sentence Structure:** Mainly complex sentences often containing multiple concepts	○ **Sentence Structure:** Many complex sentences with several subordinate phrases or clauses and transition words	○ **Sentence Structure:** Simple and compound sentences, with some more complex constructions	○ **Sentence Structure:** Mainly simple sentences
KNOWLEDGE DEMANDS	○ **Life Experiences:** Explores many complex and sophisticated themes; experiences are distinctly different from the common reader	○ **Life Experiences:** Explores many themes of varying layers of complexity; experiences portrayed are uncommon to most readers	○ **Life Experiences:** Explores few themes; experiences portrayed are common to many readers	○ **Life Experiences:** Explores a single theme; experiences portrayed are everyday and common to most readers
	○ **Intertextuality and Cultural Knowledge:** Many references or allusions to other texts or cultural elements	○ **Intertextuality and Cultural Knowledge:** Some references or allusions to other texts or cultural elements	○ **Intertextuality and Cultural Knowledge:** Few references or allusions to other texts or cultural elements	○ **Intertextuality and Cultural Knowledge:** No references or allusions to other texts or cultural elements
	○ **Subject Matter Knowledge:** requires extensive, perhaps specialized prior content knowledge	○ **Subject Matter Knowledge:** requires moderate amount of prior content knowledge	○ **Subject Matter Knowledge:** requires some prior content knowledge	○ **Subject Matter Knowledge:** requires only everyday content knowledge

Text Complexity



Questions to Consider in Planning for Instructional Scaffolding of Literary Text:

Meaning:

- Would spending time helping students to understand the multiple layers/levels of meaning present in the text be appropriate?
- Will students know in advance what they are expected to do with the information they gain from reading this text (i.e., summarize, gather and apply details, analyze, synthesize, create)?

Text Structure:

- Would graphic organizers or other aids be appropriate in making the structure of the text visible to students?
- Would a partial plotline, cast of characters, or some other text-based aid be appropriate in deciphering the structure of the text?
- Would previewing and discussing the graphics included with the text prior to reading be appropriate?

Language Features:

- Would a review of figurative, abstract, or ironic language and a modeling of how that type of language might be interpreted be appropriate?
- Would glossing certain vocabulary (particularly multiple meaning words that extend across other subject matter content areas, i.e. Tier 2 words) prior to reading be appropriate?

Knowledge Demands:

- What background knowledge needs to be introduced (or re-introduced) to facilitate reading success that will not supplant the actual information gained from the reading experience?
- What explicit references and/or allusions to other texts might require additional resources/opportunities for students to explore?

General:

- In what ways might collaborative groupings of students during the reading process be appropriate?

2013 - 2014 CCSS Camp cont'd

Lexiles

- http://www.lexile.com
- Identified favorite book lexile
- Quantitative/Qualitative/Reader & Task Triangle

Schedule

Use of Social Studies/Science Text

2013 - 2014 CCSS Camp cont'd

Math

"Never Say What a Kid Can Say" by Steven C. Reinhart

Never Say Anything a Kid Can Say!

STEVEN C. REINHART

AFTER EXTENSIVE PLANNING, I PRESENTED what should have been a masterpiece lesson. I worked several examples on the overhead projector, answered every student's question in great detail, and explained the concept so clearly that surely my students understood. The next day, however, it became obvious that the students were totally confused. In my early years of teaching, this situation happened all too often. Even though observations by my principal clearly pointed out that I was very good at explaining mathematics to my students, knew my subject matter well, and really seemed to be a dedicated and caring teacher, something was wrong. My students were capable of learning much more than they displayed.

Implementing Change over time

THE LOW LEVELS OF ACHIEVEMENT – of many students caused me to question – how I was teaching, and my search for a – better approach began. Making a commitment to change 10 percent of my if teaching each year, I began to collect and use materials and ideas gathered from supplements, workshops, professional journals, and university classes. Each year, my goal was simply to teach a single topic in a better way than I had the year before.

