What I Know Now That I Wish I Knew Then – All Things Assessment Literacy

Kent State University

Ohio | Department of Education

Welcome and Introductions

Tom Rounds

Ohio Department of Education
Northeast Ohio Field Specialist

thomas.rounds@esc-cc.org

Learning Goals

Understand Rigor and Cognitive Complexity of the Standards

Using Depth of Knowledge (DOK)

Unpacking the Standards

- How do I know what to teach and how to teach it?

- What will my students say, do, or write to show mastery?

Not So Complex Standards

- Compare two numbers between 1 and 10 presented as written numerals.

- Capitalize dates and names of people.

- People earn income by working.

- Use different body parts to strike a lightweight object (such as a balloon) and keep it in the air.

Ohio | Department of Education

Complex Standards

- Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of the comparison. (CCSS Grade 2 Math)

- Apply multiple criteria to evaluate the quality and effectiveness of music performance and composition including their own. (ONLS Music grade 7)

Complex Standards

Clear focus **+** Clear learning targets **=**

Clear instruction for on-target learning

Complex Standards…

1. Unpack
   Underline the **content**
   Circle the **skills**, or **verbs**.

2. Write learning targets
   Use student-friendly language
   Keep essential vocabulary
   Maintain rigor

Alignment

What do I want my students **to know** and **be able to do**?

Content

Skills

Content and Skills

Identify **Skills**

who is telling the story at various points in a text. **Content**

Battelle for Kids
Bringing clarity to school improvement

Ohio | Department of Education

Grade 5

RI.5.2: Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

Learning Targets

- I can **determine** the central idea.
- I can **determine** the theme.
- I can **analyze** the development of theme and central idea.
- I can **summarize** key supporting details.
- I can **summarize** key ideas.

Is This Item Aligned?

K.G2: Correctly name shapes regardless of their orientations or overall size. (CCSS)

- Show me the triangles.
- Show me the pentagons.
- Show me the cylinders.

Ohio | Department of Education

Powered by RttT
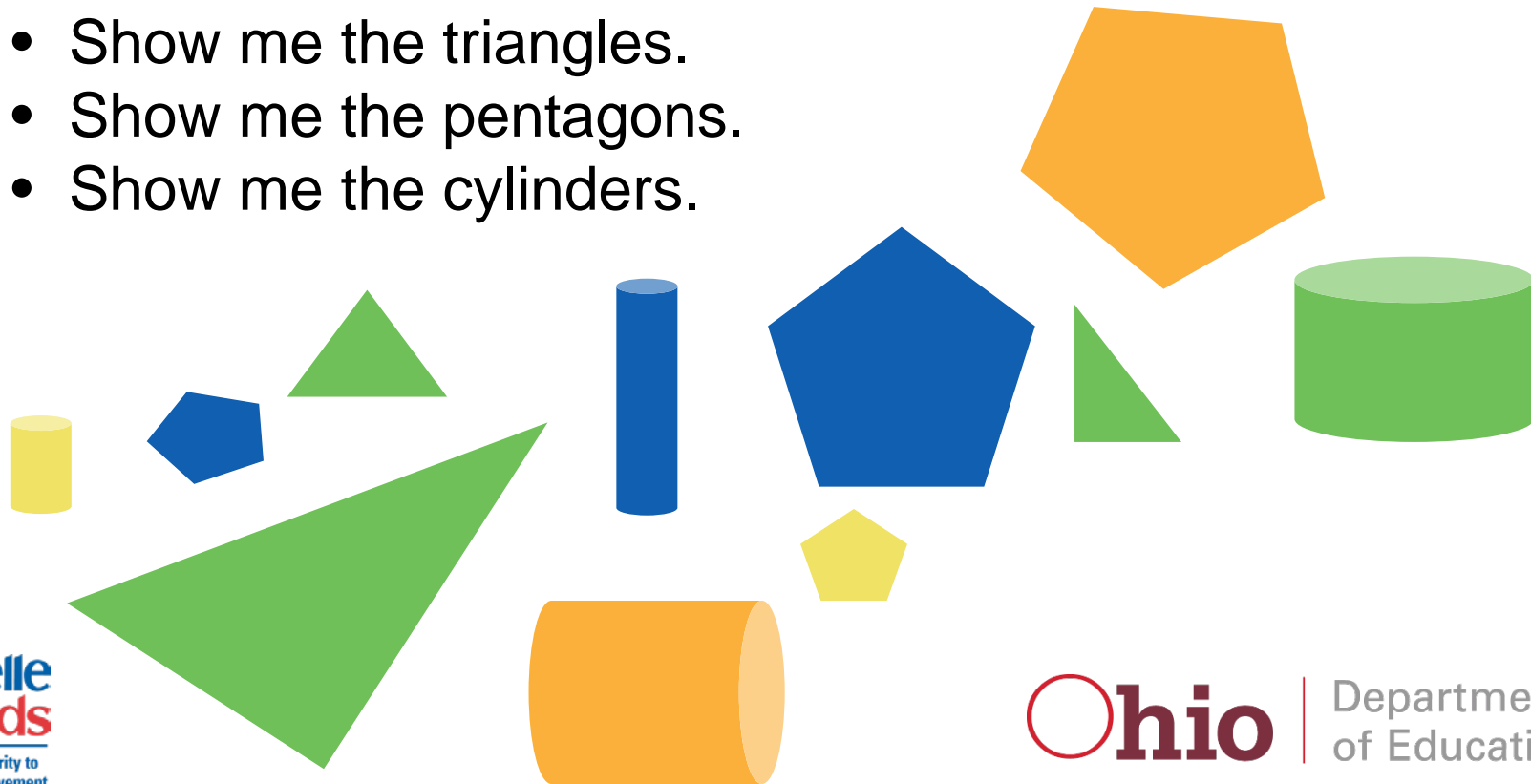
Is This Item Aligned?

