

# Common Core Professional Development

Loma Portal Elementary

May 16, 2014

+ Welcome Video  
Superintendent Marten



# + As a District We Know....

- Sites must keep connected to the standards/frameworks in all content areas while paying close attention to the academic build between grade levels.
- Speaking and Listening Standards apply across all content areas.
- Students who are College and Career Ready are able to demonstrate all the Literacy, Mathematical, and Next Generation Science Practices in a cross-curricular manner.



# + What is DOK (Depth of Knowledge)?



- DOK was developed by Norman L. Webb. Webb is a senior research scientist with the Wisconsin Center for Education Research and the National Institute for Science Education.
- DOK is based on, but not identical to the work of Bloom (1956)
- DOK measures the degree to which knowledge is elicited from students.
- DOK is a common language educators use to describe the complexity of test items.



# + Let's Begin with a Study of Depth of Knowledge

■ We will:

■ Learn background information

■ Watch a video

■ Review DOK levels

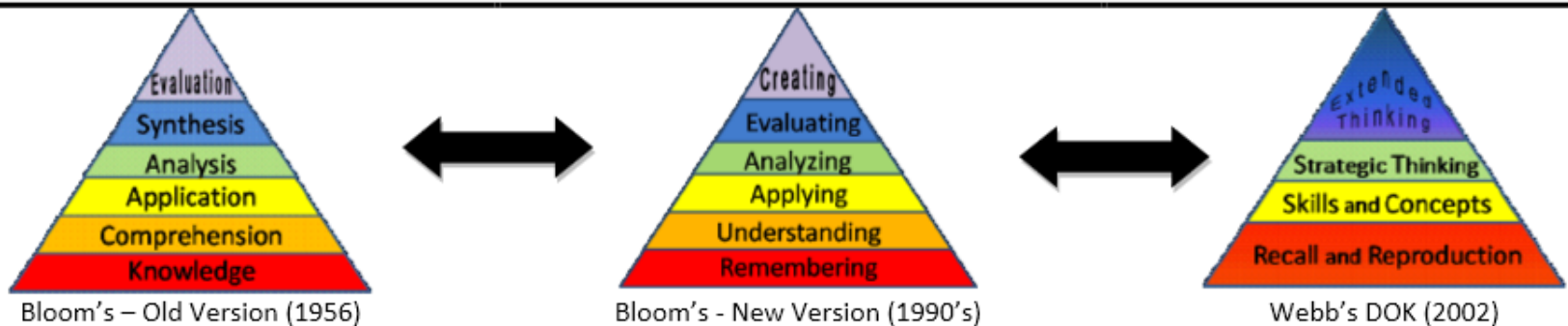
■ Apply the knowledge to our most recent PLC or grade level work



# + The Wheel

- DOK is NOT determined by the verb, but by the context in which the verb is used and the depth of thinking required.
- DOK IS about what follows the verb.
- The intended student learning **OUTCOME** determines the DOK level.

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



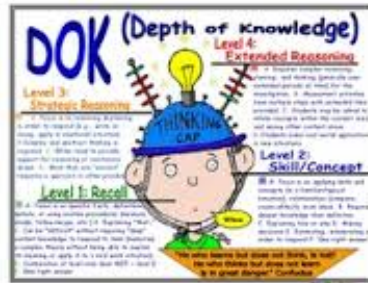
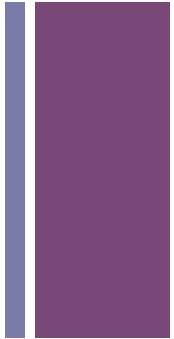
Source: <http://www.paffa.state.pa.us/PAAE/Curriculum%20Files/7.%20DOK%20Compared%20with%20Blooms%20Taxonomy.pdf>

## Depth of Knowledge (DOK) Levels





# Same Verb—Three DOK Levels



- DOK 1-**Describe** three characteristics of metamorphic rocks
  - Requires simple recall
- DOK 2-**Describe** the difference between metamorphic and igneous rocks.
  - Requires cognitive processing to determine the differences in the two rock types
- DOK 3-**Describe** a model that you might use to represent the relationships that exist within the rock cycle.
  - Requires deep understanding of rock cycle and a determination of how best to represent it.