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Before long, I noticed that the familiar teacher-centered, direct-instruction model often did not fit well with the more in-depth problems and tasks that I was using. The information that I had gathered also suggested teaching in nontraditional ways. It was not enough to teach better mathematics; I also had to teach mathematics better. Making changes in instruction proved difficult because I had to learn to teach in ways that I had never observed or experienced, challenging many of the old teaching paradigms. As I moved from traditional methods of instruction to a more student-centered, problem-based approach, many of my students enjoyed my classes more. They really seemed to like working together, discussing and sharing their ideas and solutions to the interesting, often contextual, problems that I posed. The small changes that I implemented each year began to show results. In five years, I had almost completely changed both *what* and *how* I was teaching.

The Fundamental Flaw

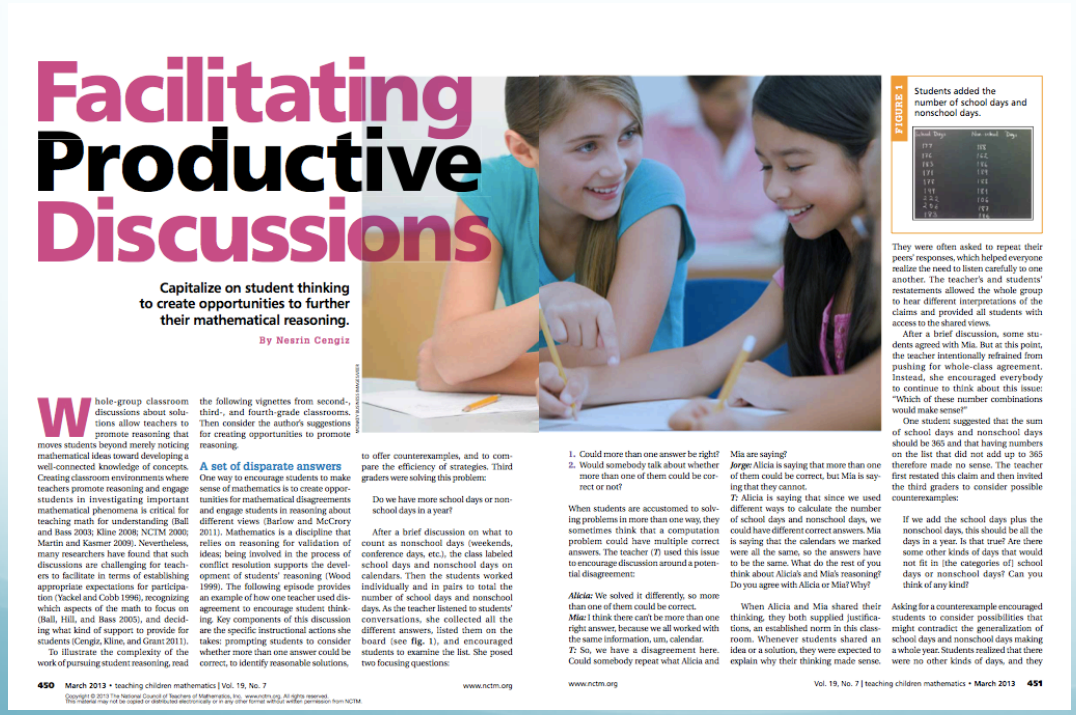
AT SOME POINT DURING THIS METAMORPHOSIS, I concluded that a fundamental flaw existed in my teaching methods. When I was in front of the class demonstrating and explaining, I was learning a great deal, but many of my students were not! Eventually, I concluded that if my students were to ever really learn mathematics, *they* would have to do the explaining, and *I*, the listening. My definition of a good teacher has since changed from "one who explains things so well that students understand" to "one who gets students to explain things so well that they can be understood."

Getting middle school students to explain their thinking and become actively involved in classroom discussions can be a challenge. By nature, these

2013 - 2014 CCSS Camp cont'd

"Facilitating Productive Discussions – Capitalize on student thinking to create opportunities to further their mathematical reasoning"

by Nesrin Cengiz



Facilitating Productive Discussions

Capitalize on student thinking to create opportunities to further their mathematical reasoning.

