The Common Core, & Cognitive Rigor

Language Arts Council Meetings
Fall 2012

Portions adapted from Karin K. Hess materials

UPDATES

- ELA CCSS
  - Appendix A – August 2012
    - Supplemental Information for Appendix A
      - New Research on Text Complexity
  - Lexile "stretch bands"

UPDATES

- SmarterBalanced.org
  - Sign up for e-alerts 
  - Access sample items and performance tasks beginning early October
  - Typing games

Dance Mat Typing

- http://www.bbc.co.uk/schools/typing/

- ◆Sequential lessons
- ◆Animal guides
- ◆Reward Screens
- ◆10-minute lessons
- ◆20 small typing tasks.
- ◆ About a dozen lessons in the sequence.

Typing Chef

- http://www.sense-lang.org/typing/games/typingchef.php

◆ Type the word in the bubble before it pops.

◆ In later, more challenging screens other food falls into the pan.

◆ Game works on speed of typing target words that get increasingly complex.

Keyboard Climber Game

- http://www.tvokids.com/games/keyboardclimber

◆ Help the monkey to climb ever higher by correctly typing the letter above him.

◆ Clue to which hand to use based on left or right of screen.

◆ Monkey falls to bottom of current level with each mistake.

Super Hyper Spider Typer

- http://funschool.kaboose.com/fun-blaster/games/game_super_hyper_spider_typer.h

◆ Three levels of difficulty.

◆ Each progressively difficult within level.

◆ Type the letters or words on the chameleons' backs to protect the spider.

◆ Different colored chameleons have different numbers of lives.

Typing Defense

- http://games.wordgames.com/media/typing-defense.swf

◆Type the word associated with each asteroid before it collides with the earth.

◆ Planetary defense ray destroys correctly spelled asteroids.

◆ Additional key words are earned like “slow, ice, and strike” as you increase in levels.

Rigor Presentation Overview

- Develop a shared understanding of the concept of cognitive rigor
- Use the rigor matrix lens to apply these ideas in our work

BEFORE WE BEGIN…

- Take a couple of minutes to write your personal definition of "cognitive rigor" as it relates to instruction, learning, and/or assessment.

Let's apply your rigor definition

Your class has just read some version of *Little Red Riding Hood*.

- What is a basic comprehension question you might ask?
- What is **a more rigorous** question you might ask?

The Hess Cognitive Rigor Matrix

- **Bloom** – **What <u>type</u>** of thinking (verbs) is needed to complete a task?

- **Webb** – **<u>How deeply</u>** do you have to understand the content to successfully interact with it? How complex is the content?

Bloom's Taxonomy [1956] & Bloom's Cognitive Process Dimensions [2005]

Knowledge -- Define, duplicate, label, list, name, order, recognize, relate, recall	**Remember** Retrieve knowledge from long-term memory, recognize, recall, locate, identify
Comprehension -- Classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, review, select, translate	**Understand** -- Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, predict…
Application -- Apply, choose, demonstrate, dramatize, employ, illustrate, interpret, practice, write	**Apply** -- Carry out or use a procedure in a given situation; carry out or use /apply to an unfamiliar task
Analysis -- Analyze, appraise, explain calculate, categorize, compare, criticize, discriminate, examine	**Analyze** -- Break into constituent parts, determine how parts relate
Synthesis -- Rearrange, assemble, collect, compose, create, design, develop, formulate, manage, write	**Evaluate** -- Make judgments based on criteria, check, detect inconsistencies/fallacies, critique
Evaluation -- Appraise, argue, assess, choose, compare, defend, estimate, explain, judge, predict, rate, core, select, support, value	**Create** -- Put elements together to form a coherent whole, reorganize elements into new patterns/ structures

Webb's Depth-of-Knowledge Levels

- **DOK-1 – Recall & Reproduction** - Recall of a fact, term, principle, concept, or perform a routine procedure
- **DOK-2 - Basic Application of Skills/Concepts** - Use of information, conceptual knowledge, select appropriate procedures for a task, two or more steps with decision points along the way, routine problems, organize/display data, interpret/use simple graphs
- **DOK-3 - Strategic Thinking** - Requires reasoning, developing a plan or sequence of steps to approach problem; requires some decision making and justification; abstract, complex, or non-routine; often more than one possible answer
- **DOK-4 - Extended Thinking** - An investigation or application to real world; requires time to research, problem solve, and process multiple conditions of the problem or task; non-routine manipulations, across disciplines/content areas/multiple sources

DOK IS ABOUT COMPLEXITY—NOT DIFFICULTY!

- ***Describe*** the process of evaporation
- ***Describe*** how the two characters are alike and different.
- ***Describe*** the text evidence that supports your conclusions about the author's perspective
- ***Describe*** the most significant effect of WWII on the nations of Europe.