3.L.4a: Use sentence-level context as a clue to the meaning of a word or phrase. (CCSS)

Aaron decided to compete in a *decathlon*.

What is a *decathlon*?

_____

_____

Battelle for Kids
Bringing clarity to school improvement

Ohio | Department of Education

Powered by RttT

Is This Item Aligned?

LS 5.2: Use food webs to identify the relationships among producers, consumers and decomposers in an ecosystem. (ONLS)


rabbit

tiger

earthworm

grass and flowers

3. Which of the choices below describes the roles of the four organisms in the correct order from left to right?

   A. consumer, consumer, decomposer, producer
   B. decomposer, consumer, consumer, producer
   C. producer, consumer, consumer, decomposer

Department of Education

Powered by RttT

Is This Item Aligned?

Analyze the causes and consequences of major political, economic and social developments of the 1930's with emphasis on the Dust Bowl. (OACS)

Which of the following areas was most associated with "the Dust Bowls" of the 1930s?
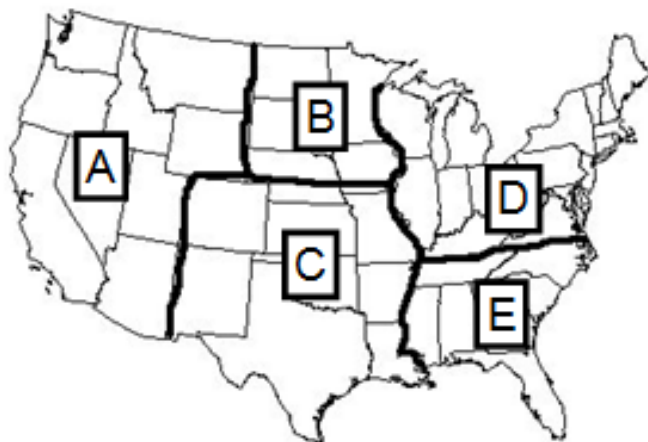
a. Area marked A
b. Area marked B
c. Area marked C
d. Areas marked by D and E

Developing a Trained Eye

Analyze alignment claims

ALL NEW!
Now aligned to the National Common Core State Standards!

Powered by RttT

Depth of Knowledge

Level of Complexity

- Bloom's Taxonomy focuses on the type of thinking required to successfully answer the assessment item.
- Webb's Depth of Knowledge focuses on how deeply the content must be understood in order to be successful.
- Both the thinking process (Bloom's) and the depth of content knowledge (Webb's) are important to the design of curriculum, instruction, and assessment.

Hess, K., Carlock, D., Jones, B., Walkup, J. (2009). What exactly do "fewer, clearer, and higher standards" really look like in the classroom? Using a cognitive rigor matrix to analyze curriculum, plan lessons, and implement assessments. Not yet published.