By Nesrin Cengiz

Whole-group classroom discussions about solutions allow teachers to promote reasoning that moves students beyond merely noticing mathematical ideas toward developing a well-connected knowledge of concepts. Creating classroom environments where teachers promote reasoning and engage students in investigating important mathematical phenomena is critical for teaching math for understanding (Ball and Bass 2003; Kline 2008; NCTM 2000; Martin and Kasmer 2009). Nevertheless, many researchers have found that such discussions are challenging for teachers to facilitate in terms of establishing appropriate expectations for participation (Yackel and Cobb 1996), recognizing which aspects of the math to focus on (Ball, Hill, and Bass 2005), and deciding what kind of support to provide for students (Cengiz, Kline, and Grant 2011).

To illustrate the complexity of the work of pursuing student reasoning, read the following vignettes from second-, third-, and fourth-grade classrooms. Then consider the author's suggestions for creating opportunities to promote reasoning.

A set of disparate answers

One way to encourage students to make sense of mathematics is to create opportunities for mathematical disagreements and engage students in reasoning about different views (Barlow and McCrory 2011). Mathematics is a discipline that relies on reasoning for validation of ideas; being involved in the process of conflict resolution supports the development of students' reasoning (Wood 1999). The following episode provides an example of how one teacher used disagreement to encourage student thinking. Key components of this discussion are the specific instructional actions she takes: prompting students to consider whether more than one answer could be correct, to identify reasonable solutions, to offer counterexamples, and to compare the efficiency of strategies. Third graders were solving this problem:

> Do we have more school days or nonschool days in a year?

After a brief discussion on what to count as nonschool days (weekends, conference days, etc.), the class labeled school days and nonschool days on calendars. Then the students worked individually and in pairs to total the number of school days and nonschool days. As the teacher listened to students' conversations, she collected all the different answers, listed them on the board (see fig. 1), and encouraged students to examine the list. She posed two focusing questions:

1. Could more than one answer be right?
2. Would somebody talk about whether more than one of them could be correct or not?

When students are accustomed to solving problems in more than one way, they sometimes think that a computation problem could have multiple correct answers. The teacher (*T*) used this issue to encourage discussion around a potential disagreement:

Alicia: We solved it differently, so more than one of them could be correct.
Mia: I think there can't be more than one right answer, because we all worked with the same information, um, calendar.
T: So, we have a disagreement here. Could somebody repeat what Alicia and Mia are saying?
Jorge: Alicia is saying that more than one of them could be correct, but Mia is saying that they cannot.
T: Alicia is saying that since we used different ways to calculate the number of school days and nonschool days, we could have different correct answers. Mia is saying that the calendars we marked were all the same, so the answers have to be the same. What do the rest of you think about Alicia's and Mia's reasoning? Do you agree with Alicia or Mia? Why?

When Alicia and Mia shared their thinking, they both supplied justifications, an established norm in this classroom. Whenever students shared an idea or a solution, they were expected to explain why their thinking made sense.

FIGURE 1
Students added the number of school days and nonschool days.

They were often asked to repeat their peers' responses, which helped everyone realize the need to listen carefully to one another. The teacher's and students' restatements allowed the whole group to hear different interpretations of the claims and provided all students with access to the shared views.

After a brief discussion, some students agreed with Mia. But at this point, the teacher intentionally refrained from pushing for whole-class agreement. Instead, she encouraged everybody to continue to think about this issue: "Which of these number combinations would make sense?"

One student suggested that the sum of school days and nonschool days should be 365 and that having numbers on the list that did not add up to 365 therefore made no sense. The teacher first restated this claim and then invited the third graders to consider possible counterexamples:

> If we add the school days plus the nonschool days, this should be all the days in a year. Is that true? Are there some other kinds of days that would not fit in [the categories of] school days or nonschool days? Can you think of any kind?