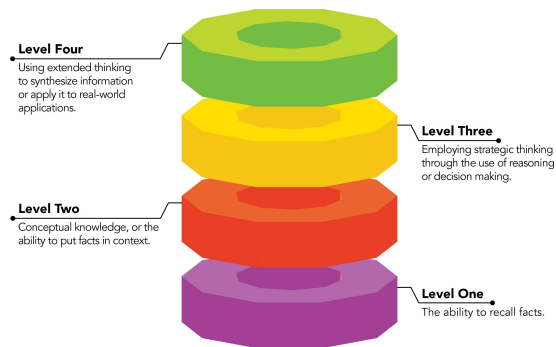
# + What is Depth of Knowledge

## Webb's DOK Levels

- Recall and Reproduction: Level 1
  - Skills and Concepts: Level 2
  - Strategic Thinking: Level 3
- 
- Extended Thinking: Level 4

# + DOK: Depth of Knowledge

- CST focused mainly on DOK 1 and DOK 2
- Smarter Balanced (SBAC) assessments place more emphasis on DOK 3 and DOK 4
- DOK is not an exact science.
- DOK is not about difficulty but more about the thinking process.



# + DOK Level 1- Recall and Reproduction



## ■ Products

- Definition
- Fact
- Label
- List
- Categorize
- Outline
- Highlighting

## ■ Teacher

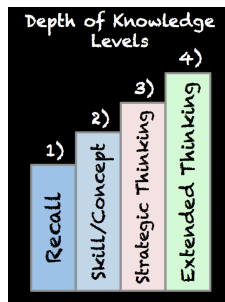
- Tells
- Directs
- Shows
- Questions
- Demo
- Compares
- Listens

## ■ Student

- Responds
- Remembers
- Memorizes
- Restates
- Describes
- Recognizes
- Recalls

## ■ Activities

- Make a timeline
- Write definitions
- Recite a fact
- Write in your own words
- Paraphrase a chapter in the book
- Outline the main points
- Use a basic calculation
- Basic measurement
- Make a chart



# DOK Level 2- Skill/Concept



## ■ Products

- Demonstration
- Interview
- Illustration
- Simulation
- Performance
- Model

## ■ Teacher

- Shows
- Observes
- Organizes
- Facilitates
- Questions

## ■ Student

- Solve Problems
- Calculates
- Completes
- Constructs
- Demonstrates
- Compiles
- Illustrates

## ■ Activities

- Construct a model to demonstrate how something looks or works
- Practice a play and perform
- Make a diorama to illustrate an event
- Make a map
- Make up a puzzle or game about a topic
- Routine application tasks
- In writing, explain the meaning of
- Make a flowchart
- Write a biography
- Use the steps of the writing process

### DEPTH OF KNOWLEDGE (DOK)

- Recall
- Basic Application
- Strategic Thinking
- Extended Thinking



# DOK Level 3- Strategic Thinking

## ■ Products

- Spreadsheet
- Graph
- Survey
- Mobile
- Report
- Debate
- Publishing

## ■ Teacher

- Probes
- Observes
- Acts as a resource
- Clarifies
- Guides
- Questions
- Dissects

## ■ Student

- Discusses
- Debates
- Examines
- Judges
- Justifies
- Uncovers
- Questions
- Disputes
- Decides

## ■ Activities

- Use a Venn diagram that shows how two topics are the same and different
- Design a questionnaire
- Conduct a survey
- Classify actions of characters
- Prepare a list of criteria to judge
- Write a persuasive speech
- Write a commercial to convince others to purchase your product
- Tasks that involve proposing solutions or making predictions
- Design something



# DOK Level 4- Extended Thinking

## ■ Products

- Film
- Story
- Project
- Plan
- Game
- Media product
- Song

## ■ Teacher

- Facilitates
- Reflects
- Evaluates
- Extends
- Analyses

## ■ Student

- Designs
- Takes risks
- Proposes
- Formulates
- Modifies
- Plans
- Creates

## ■ Activities

- Formulate and test hypotheses over time
- Research writing
- Collaborate with a group
- Persuasive writing
- Develop a menu for a new restaurant
- Participate in an internship
- Analyze multiple sources of evidence and draw a conclusion;; support conclusion





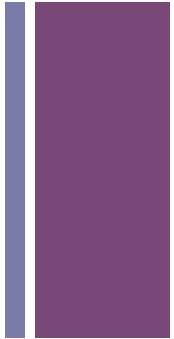
# DOK 1 and 2 Question Prompts

- Who...?
- What?
- When...?
- Where...?
- How...?
- Did...?
- Can you recall...?
- When did \_\_\_\_ happen?
- Who was...?
- How can you recognize...?
- What is...?
- How can you find the meaning of?
- How would you...?
- Who discovered...?
- What is the formula for...?
- Can you identify...?
- How would you describe...?
- What caused...to happen?
- How would you compare/contrast?
- How are ...alike/different?
- How would you classify...?
- What can you say about...?
- What is the pattern...?
- How would you summarize...?
- What steps are needed to edit...?
- How would you estimate...?
- How could you organize...?
- What do you notice about...?
- Do you know another instance where...?
- Could this have happened in...?
- Can you group by characteristics...?





