


A Guide for Using
Webb's Depth of Knowledge
with
Common Core State Standards

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Center for ★ ★ ★ ★ ★
College & Career Readiness



This guide was developed by Karin K. Hess for the Common Core Institute. It consolidates numerous tools educators use to implement Webb's Depth of Knowledge for curriculum and assessment. The examples herein are drawn from several classroom-tested DOK tools: Hess' Cognitive Rigor Matrices for ELA-Social Studies, Writing, and Math-Science developed by Karin Hess, at the Center for Assessment; Norman Webb's Alignment Tool from Wisconsin Center of Educational Research; and the Florida Department of Education's guide for Depth of Knowledge Questions.

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Level 4: Extended Thinking

Curricular elements assigned to this level demand extended and integrated use of higher order thinking processes such as critical and creative-productive thinking, reflection, and adjustment of plans over time. Students are engaged in conducting multi-faceted investigations to solve real-world problems with unpredictable solutions. Employing and sustaining strategic thinking processes over a longer period of time to solve the problem or produce an authentic product is a key feature of curricular objectives assigned to DOK 4. Key aspects that denote this particular level typically include authentic problems and audiences, and collaboration within a project-based setting.

Verbs	Teacher Role	Student Role
Initiate, design and conduct, collaborate, research, synthesize, self-monitor, critique, produce/present	Questions to extend thinking and broaden perspectives; facilitates teaming, collaboration, self-evaluation	Designs, takes risks, researches synthesizing multiple resources, collaborates, plans, organizes, and modifies, creates concrete tangible products

Possible Products

- Short film
- Agency presentation
- Research report

- Play
- Video Game
- Documentary

- Newspaper or series of articles
- Multi-Media product
- Anthology of original writing, art, music, etc.

Potential Activities

- Applying information from more than one discipline to solve ill-defined problems in novel or real-world situations
- Research tasks that involve generating questions, and formulating and testing hypotheses
- Tasks that require making multiple strategic and procedural decisions as new information is processed
- Tasks that require multiple roles and collaboration and coordination with others (e.g., script writing, camera work, editing, and acting/ talent)
- Tasks that involve drawing evidence from multiple sources to support solutions/conclusions
- Conducting an internship in industry where students are faced with real-world, unpredictable problems
- Organizing/conducting a community service project or school-based event

Potential Questions

- What changes would you make to solve or address this major problem/ or issue...?
- How would you improve upon this invention or innovation?
- Can you propose an alternative solution to...?
- What could be done to minimize (maximize) ...?
- In what way would you design or redesign ... and why?
- What evidence would you cite to defend the actions of ...?
- How would you evaluate ... ?
- How would you prioritize criteria for making this (local zoning) decision ... and why?
- How would you evaluate the works by this author over time?
- Can you formulate and test a conjecture for...?
- Can you predict the potential benefits and drawbacks if this law does/does not pass ?
- Can you construct a model that would change ...?
- Can you think of an original way to apply ... ?

- Do you agree with the actions ...? with the outcomes ... ? with the decision to ...?
- How would you prove ...? disprove ...?
- Can you assess the value or importance of ...?
- What information would you use to support a differing perspective ... ?
- What can be learned about this time in history from reading and analyzing various cultural, political, and social perspectives?

Level 3: Strategic Thinking & Reasoning

Tasks and classroom discourse falling into this category demand the use of planning, reasoning, and higher order thinking processes, such as analysis and evaluation, to solve real-world problems or explore questions with multiple possible outcomes. Stating one's reasoning and providing relevant supporting evidence are key markers of DOK 3 tasks. The expectation established for tasks at this level require an in-depth integration of conceptual knowledge and multiple skills to reach a solution or produce a final product. DOK 3 tasks and classroom discourse focus on in-depth understanding of one text, one data set, one investigation, or one key source, whereas DOK 4 tasks expand the breadth of the task using multiple texts or sources, or multiple concepts/disciplines to reach a solution or create a final product.