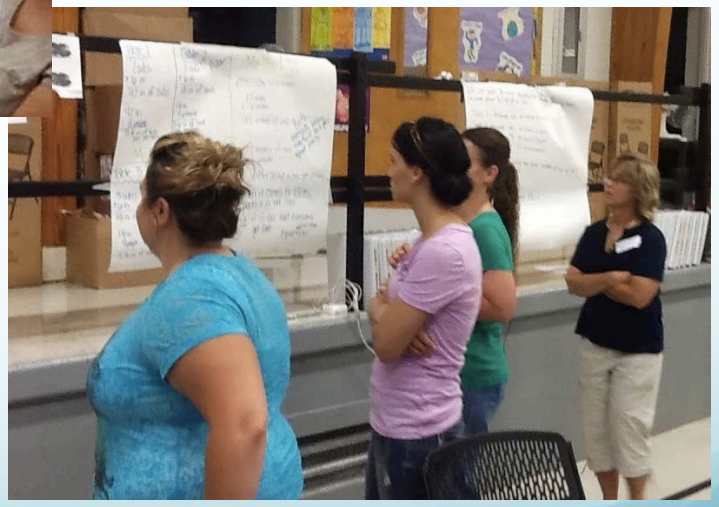
Asking for a counterexample encouraged students to consider possibilities that might contradict the generalization of school days and nonschool days making a whole year. Students realized that there were no other kinds of days, and they

2013 - 2014 CCSS Camp cont'd

Student Discourse Activity

Less teacher talk . . .

More student talk!