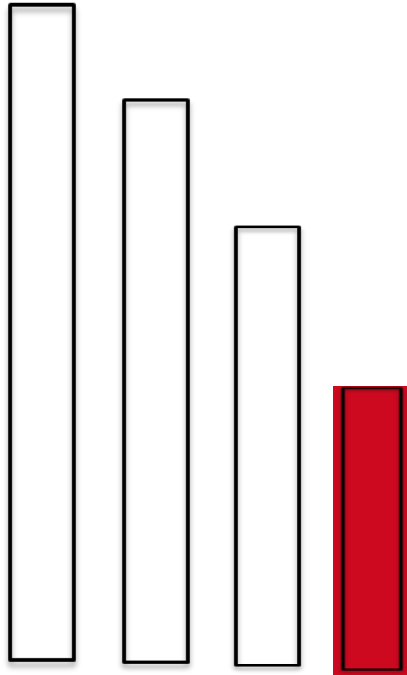Powered by RttT

What it is…
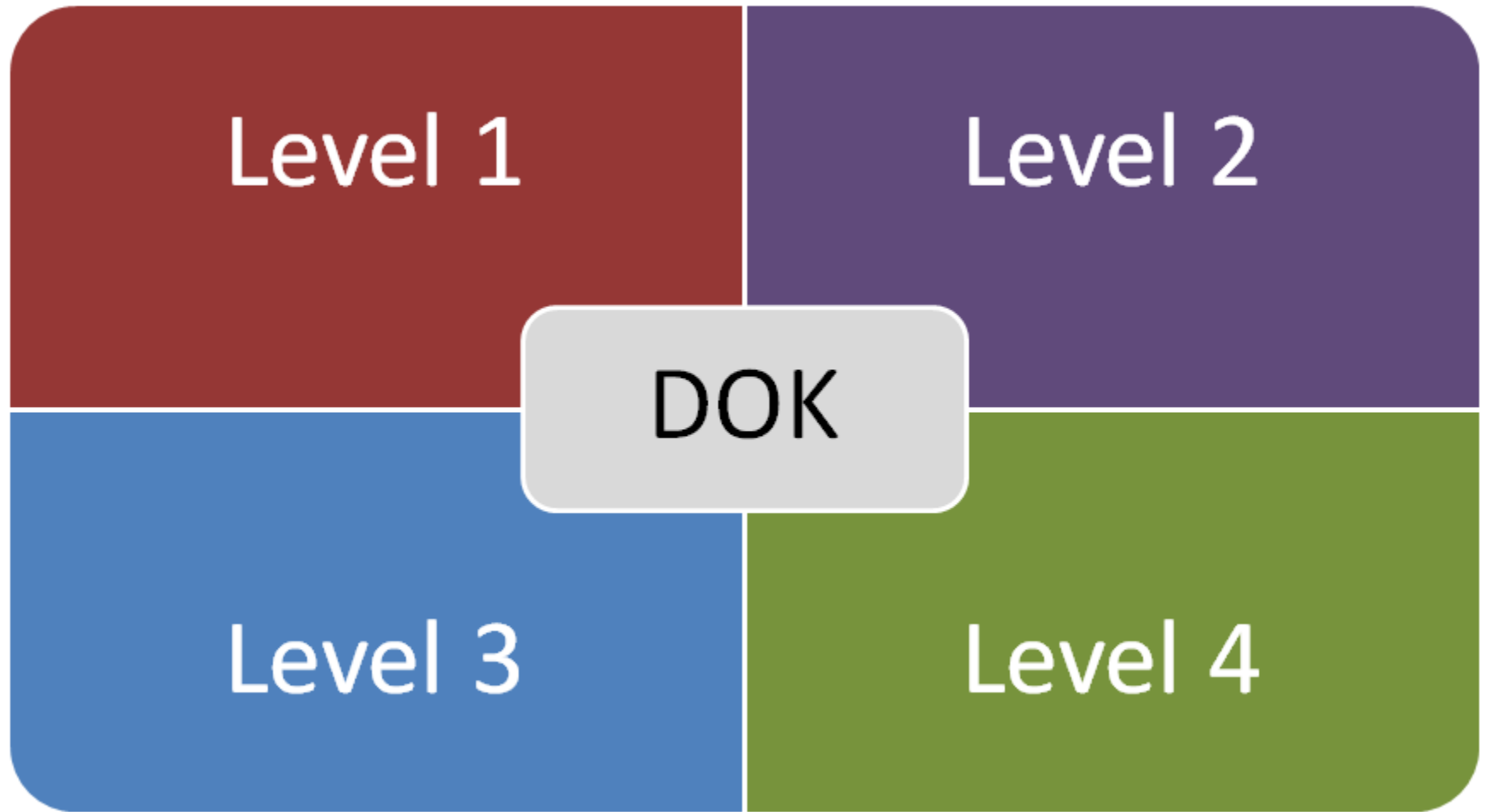
What Defines the Levels?

How deeply do the students need to understand the content to perform the task?