# DOK 3 and 4 Question Prompts



- Support...with details and examples
- What facts would you select from the text to support...?
- Explain...
- Justify...
- What is the best answer? Why?
- What conclusions can you draw?
- Can you predict the outcome if...?
- What would happen if...?
- Can you see a possible solution?
- How would you verify...?
- Is there a better solution for...?
- Can you elaborate on the reason...?
- Formulate a theory for...?
- What is your interpretation of...?
- How can we solve...?
- How can we improve...?
- How many ways can you...?
- What is another way...?
- What are the features of...?
- How is....related to...?
- Why do you agree or disagree?
- Prove or disprove...
- Develop a logical argument.
- Compare....Contrast....
- How would you describe the sequence of...?



# Now 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 CR Matrix: A Reading Example

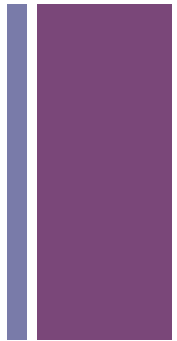
Back to *Little Red Riding Hood*...

Depth + thinking	Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking/ Reasoning	Level 4 Extended Thinking
<b>Remember</b>	-Recall facts			
<b>Understand</b>	-Identify characters, setting, etc.	-Retell or summarize...		
<b>Apply</b>				
<b>Analyze</b>		-Compare-contrast		-Analyze multiple texts/sources & using text evidence for support
<b>Evaluate</b>			-Justify judgments using details/evidence from text	
<b>Create</b>		-Develop a creative summary		



# Depth of Knowledge (DOK)

Promoting Rigor and Relevance in Learning



## DOK 1

### Routine Thinking

- Can you recall \_\_\_?
- Can you identify \_\_\_?
- How would you describe \_\_\_?
- What might you include on a list about \_\_\_?
- Can you select \_\_\_?
- How can you find the meaning of \_\_\_?

arrange    calculate    memorize  
 measure    name    recognize  
 recall    repeat    identify  
 illustrate    match    label  
 state    list    state

## DOK 2

### Conceptual Thinking

- Can you explain how \_\_\_ affected \_\_\_?
- How would you apply what you learned to develop \_\_\_?
- How would you summarize \_\_\_?
- What do you notice about \_\_\_?
- How would you estimate \_\_\_?
- How could you organize \_\_\_?

compare    classify    categorize  
 measure    graph    distinguish  
 predict    modify    construct  
 organize    infer    summarize  
 interpret    make observations

## DOK 3

### Strategic Reasoning

- How is \_\_\_ related to \_\_\_?
- What conclusions can be drawn?
- Can you elaborate on \_\_\_?
- How would you test \_\_\_?
- What evidence supports \_\_\_?
- What would happen if \_\_\_?
- Why is that the best answer?

assess    compare    construct  
 apprise    revise    hypothesize  
 critique    investigate  
 draw conclusions  
 develop a logical argument

## DOK 4

### Extended Reasoning

- Write a research paper.
- What information can you gather to support your idea about \_\_\_?
- Write a thesis, drawing conclusions from multiple sources.
- Apply information from one text to another to develop an persuasive argument.

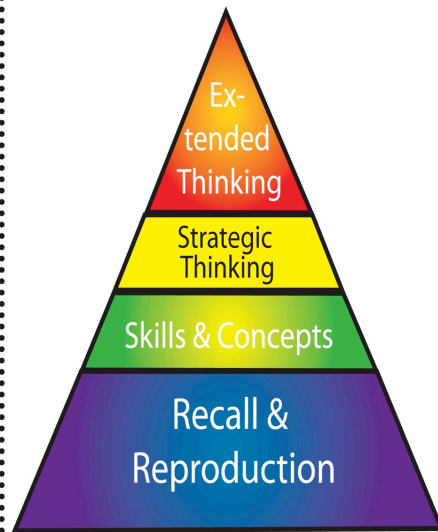
design    connect    prove  
 analyze    critique    synthesize  
 create    apply concepts



# After watching the video...

- With a your grade level team review the:
  - Depth of Knowledge (DOK) Level Wheel
- What are the implications for instruction and student learning?