Evaluating student work

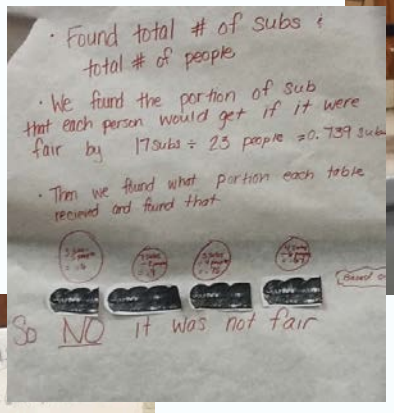
2013 - 2014 CCSS Camp cont'd

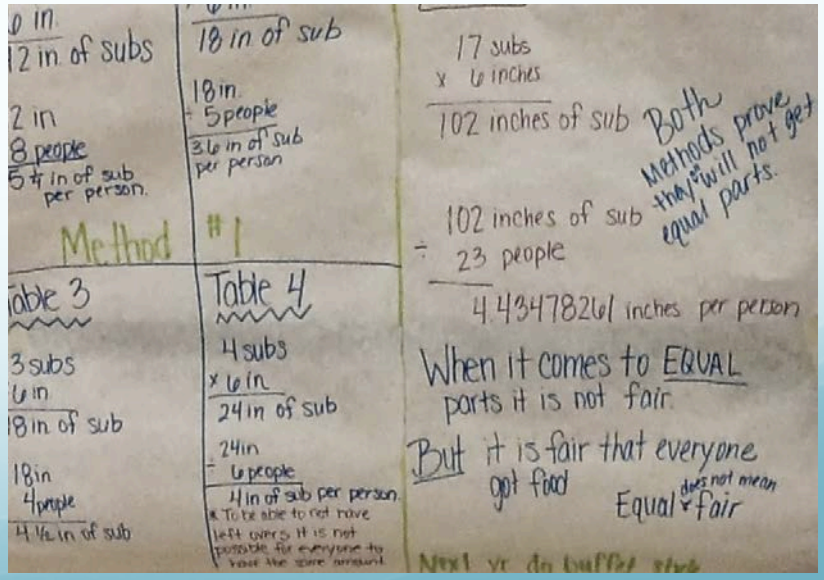
Evaluating student work

With More

Rigorous

Assessments



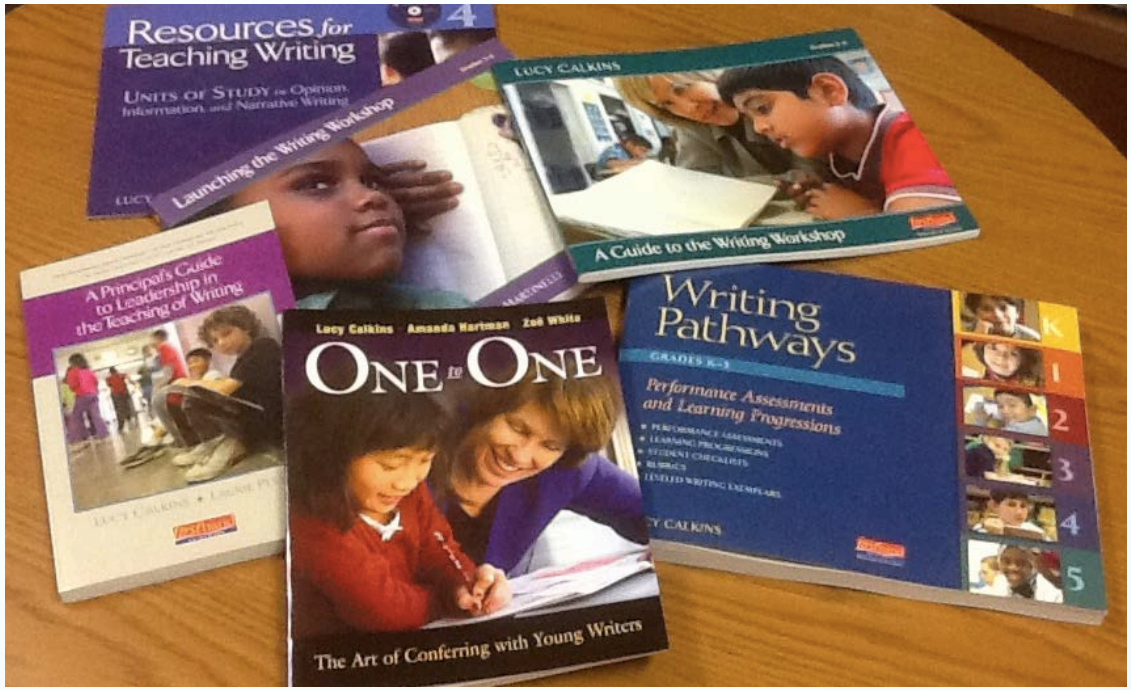


2013 - 2014 CCSS Camp cont'd

Writing

Writer's Workshop

Model



What does it look like in math, reading & other areas?

Where do we get the time?

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Depth of Knowledge (ELA)

Hess' Cognitive Rigor Matrix & Curricular Examples: Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions - *ELA*

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/ Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	○ Recall, recognize, or locate basic facts, details, events, or ideas explicit in texts ○ Read words orally in connected text with fluency & accuracy			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion), predict, compare/contrast, match like ideas, explain, construct models	○ Identify or describe literary elements (characters, setting, sequence, etc.) ○ Select appropriate words when intended meaning/definition is clearly evident ○ Describe/explain who, what, where, when, or how ○ Define/describe facts, details, terms, principles ○ Write simple sentences	○ Specify, explain, show relationships; explain why, cause-effect ○ Give non-examples/examples ○ Summarize results, concepts, ideas ○ Make basic inferences or logical predictions from data or texts ○ Identify main ideas or accurate generalizations of texts ○ Locate information to support explicit-implicit central ideas	○ Explain, generalize, or connect ideas using supporting evidence (quote, example, text reference) ○ Identify/ make inferences about explicit or implicit themes ○ Describe how word choice, point of view, or bias may affect the readers' interpretation of a text ○ Write multi-paragraph composition for specific purpose, focus, voice, tone, & audience	○ Explain how concepts or ideas specifically relate to *other* content domains or concepts ○ Develop generalizations of the results obtained or strategies used and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	○ Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning of words ○ Apply rules or resources to edit spelling, grammar, punctuation, conventions, word use ○ Apply basic formats for documenting sources	○ Use context to identify the meaning of words/phrases ○ Obtain and interpret information using text features ○ Develop a text that may be limited to one paragraph ○ Apply simple organizational structures (paragraph, sentence types) in writing	○ Apply a concept in a new context ○ Revise final draft for meaning or progression of ideas ○ Apply internal consistency of text organization and structure to composing a full composition ○ Apply word choice, point of view, style to impact readers' /viewers' interpretation of a text	○ Illustrate how multiple themes (historical, geographic, social) may be interrelated ○ Select or devise an approach among many alternatives to research a novel problem
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct (e.g., for bias or point of view)	○ Identify whether specific information is contained in graphic representations (e.g., map, chart, table, graph, T-chart, diagram) or text features (e.g., headings, subheadings, captions) ○ Decide which text structure is appropriate to audience and purpose	○ Categorize/compare literary elements, terms, facts/details, events ○ Identify use of literary devices ○ Analyze format, organization, & internal text structure (signal words, transitions, semantic cues) of different texts ○ Distinguish: relevant-irrelevant information; fact/opinion ○ Identify characteristic text features; distinguish between texts, genres	○ Analyze information within data sets or texts ○ Analyze interrelationships among concepts, issues, problems ○ Analyze or interpret author's craft (literary devices, viewpoint, or potential bias) to create or critique a text ○ Use reasoning, planning, and evidence to support inferences	○ Analyze multiple sources of evidence, or multiple works by the same author, or across genres, time periods, themes ○ Analyze complex/abstract themes, perspectives, concepts ○ Gather, analyze, and organize multiple information sources ○ Analyze discourse styles
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			○ Cite evidence and develop a logical argument for conjectures ○ Describe, compare, and contrast solution methods ○ Verify reasonableness of results ○ Justify or critique conclusions drawn	○ Evaluate relevancy, accuracy, & completeness of information from multiple sources ○ Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, produce	Brainstorm ideas, concepts, problems, or perspectives related to a topic or concept	○ Generate conjectures or hypotheses based on observations or prior knowledge and experience	○ Synthesize information within one source or text ○ Develop a complex model for a given situation ○ Develop an alternative solution	○ Synthesize information across multiple sources or texts ○ Articulate a new voice, alternate theme, new knowledge or perspective