How deeply are the students interacting with the material?
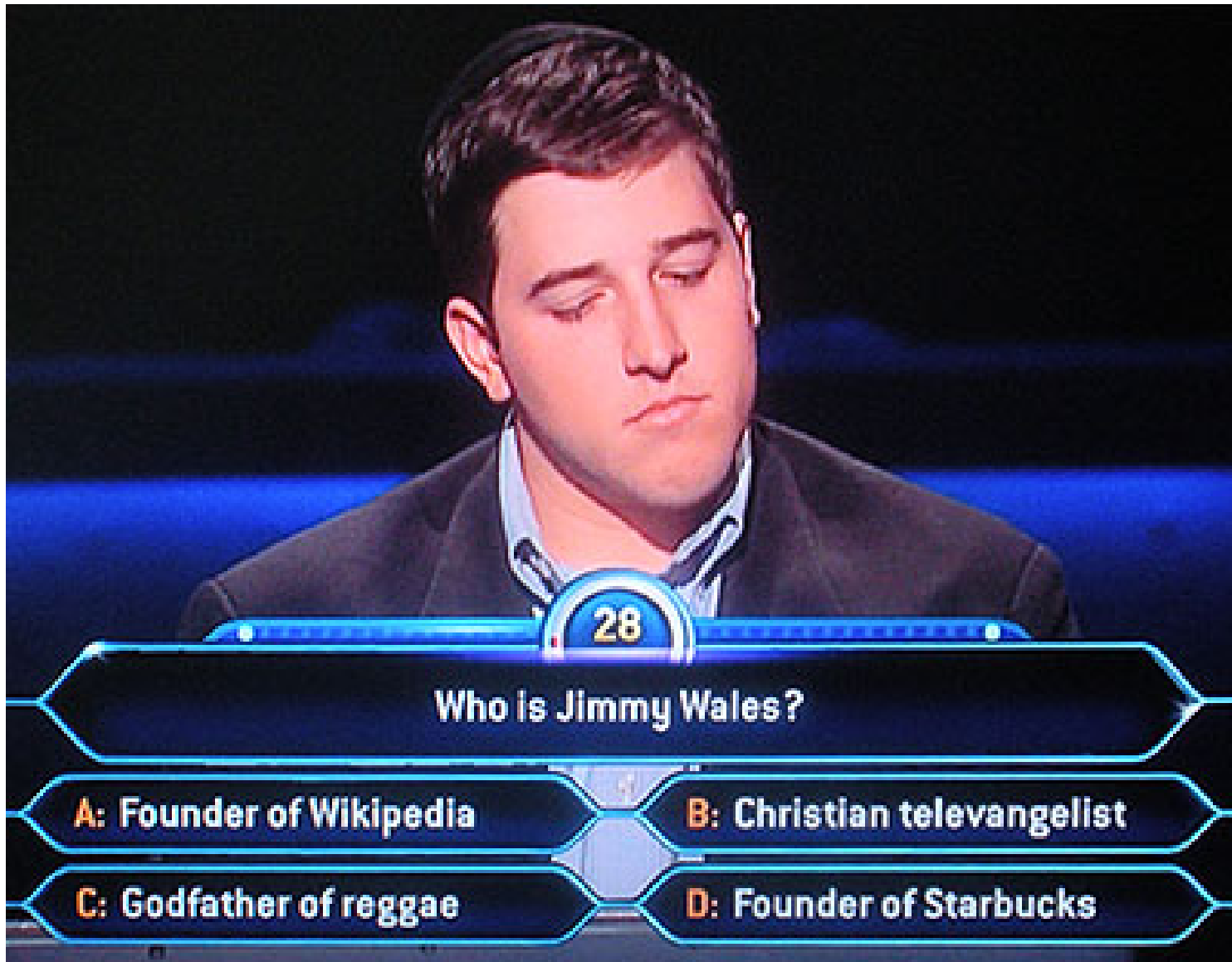
DOK Level 1

Routine Thinking

Recall and Reproduction

Jen Jones (2013); helloliteracy.blogspot.com

DOK Level 1

- Recall a fact, term, principle, concept, or perform a routine procedure.

- Follow a well-known rule, procedure, or formula.

- The answer is either right or wrong.

Ohio | Department of Education

DOK Level 1
Question Stems

- Recall the _____?
- When did _____happen?
- How can you recognize_____?
- Select the _____?
- How would you write _____?
- What is the formula for _____?
- Identify _____?
- How would you describe _____?

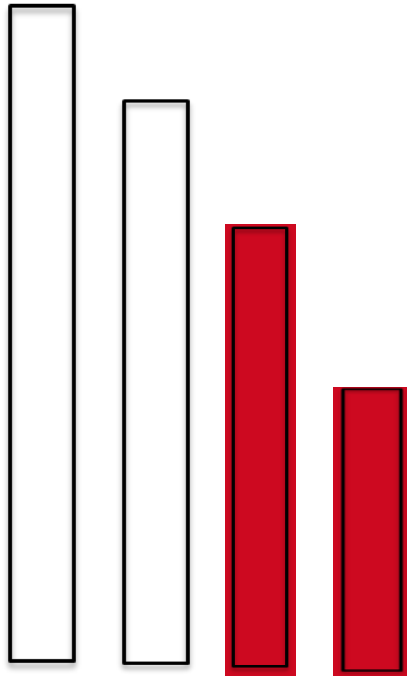**Ohio** | **Department of Education**

Level 1 Questions

- Name the parts of a cell.

- Based on the U.S. Constitution, which development would cause a state to gain representation in the House of Representatives?

We *do* need **DOK** Level 1 questions.
We *don't* need *JUST* **DOK** Level 1 questions.