## Webb's Depth of Knowledge (DOK)



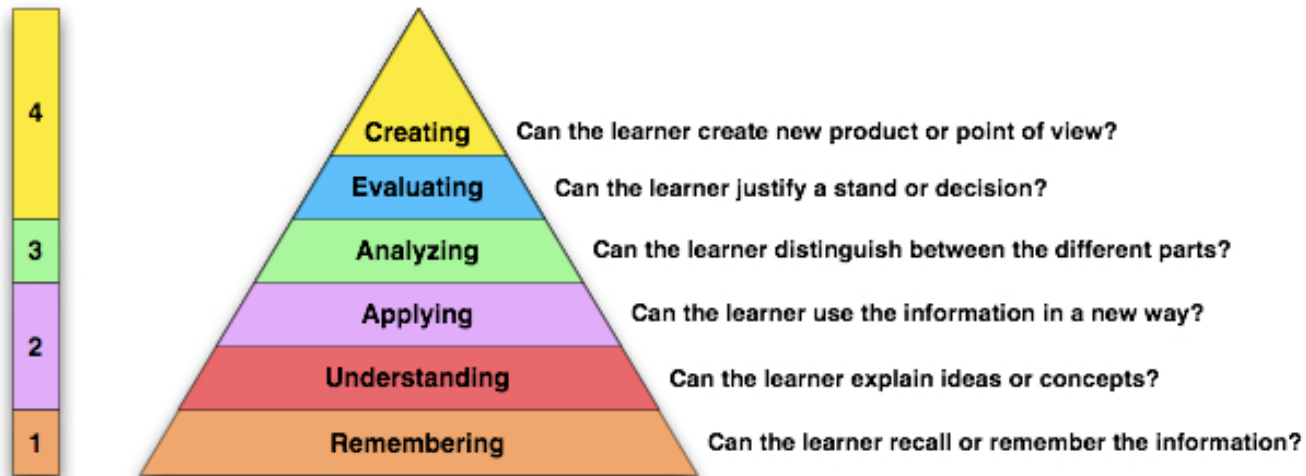
4. Extended Thinking: Students take information from multiple sources and are asked to apply this information to a new task that requires complex thinking, usually over time. (Ex. A project-based-learning activity or a research paper. )
3. Strategic Thinking: Can the student think beyond the text to his world or another text for an answer, or adapt the text to create something new? Can he explain, generalize, or connect ideas from one text to another? Can he evaluate text, formulate opinions, and then explain them?
2. Skills & Concepts: Can the student think beyond recalling a fact? Students may be asked to interpret, infer, classify and categorize, organize, compare & contrast, and determine whether fact or opinion, predict, determine cause & effect, apply, reconstruct or sequence a story.
1. Recall & Reproduction: Can the student recall a simple fact from the story? Requires a shallow understanding and no analysis.



# Additional Articles/Resources

- To read further about Critical Thinking and Depth of Knowledge consider the following resources:
  - *A Guide fro Using Webb's Depth of Knowledge with Common Core State Standards* (Hess)
  - *Depth of Knowledge Levels for Four Content Areas* (Webb)

**Relationship between Depth of Knowledge and Bloom's Taxonomy**



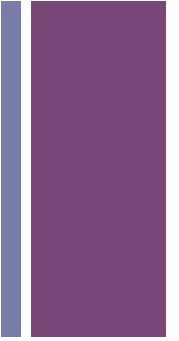
DoK Levels

New Version of Bloom's Taxonomy

[http://www.odu.edu/educ/lschult/blooms\\_taxonomy.html](http://www.odu.edu/educ/lschult/blooms_taxonomy.html)

Depth of Knowledge was developed through a ten-state grant initiative to streamline Bloom's taxonomy to facilitate state-wide assessments.







**BASIC**

- Use a variety of DOK levels to differentiate or challenge students' problem-solving skills (often represented by the number 1)
- DOK level is not "adding" or "subtracting" to or from the content. It is a way to describe the cognitive demand of a task.

**STRATEGIC THINKING**

- Use reasoning and problem-solving skills to solve a problem (often represented by the number 2)
- Use a variety of DOK levels to differentiate or challenge students' problem-solving skills (often represented by the number 3)

**EXTENDED THINKING**

- Requires complex reasoning, problem-solving, and problem-solving skills (often represented by the number 4)
- Use a variety of DOK levels to differentiate or challenge students' problem-solving skills (often represented by the number 4)

**BASIC APPLICATIONS**

- Focus on applying skills and concepts to real-world situations (often represented by the number 1)
- Use a variety of DOK levels to differentiate or challenge students' problem-solving skills (often represented by the number 1)

**DEPTH OF KNOWLEDGE**

Extra Slides Just For Fun!