http://www.ccresa.net/wp-content/uploads/2012/06/Blooms-DOK_ELA_3.pdf

2013 - 2014 CCSS Camp cont'd

Depth of Knowledge (Math & Science)

Hess' Cognitive Rigor Matrix & Curricular Examples: Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions – *M-Sci*

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/ Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	○ Recall, observe, & recognize facts, principles, properties ○ Recall/ identify conversions among representations or numbers (e.g., customary and metric measures)			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion (such as from examples given), predict, compare/contrast, match like ideas, explain, construct models	○ Evaluate an expression ○ Locate points on a grid or number on number line ○ Solve a one-step problem ○ Represent math relationships in words, pictures, or symbols ○ Read, write, compare decimals in scientific notation	○ Specify and explain relationships (e.g., non-examples/examples; cause-effect) ○ Make and record observations ○ Explain steps followed ○ Summarize results or concepts ○ Make basic inferences or logical predictions from data/observations ○ Use models /diagrams to represent or explain mathematical concepts ○ Make and explain estimates	○ Use concepts to solve non-routine problems ○ Explain, generalize, or connect ideas using supporting evidence ○ Make and justify conjectures ○ Explain thinking when more than one response is possible ○ Explain phenomena in terms of concepts	○ Relate mathematical or scientific concepts to other content areas, other domains, or other concepts ○ Develop generalizations of the results obtained and the strategies used (from investigation or readings) and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	○ Follow simple procedures (recipe-type directions) ○ Calculate, measure, apply a rule (e.g., rounding) ○ Apply algorithm or formula (e.g., area, perimeter) ○ Solve linear equations ○ Make conversions among representations or numbers, or within and between customary and metric measures	○ Select a procedure according to criteria and perform it ○ Solve routine problem applying multiple concepts or decision points ○ Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps ○ Translate between tables, graphs, words, and symbolic notations (e.g., graph data from a table) ○ Construct models given criteria	○ Design investigation for a specific purpose or research question ○ Conduct a designed investigation ○ Use concepts to solve non-routine problems ○ Use & show reasoning, planning, and evidence ○ Translate between problem & symbolic notation when not a direct translation	○ Select or devise approach among many alternatives to solve a problem ○ Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct	○ Retrieve information from a table or graph to answer a question ○ Identify whether specific information is contained in graphic representations (e.g., table, graph, T-chart, diagram) ○ Identify a pattern/trend	○ Categorize, classify materials, data, figures based on characteristics ○ Organize or order data ○ Compare/ contrast figures or data ○ Select appropriate graph and organize & display data ○ Interpret data from a simple graph ○ Extend a pattern	○ Compare information within or across data sets or texts ○ Analyze and draw conclusions from data, citing evidence ○ Generalize a pattern ○ Interpret data from complex graph ○ Analyze similarities/differences between procedures or solutions	○ Analyze multiple sources of evidence ○ analyze complex/abstract themes ○ Gather, analyze, and evaluate information
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			○ Cite evidence and develop a logical argument for concepts or solutions ○ Describe, compare, and contrast solution methods ○ Verify reasonableness of results	○ Gather, analyze, & evaluate information to draw conclusions ○ Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, construct, produce	○ Brainstorm ideas, concepts, or perspectives related to a topic	○ Generate conjectures or hypotheses based on observations or prior knowledge and experience	○ Synthesize information within one data set, source, or text ○ Formulate an original problem given a situation ○ Develop a scientific/mathematical model for a complex situation	○ Synthesize information across multiple sources or texts ○ Design a mathematical model to inform and solve a practical or abstract situation