DOK Level 2

Conceptual Thinking

Basic Application

Jen Jones (2013); helloliteracy.blogspot.com

DOK Level 2

- Use of information
- Select appropriate procedures
- Usually multiple steps
- Routine problems
- Apply 2+ concepts
- Make limited decisions
- One right answer or approach

DOK Level 2
Question Stems

- Explain how ___affects____?
- How would you apply what you learned to develop____?
- How would you compare/contrast____?
- How would you classify _____?
- How would you summarize _____?
- How could you organize ____?
- How would you estimate _____?
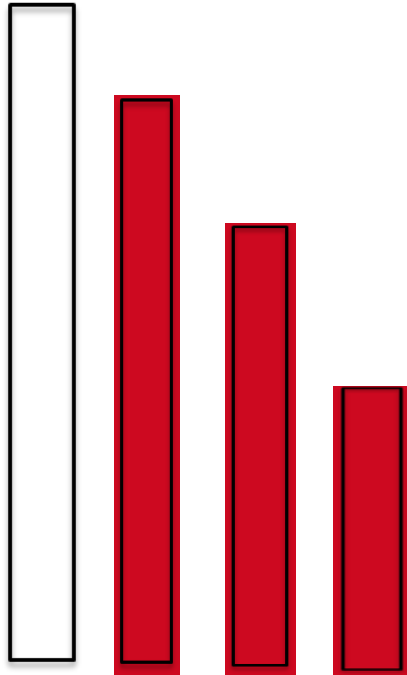
Level 2 Questions

- Write a paragraph summarizing the main ideas of the text.

- Nora is running a race that is 26.2 miles. She is running at a speed of 8 miles per hour. She has completed ¾ of the race. How much longer will it take Nora to finish the race?

YOU SHOULD KNOW:

Important Notice

79% of Ohio's New Learning Standards in Math are at DOK Level 2 by the 6th Grade.
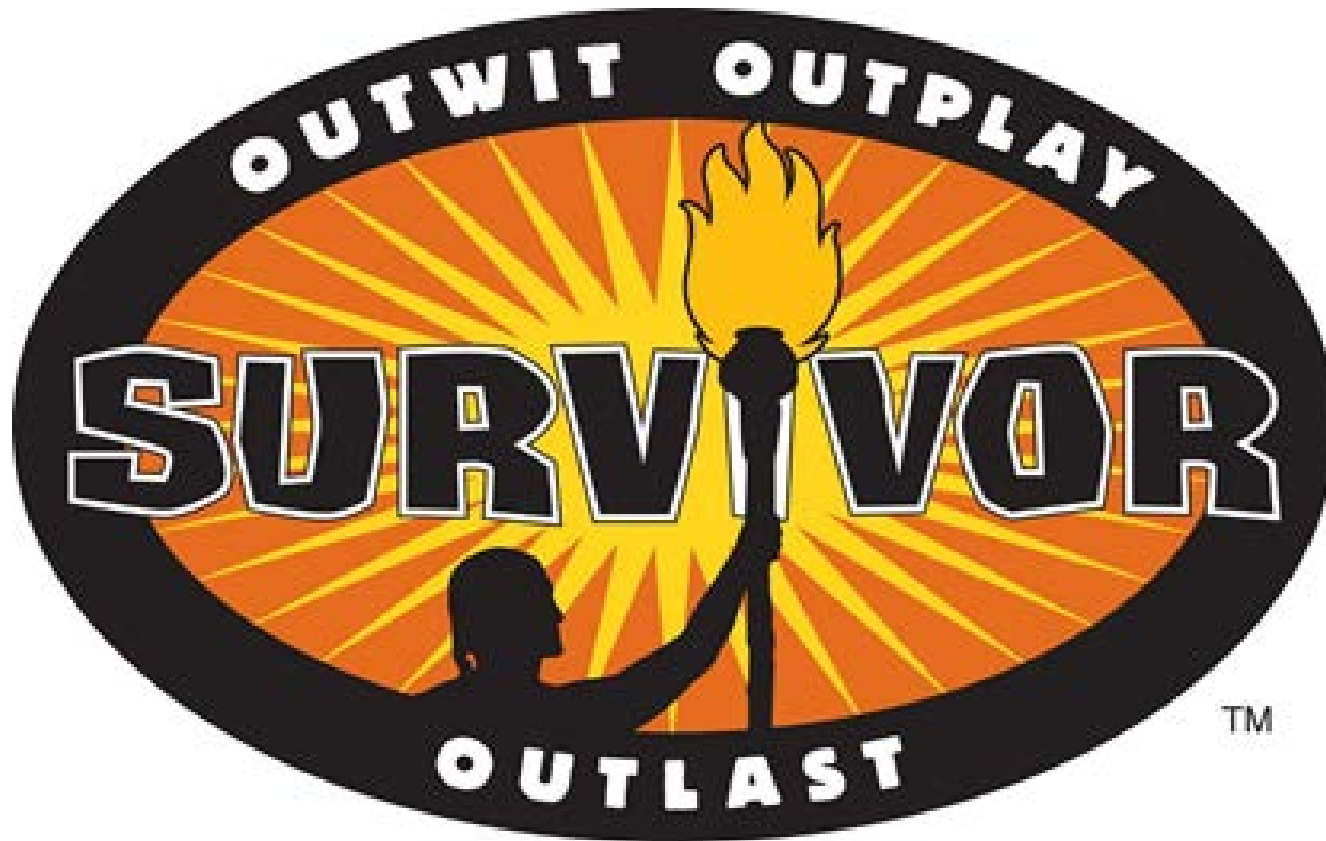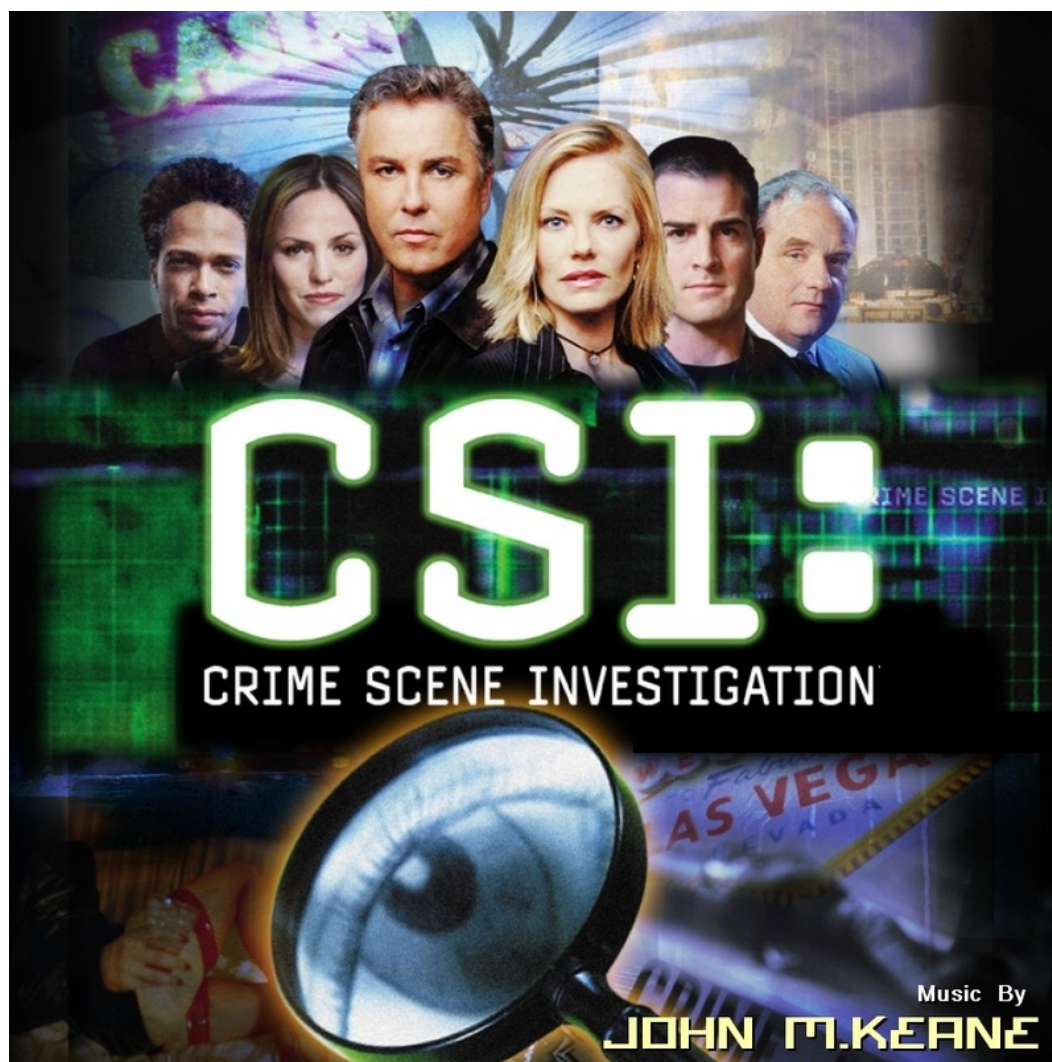
DOK Level 3

Strategic Thinking

Higher Level Application

Jen Jones (2013); helloliteracy.blogspot.com

DOK Level 3

- Requires reasoning
- Developing a plan to approach a problem
- Non-routine
- Involves making a claim and providing supporting evidence = "Back it up, Jack!"
- Often more than one possible approach or answer
- More student led

Depth of Knowledge Level 3

DOK 3 Tasks are like solving a mystery – looking for compelling evidence to support conclusions or to build a defensible argument.

 CSI - Each episode presents a non-routine case and solving it requires answering more complex questions than posed on Jeopardy or The Price is Right.

DOK Level 3
Question Stems

- How is____ related to ____?
- What conclusions can you draw about___?
- How would you adapt ___ to create a different _____?
- How would you test ____?
- Predict the outcome if _____?
- What is the best solution for ___? Why?

Level 3 Questions

- Is toothpaste a solid or a liquid? Conduct the following experiment, collect and analyze the data, analyze, make a claim, and support your claim with evidence.

- Make a booklet about five rules you see as important. Convince others.

YOU SHOULD KNOW:

83% of Ohio's New Learning Standards in ELA are at DOK Level 3 by the 6th Grade. (Other subjects connected in Literacy and Writing Standards as well).