Verbs	Teacher Role	Student Role
<p>Critique, appraise, revise for meaning, assess, investigate, cite evidence, test hypothesis, develop a logical argument, use concepts to solve non-routine problems, explain phenomena in terms of concepts, draw conclusions based on data</p>	<p>Questions to probe reasoning and underlying thinking, asks open-ended questions, acts as a resource and coach, provides criteria and examples for making judgments and supporting claims, encourages multiple approaches and solutions; determines when/where (text, concept) depth and exploration is most appropriate</p>	<p>Uncovers and selects relevant and credible supporting evidence for analyses, critiques, debates, claims and judgments; plans, initiates questions, disputes, argues, tests ideas/solutions, sustains inquiry into topics or deeper problems, applies to the real world</p>

Possible Products

- Complex Graph
- Set up a database
- Conduct or critique a designed investigation
- Video cast or podcast
- Analyze survey results
- Debate from a given perspective
- Develop storyboard for film or cartoon animation
- Multi-paragraph essay or short story
- Literary critique
- Play, book, music, or movie review
- Informational report with several subtopics
- Fact-based argument (Is this criticism supported by the historical facts?)
- Create a Wiki or website

Potential Activities

- Analyze results of a questionnaire or survey (e.g., survey classmates/industry members to find out what they think about a current issue)
 - Prepare an informational report about an area of study
 - Write a letter to the editor after evaluating a product
 - Prepare for and participate in a debate
 - Use evidence to generate criteria for making judgments
 - Make a booklet or brochure about a topic, organization, or issue
 - Participate on a panel to discuss differing viewpoints on...
 - Prepare a speech to support your perspective about ...
 - Explain and apply abstract terms and concepts to real-world situations
- Solve complex, non-routine problems that draw upon multiple skills, concepts, and processes
 - Write an essay, short story, poem, or play
 - Create complex graphs or databases where reasoning and approach to data organization is not obvious
 - Design, conduct, or critique an investigation to answer a research question
 - Propose an alternate solution to a problem studied

Potential Questions

- What are the possible design flaws in ...?
 - What is the theme/the lesson learned ...?
 - How would the theme change if ...?
 - What underlying bias is there ...?
 - What inferences will these facts support ...?
 - How does the author create tension/suspense...?
 - What is the author's chain of reasoning or point of view for ...?
- What is the impact on the reader /viewer for use of this (rhetorical device, analogy, figurative language use, visual image, etc.)?
 - What conclusions can you draw ...?
 - How can you prove that your solution or estimate is reasonable?
 - What evidence can you find to support ...?
 - What ideas justify this position ...?

Level 2: Skill/Concept

Level 2 includes the engagement of mental processing beyond recalling, reproducing, or locating an answer. This level generally requires students to compare or differentiate among people, places, events, objects, text types, etc.; apply multiple concepts when responding; classify or sort items into meaningful categories; describe or explain relationships, such as cause and effect, character relationships; and provide and explain examples and non-examples. A Level 2 “describe or explain” task requires students to go beyond a basic description or definition to predict a possible result or explain “why” something might happen. The learner makes use of information provided in context to determine intended word meanings, which tools or approach is appropriate to find a solution (e.g., in a math word problem), or what characteristics to pay attention to when making observations.

At this level, students are asked to transform/process target knowledge before responding. Example mental processes that often denote this particular level include: summarize, estimate, organize, classify, extend, and make basic inferences.

Key Words	Teacher Role	Student Role
Infer, categorize, organize and display, compare-contrast, modify, predict, interpret, distinguish, estimate, extend patterns, interpret, use context clues, make observations, summarize, translate from table to graph, classify, show cause/effect, relate, edit for clarity	Questions to differentiate, infer, or check conceptual understanding, models, organizes/reorganizes, explores possible options or connections, provides examples and non-examples	Solves routine problems/tasks involving multiple decision points and concepts, constructs models to show relationships, demonstrates use of conceptual knowledge, compiles and organizes, illustrates/explains with examples or models, examines

Possible Products

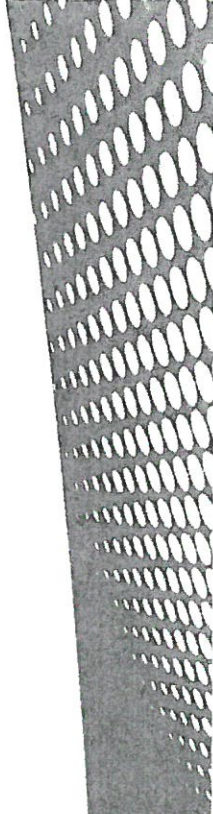
- Captioned Photos Summary
- Timeline
- Demonstration
- Presentation Interview
- Diary entry
- Graphic organizer
- Reverse-Engineering
- Cracking Codes Outline
- Relationship Mind Maps
- Blog Commenting
- Survey development
- Spreadsheets
- Science logs