http://www.ccresa.net/wp-content/uploads/2012/06/Blooms-DOK_math-sci4.pdf

2013 - 2014 CCSS Camp cont'd

Depth of Knowledge Question Stems

DOK 1
- Can you recall _____ ?
- When did _____ happen?
- Who was _____?
- How can you recognize _____?
- What is _____?
- How can you find the meaning of _____?
- Can you recall _____?
- Can you select _____?
- How would you write _____?
- What might you include on a list about _____?
- Who discovered _____?
- What is the formula for _____?
- Can you identify _____?
- How would you describe _____?

DOK 2
- Can you explain how _____ affected _____?
- How would you apply what you learned to develop _____?
- How would you compare _____?
- How would you classify _____?
- How are _____ alike? Different?
- How would you classify the type of _____?
- What can you say about _____?
- How would you summarize _____?
- What steps are needed to edit _____?
- When would you use an outline to _____?
- How would you estimate _____?
- How could you organize _____?
- What would you use to classify _____?
- What do you notice about _____?

DOK 3
- How is _____ related to _____?
- What conclusions can you draw _____?
- How would you adapt _____ to create a different _____?
- How would you test _____?
- Can you predict the outcome if _____?
- What is the best answer? Why?
- What conclusion can be drawn from these three texts?
- What is your interpretation of this text? Support your rationale.
- How would you describe the sequence of _____?
- What facts would you select to support _____?
- Can you elaborate on the reason _____?
- What would happen if _____?
- Can you formulate a theory for _____?
- How would you test _____?
- Can you elaborate on the reason _____?

DOK 4
- Write a thesis, drawing conclusions from multiple sources.
- Design and conduct an experiment. Gather information to develop alternative explanations for the results of an experiment.
- Write a research paper on a topic.
- Apply information from one text to another text to develop a persuasive argument.
- What information can you gather to support your idea about _____?
- DOK 4 would most likely be the writing of a research paper or applying information from one text to another text to develop a persuasive argument.
- DOK 4 requires time for extended thinking.

From Depth of Knowledge – Descriptors, Examples & Question Stems for Increasing Depth of Knowledge in the Classroom Developed by Dr. Norman Webb and Flip Chart developed by Myra Collins

2013 - 2014 CCSS Camp cont'd

Other . . .

- Higher Order Questioning
- Revisit & Adjust Curriculum Map

2013 - 2014 District-wide Collaboration Days

Once per Quarter

Depth of Knowledge
- Adjust Assessments with DOK in Mind

Debriefed 1st Quarter Challenges & Successes

Looked at Curriculum Map/Pacing Calendars

Next Steps

Essential questions that must be answered . . .

Did we teach what we said we were going to teach?

Did we assess what we said we were going to assess?

AHA's & Celebrations

AHA's

- Hard for staff to let go & embrace the change process.
- TIME . . . TIME . . . TIME
- Must have collaboration across grades & between buildings.
- Need for skill development in interpersonal relationships/conflict resolution.

Celebrations

- Eagerness to do it once their nerves were calmed.
- Increased communication between teachers in all buildings.
- Increase in student excitement & ownership of learning.

Q & A

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