DOK Level 4
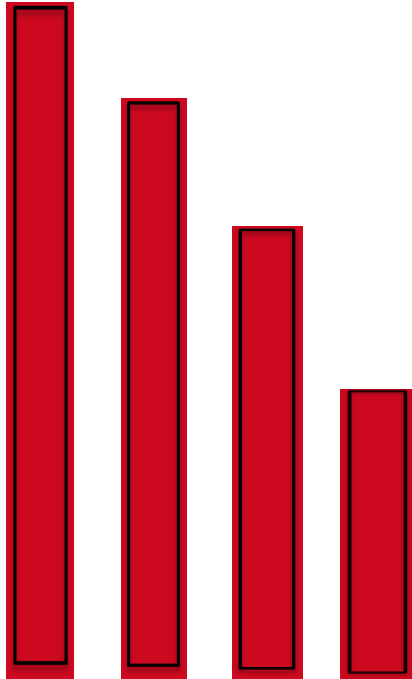
Extended Thinking

Real World Application

Jen Jones (2013); helloliteracy.blogspot.com

DOK Level 4

- Requires time to research, problem solve, and process multiple conditions of a task
- An original investigation or application to real world
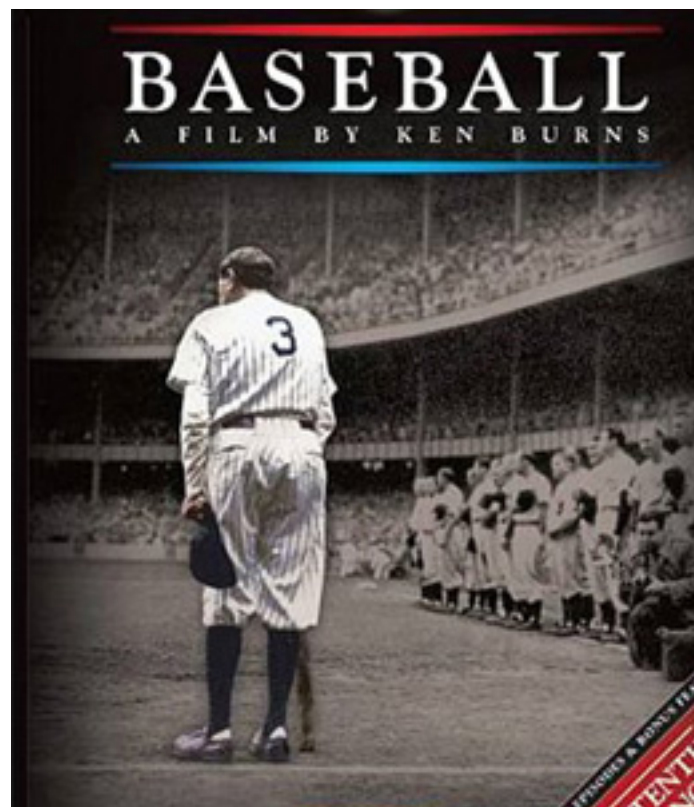- Requires significant conceptual understanding and application of skills across disciplines
- Often more than one possible approach or answer
- Multiple sources
- Mostly student led

Hess, Karin 2013 CRM

Ken Burns' Documentaries
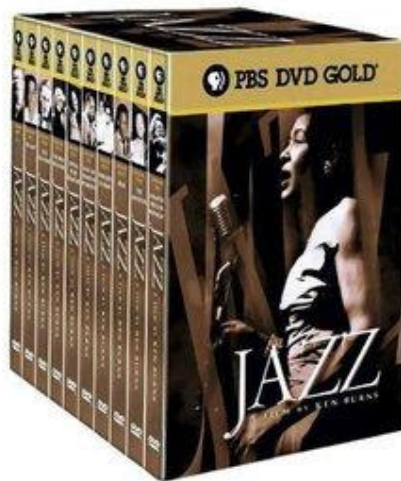
Level 4 Questions

Conduct an internship in industry where students are faced with real world, unpredictable problems.

You're hosting Thanksgiving this year. You will need to plan a dinner to feed 20 people and a 3-course meal for under $10/person that can be prepared in 6 hours or less. One guest is a vegetarian, one is on a gluten-free diet, two are diabetic, and one is allergic to tree nuts. All your guests should be able to enjoy each dish you serve. Be prepared to explain the choices you made.