The Hess Cognitive Rigor Matrix Applies Webb's DOK to Bloom's Cognitive Process Dimensions

Depth + Thinking	Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking / Reasoning	Level 4 Extended Thinking
Remember	- Recall, locate basic facts, details, events			
Understand	- Select appropriate words to use when intended meaning is clearly evident	- Specify, explain relationships - summarize – identify main ideas	- Explain, generalize, or connect ideas using supporting evidence (quote, example…)	- Explain how concepts or ideas specifically relate to other content domains or concepts
Apply	- Use language structure (pre/suffix) or word relationships (synonym/antonym) to determine meaning	– Use context to identify meaning of word - Obtain and interpret information using text features	- Use concepts to solve non-routine problems	- Devise an approach among many alternatives to research a novel problem
Analyze	- Identify whether information is contained in a graph, table, text feature, etc.	– Compare literary elements, terms, facts, events – analyze format, organization, & text structures	- Analyze or interpret author's craft (literary devices, viewpoint, or potential bias) to critique a text	– Analyze multiple sources - Analyze complex/abstract themes
Evaluate			– Cite evidence and develop a logical argument for conjectures	- Evaluate relevancy, accuracy, & completeness of information
Create	- Brainstorm ideas about a topic	- Generate conjectures based on observations or prior knowledge	- Synthesize information within one source or text	- Synthesize information across multiple sources or texts

LET'S PRACTICE

Your class has just read some version of *Little Red Riding Hood*.

What is a basic comprehension question you might ask?

What is a more rigorous question you might ask?

HANDOUT 1 & 2

Depth + Thinking	Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking / Reasoning	Level 4 Extended Thinking
Remember	What color was Red's cape? **Who is this story about?**			
Understand	**Who are the characters?** What was the story's setting?	Retell or summarize the story in your own words.		
Apply		Identify words/phrases that helped you to know the sequence of events in the story.		
Analyze	Is this a realistic or fantasy story?	Compare the wolf character to the character of Red. How are they alike-different?	Is this a realistic or fantasy story? Justify your interpretation using text evidence.	Are all wolves (in literature) like the wolf in this story? Support your response using evidence from this and other texts.
Evaluate			What is your opinion about the cleverness of the wolf? Justify your opinion using text evidence.	
Create		Write a telephone conversation between Red and her mother to explain the wolf incident.		

Some general rules of thumb…

- If there is one correct answer, it is probably level DOK 1 or DOK 2

- If more than one solution/approach, <u>requiring</u> evidence, it is DOK 3 or 4

Where is more rigor implied in the *Common Core*?

Common Core – Reading Standards

Depth + Thinking	Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking / Reasoning	Level 4 Extended Thinking
Remember	KEY DETAILS			
Understand	KEY DETAILS WORD MEANINGS- fill in	CENTRAL IDEAS	REASONING & SUPPORT	REASONING & SUPPORT –multiple texts
Apply	WORD MEANINGS- roots, affixes, structure, synonyms-antonyms	WORD MEANINGS- use in context USE TEXT STRUCTURES & FEATURES	TEXT STRUCTURES & FEATURES	REASONING & SUPPORT –multiple texts
Analyze		COMPARE TEXT STRUCTURES & FEATURES LANGUAGE USE- identify non literal usage	ANALYSIS & REASONING WITHIN TEXTS LANGUAGE USE- interpret non literal usage	ANALYSIS & REASONING ACROSS TEXTS
Evaluate			AUTHOR's CRAFT WITHIN TEXT (e.g., LANGUAGE USE- impact/intent)	EVALUATE AUTHOR's PURPOSE or CRAFT ACROSS TEXTs
Create				

How can we apply these ideas back in our schools?

INCREASINGLY COMPLEX TEXT-BASED QUESTIONS

- Sample SBAC Assessment targets, grade 3
  - Literary texts: targets #1-#7
  - Informational texts: targets #8-#14

HANDOUT 3

FOR EACH DISCUSSION QUESTION, TASK, OR RUBRIC…ASK

- What is its purpose?
- What is the implied/intended rigor? (What mental processing would you expect students to engage in? *Use the CRM to find descriptors*)
- When or where could this be used in the classroom? (discourse/open-ended tasks)

FOR EACH DISCUSSION QUESTION, TASK, OR RUBRIC…ASK

- Which standards does it REALLY assess? (content **+ intended rigor**)
- What would student responses tell a teacher if students could/could not do all or part of this task? (discourse/open-ended tasks)

How Can You Apply What was Discussed?

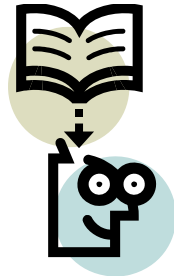
- Revisit your definition of rigor – has it changed? In what ways?

- What existing curriculum or assessment materials or learning activities could you examine for how cognitive rigor is being applied?

Take-Away Message: Cognitive Rigor & Some Implications for Assessment

- Begin with DOK3 classroom discourse!
- Performance assessments can offer varying levels of DOK embedded in a larger, more complex task
- Planned/strategic formative strategies and tools can/should focus on differing DOK levels

RESOURCES



Many papers and presentations available at www.nciea.org or contact Karin Hess khess@nciea.org or Kar_hes@msn.com 802-899-5238

- Hess, K. (2004). "Applying Webb's Depth-of-Knowledge (DOK) Levels in social studies and science" [online]:
  http://www.nciea.org/publications/DOKsocialstudies_KH08.pdf
  http://www.nciea.org/publications/DOKscience_KH11.pdf

- *Little Red Riding Hood* handout
  http://www.nciea.org/publications/Little%20Red%20Riding%20Hood-CRM_KH11.pdf

- Achievethecore.org—Student Achievement Partners provides modules for professional development and other valuable CCSS resources.