Potential Activities

- Sequence a key chain of events and supporting details using a timeline, cartoon strip, outline or flow chart
- Write a summary /informational report or develop an outline of central ideas and supporting details
- Develop a concept map or diagram showing a process or describing relationships about a topic of study
- Explain a series of steps used to find a solution
- Construct a model to demonstrate how it looks or works
- Make a diorama to illustrate/explain an event
- Write a diary/blog entry for a character or historical figure
- Make a captioned scrapbook or photo essay about the area of study
- Make a topographic map using data provided/data collected
- Make a puzzle or game about the topic
- Explain the meaning of a concept using words, objects, and/or visuals
- Demonstrate how to perform a particular task
- Complete complex recognition tasks that involve recognizing concepts and processes that may vary in how they "appear"
- Complex calculation tasks involving decision points (e.g., standard deviation)
- Identify appropriate strategies or sources for conducting research projects that involve locating, collecting, organizing and displaying, and summarizing information
- Create a questionnaire or survey to answer a question
- Conduct measurement or observational tasks that involve organizing the data collected into basic presentation forms such as a table, graph, Venn diagram, etc.
- Participate in a simulation in order to understand and describe differing perspectives

Potential Questions

- How or why would you use ...?
- What examples/non-examples can you find to ...?
- How would you organize_ to show ...?
- How could you show your understanding of ... ?
- What approach/tools would you use to ...?
- How would you apply what you learned to develop ... ?
- What other way could you solve/find out...?
- What is your prediction ... and why?
- How would you organize these facts/observations?
- If you changed these elements ... what would/might happen ?
- What facts are relevant to show ...?
- What questions would you ask in an interview /survey about ...?
- What question is being asked in this problem?



Level 1: Recall & Reproduction

Curricular elements that fall into this category involve basic tasks that require students to recall or reproduce knowledge and/or skills. The subject matter content at this level usually involves working with facts, terms, details, calculations, principles, and/or properties. It may also involve use of simple procedures or formulas. There is little or no transformation of the target knowledge or skill required by the tasks that fall into this category. A student answering a Level 1 item either knows the answer or does not; that is, the answer does not need to be figured out" or "solved.

Verbs	Teacher Role	Student Role
Locate, calculate, define, identify, list, label, match, measure, copy, memorize, repeat, report, recall, recite, recognize, state, tell, tabulate, use rules, answer who, what, when, where, why, how	Questions to direct or focus attention, shows, tells, demonstrates, provides examples, examines, leads, breaks down, defines	Recognizes, responds, remembers, memorizes, restates, absorbs, describes, demonstrates, follows directions, applies routine processes, definitions, and procedures

Possible Products

- Fill-in-the-blank tasks
 - Recite-math facts, poems, etc.
 - Plot/locate points on a graph
 - Edit sentences
 - Identify/write sentence types
 - Highlight key words
 - Bookmark websites
 - Use key word search
 - Use dictionary, thesaurus
 - Follow steps/directions (e.g., recipe, long division, make model)
 - Explain, demonstrate
-
- Show & Tell
 - Locate or recall quotes
 - Document /cite sources
 - Brainstorm related ideas
 - Represent math relationships in words, pictures, or symbols
 - Write complete sentences
 - Identify parts of speech
 - Label or locate parts in diagram
 - List related parts or kinds (e.g., triangles)
 - Vocabulary definitions-look up, recall, use in sentences
-
- Calculate, compute
 - Measure, record data
 - Reproduce map or diagram
 - Use map key to locate information
 - Oral reading fluency
 - Decoding words
 - Use formulas
 - Evaluate expressions

Potential Activities

- Use step-by-step directions to make a model, plant seeds, bake a cake, etc.
- Describe an event, character, setting, etc. in a story
- Write a list of key words you know about...
- Recite/recall a fact or date related to ...
- Write/retell in your own words ...
- Cut out, draw, or match a picture that illustrates an event, process, or story
- Report or present findings to the class
- Memorize lines for a play
- Skim for facts/details/dates about an event
- Retell in your own words/paraphrase
- Locate information found in a map, chart, tables, graph, diagram, caption
- Use a dictionary, glossary, or thesaurus to find word meanings
- Make conversions between metric and customary units
- Recall, restate, remember, or recognize facts, terms, properties heard, viewed, or read
- Complete basic /routine calculation tasks (e.g., addition, subtraction, division, etc.)
- Locate or retrieve information in verbatim form to answer a question
- Recognize or identify features, objects, or steps that don't vary greatly in form (e.g., recognizing features of basic tools or shapes, properties of materials or objects)
- Edit applying a standard set of conventions and/or criteria that should eventually be automated (e.g., applying rules for punctuation, grammar, spelling)
- Complete measurement tasks (e.g., use a ruler to measure length; thermometer or temperature probe to measure temperature)
- Memorize and recognize formulas and algorithms
- Use a formula where at least one of the unknowns are provided (e.g., area formula, $y=mx + b$)