Karin Hess – Cognitive Matrix

Table 2: Hess' Cognitive Rigor Matrix with Curricular Examples: Applying Webb's Depth-of-Knowledge Levels to Bloom's Cognitive Process Dimensions

Bloom's Revised Taxonomy of Cognitive Process Dimensions	Webb's Depth-of-Knowledge (DOK) Levels			
	Level 1 Recall & Reproduction	Level 2 Skills & Concepts	Level 3 Strategic Thinking/ Reasoning	Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	Recall, recognize, or locate basic facts, ideas, principles Recall or identify conversions: between representations, numbers, or units of measure Identify facts/details in texts			
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	Compose & decompose numbers Evaluate an expression Locate points (grid/ number line) Represent math relationships in words pictures, or symbols Write simple sentences Select appropriate word for intended meaning Describe/explain how or why	Specify and explain relationships Give non-examples/examples Make and record observations Take notes; organize ideas/data Summarize results, concepts, ideas Make basic inferences or logical predictions from data or texts Identify main ideas or accurate generalizations	Explain, generalize, or connect ideas using supporting evidence Explain thinking when more than one response is possible Explain phenomena in terms of concepts Write full composition to meet specific purpose Identify themes	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	Follow simple/routine procedure (recipe-type directions) Solve a one-step problem Calculate, measure, apply a rule Apply an algorithm or formula (area, perimeter, etc.) Represent in words or diagrams a concept or relationship Apply rules or use resources to edit spelling, grammar, punctuation, conventions	Select a procedure according to task needed 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 Use models to represent concepts Write paragraph using appropriate organization, text structure, and signal words	Use concepts to solve non-routine problems Design investigation for a specific purpose or research question Conduct a designed investigation Apply concepts to solve non-routine problems Use reasoning, planning, and evidence Revise final draft for meaning or progression of ideas	Select or devise an approach among many alternatives to solve a novel problem Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results Illustrate how multiple themes (historical, geographic, social) may be interrelated
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)	Retrieve information from a table or graph to answer a question Identify or locate specific information contained in maps, charts, tables, graphs, or diagrams	Categorize, classify materials Compare/ contrast figures or data Select appropriate display data Organize or interpret (simple) data Extend a pattern Identify use of literary devices Identify text structure of paragraph Distinguish: relevant-irrelevant information; fact/opinion	Compare information within or across data sets or texts Analyze and draw conclusions from more complex data Generalize a pattern Organize/interpret data: complex graph Analyze author's craft, viewpoint, or potential bias	Analyze multiple sources of evidence or multiple works by the same author, or across genres, or time periods Analyze complex/abstract themes Gather, analyze, and organize information Analyze discourse styles
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			Cite evidence and develop a logical argument for concepts Describe, compare, and contrast solution methods Verify reasonableness of results Justify conclusions made	Gather, analyze, & evaluate relevancy & accuracy Draw & justify 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 or concept	Generate conjectures or hypotheses based on observations or prior knowledge	Synthesize information within one source or text Formulate an original problem, given a situation Develop a complex model for a given situation	Synthesize information across multiple sources or texts Design a model to inform and solve a real-world, complex, or abstract situation

5   2009 © Hess, Carlock, Jones, & Walkup. This article is currently pending publication. Permission to reproduce is given when authorship is fully cited.

Battelle for Kids
Bringing clarity to school improvement

Matching Level-Method

	Selected Response	Constructed Response	Performance
Level 1 – Knowledge/Recall	**Strong**	**Good**	**Poor**
Level 2 – Application	**Good**	**Strong**	**Good**
Level 3 – Strategic Thinking	**Poor**	**Strong**	**Strong**
Level 4 – Extended Thinking	**Poor**	**Good**	**Strong**

Which Assessment Method?

Identify the eight major planets in the solar system.

1. What is the DOK level of this learning expectation?

2. What methods would be good choices for assessment?

Battelle
for Kids
**Bringing clarity to
school improvement**

Ohio | Department
of Education

Powered by RttT

Which Assessment Method?

Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8).

1. What is the DOK level of this learning expectation?

2. What methods would be good choices for assessment?

Battelle
for Kids
Bringing clarity to
school improvement

Ohio | Department of Education

Powered by RttT

Which Assessment Method?

Write arguments to support claims with clear reasons and relevant evidence.

1. What is the DOK level of this learning expectation?

2. What methods would be good choices for assessment?

Department of Education

Powered by RttT

Which Assessment Method?

Create a series of bar graphs that show kinetic energy, potential energy, and thermal energy for eight different positions on a roller coaster.

> 1. What is the DOK level of this learning expectation?
>
> 2. What methods would be good choices for assessment?

Battelle for Kids
Bringing clarity to school improvement

Ohio | Department of Education

Powered by RttT

Targets to plan for:

DOK Level 1 questions

      Grades K-2   **75% of assessment points**

      Grades 3-4   **50% of assessment points**

      Grades 5-12   **20-25% of assessment points**

DOK Level 2-3 questions

      Grades K-2   **20-25% of assessment points**

      Grades 3-4   **50% of assessment points**

      Grades 5-12   **75-80% of assessment points**

But it's About Unpacking the Standards

What do I want my students to know and be able to do?

Content   Skills

How deeply?

DOK

So, What Do I Do Now?

- Back to Your Standards –

  – What is the cognitive complexity/rigor using Webb's Depth of Knowledge?

  - At your grade level – what is the DOK of the standard?

    – What will my assessment look like?
    – What does my instruction need to look like?