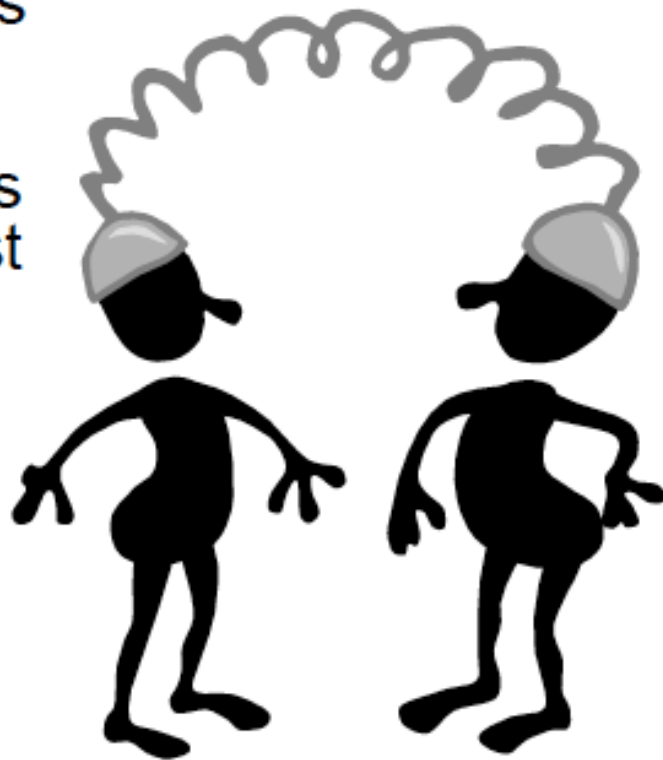


# How to Ask HOT Questions

Often Level 1 & 2 students are denied access to higher level questions because they still have difficulty with skills

However, higher level thinking questions are sometimes easier for level 1 & 2 students to answer because open ended questions have more entry points and require more “think time” by the rest of the class.

When a class is heavily focused on recall questions, lower readers may be limited because of their need for processing time.



# Suggestions for Drafting Questions at Higher Levels

- Model Thinking Process Explicitly
  - for some students learning what is required will remain a mystery unless taught explicitly
- Use Advance Organizers
  - Using note-taking and graphic organizers BEFORE the lesson can cue students as to what to expect
  - Questions and agendas can also be used to help students anticipate what to look for in the coming lesson
- Use Concept Mapping
  - Concept Mapping provides students with a framework for visualizing thinking.



# Questioning Strategies That Provoke HOT

- Require students to **manipulate prior information**
  - Why do you suppose.....?
  - “What can you conclude from the evidence?”
- Ask students to **state an idea or definition in their own words.**
- Ask questions that **require a solution to a problem.**
- Involve students in **observing and describing an event or object.**
  - “What do you notice?”
  - “Tell me about this.”
  - “What do you see?”
- Ask students to **compare or contrast.**



# Tips for Creating High-Level Questions

The following simple tips can get ALL students involved in the lesson and help them gain a deeper understanding of the content by challenging them to think critically.

1. Create a “HOT” Question for Each Lesson
2. Require ALL students to answer the question (“all-write” strategy).
3. Require students to defend answers.
4. Differentiate questions as appropriate.
5. Promote examination of new and different perspectives.



Even though level 4 emphasizes extended time, this alone is not the distinguishing factor

Task	Type of Thinking
Collecting data samples over several months	Recall
Organizing the data in a chart	Skills and/or strategies
Using the chart to make or justify predictions	Strategic thinking
Develop a generalized model from the data and applying it to a new situation	Extended thinking

# Some general rules of thumb



- **If there is only one correct answer, it is probably level DOK 1 or DOK 2**
  - DOK 1: you either know or you don't
  - DOK 2 (conceptual): apply one concept, then make a decision before going on *applying a second concept*
- **If more than one solution/approach, requiring evidence, it is DOK 3 or 4**
  - DOK 3: Must provide supporting evidence and reasoning (not just HOW solved, but WHY – explain reasoning)
  - DOK 4: all of “3” + use of multiple sources or texts

# You Can Ask Higher DOK Questions

- Require students to **manipulate prior information**
  - Why do you suppose... ..?
  - What can you conclude from the evidence?
- Ask students to state an idea or definition **in their own words.**
- Ask questions that **require a solution to a problem.**
- Involve students in **observing and describing** an event or object
  - What do you notice?      Tell me about this.      What do you see?
- Ask students to **compare or contrast**