Exploring cognitive rigor in curriculum, instruction, and assessment - A DOK Primer: Some Key Ideas

- DOK descriptors reference the complexity of mental processing needed to answer a question, perform a task, or generate a product.
- An activity that aligns to a particular DOK level is not always "easier" than an activity that aligns to a DOK level above it. Complexity and difficulty are NOT the same. Difficulty refers to how easy or hard something is.
- The complexity of both the content (e.g., text complexity, number of texts) and the task are used to determine the DOK levels, not the grade level or innate ability of students.
- Verbs alone do not determine the complexity level of a task. DOK focus is on how deeply students need to know and interact with content to be able to generate a specific type of response. *It is what comes after the verb that indicates complexity.*
- If there is a question regarding which of two levels a standard addresses, such as Level l vs. Level 2, or Level 2 vs. Level 3, it is appropriate to assign the highest level as the "DOK ceiling" for the task, but also provide opportunities at the lower DOK levels as an instructional progression (e.g., summarizing a text/DOK 2 before analyzing a text/DOK 3; making observations/DOK 2 before drawing conclusions in an investigation/DOK 3) (Hess, 2004-2006).

DOK Level Descriptions		Teacher's Role	Student's Role	Sample Tasks
Level 1	**Recall & Reproduction** requires recognition of information, such as a fact, definition, term, principle, or performance of a simple process or procedure. Responding to a Level 1 task or question involves following a well-known rule, procedure, or formula. You either know it, or you don't know it.	• Questions to direct or focus attention (*Who? What? Where? How? When?*) • Directs, leads, demonstrates, defines • Examines, breaks down • Uses concrete objects, nonverbal and visual cues to teach concepts, procedures, and vocabulary • Builds background knowledge to build upon later • Provides resources and procedures • Uses mentor texts as unambiguous models	✓ Learns rules (spells, decodes, edits for grammar, usage, mechanics, principles of design) ✓ Learns processes (order of operations, evaluates expression, measures, key word searches) ✓ Acquires vocabulary, facts ✓ Memorizes, recites, quotes ✓ Practices, restates ✓ Locates/retrieves information ✓ Identifies/names parts ✓ Reports/shares solutions /findings	-Reads orally, reads fluently -Draws/labels/acts to illustrate an event, parts of the whole, phases in a cycle -Writes a variety of sentences -Represents math/fine arts relationships with words, symbols, objects, visuals -Recalls math facts, terms, dates, formulas, rules -Calculates, measures, follows steps -Uses tools, records data -Reads or reproduces maps, diagrams -Highlights key words
Level 2	**Basic Application of Skills/Concepts** requires engagement of some mental processing beyond recall or reproduction - basic comprehension and subsequent processing of content. Students apply more than one concept and make some decisions about how to approach the question or problem, what tools to use, and how ideas relate.	• Questions to differentiate/classify, draw out inferences, check conceptual understanding (*Why? What conditions? Give example?*) • Provides examples and non-examples to build conceptual understanding • Provides graphic organizers to show relationships or organizational schemas; pairs readers to texts • "Thinks aloud" to explore possible options or connections	✓ Explains relationships, sorts, classifies, compares ✓ Makes predictions based on observations, estimates, proposes ✓ Compiles and organizes information ✓ Distinguishes relevant-irrelevant, fact-opinion, example-non-example ✓ Selects appropriate strategy and applies it ✓ Explains steps taken to complete a task	-Solves routine, multi-step math word problems -Makes science observations, organizes data (graph, table, spreadsheet, etc.) -Writes a caption, paragraph, summary -Creates a timeline of events -Makes and uses models -Interprets simple graphics, tables, etc. -Retrieves information and uses it to answer a question or solve a problem -Creates survey to research a topic

DOK Level Descriptions		Teacher's Role	Student's Role	Sample Tasks
Level 3	**Strategic Thinking/Reasoning** gets at deeper understanding of concepts within novel or new contexts. Students develop their reasoning underlying an interpretation, generalization, or connection, and provide supporting evidence for judgments made. Cognitive demands are more complex and abstract, often with more than one possible answer or approach.	• Questions to probe reasoning and underlying thinking (*How do you know? What is the evidence? But what if? Is this supported by the facts?)* • Asks open-ended questions • Encourages varied approaches • Acts as a resource, coach, mentor • Provides criteria for making judgments • Guides how and what materials encourage in-depth explorations • Models and scaffolds complex thinking	✓ Uncovers relevant, accurate, and credible information ✓ Uncovers flaws in a design ✓ Develops supporting evidence for conclusions or claims ✓ Tests ideas, predictions, hypotheses ✓ Transfers knowledge to solve non-routine problems ✓ Revises work to establish a progression of ideas or chain of reasoning	-Interprets complex graphics, tables, etc. -Sets up a data base -Conducts a designed investigation -Develops both sides of a fact-based argument for debate or speech -Creates a website, podcast, multi-media presentation matched to purpose - Critiques an essay, performance , or novel, using discipline-based criteria -Analyzes theme, perspective, author's craft in a piece of work
Level 4	**Extended Thinking** requires complex reasoning, planning, and designing own research focus, probably over an extended time. Tasks require significant conceptual understanding and application of skills across disciplines, using multiple sources or resources.	• Questions to extend thinking, explore sources, broaden perspectives (*What are the potential biases? Can you propose an alternative? Can you design a model? What is the importance/value?)* • Facilitates teaming, collaboration, self-monitoring • Models and scaffolds integrating sources	✓ Initiates learning focus and structures tasks needed to complete complex projects ✓ Locates relevant and credible mentors and resources ✓ Transfers and constructs knowledge ✓ Modifies, creates, elaborates ✓ Investigates real-world problems and issues ✓ Revises work to establish a progression of ideas or chain of reasoning	-Produces a short film, play, or short story based on a theme or issue -Designs own research or investigation as an extension of concepts or issues studied -Critiques importance of policies or events from different perspectives (e.g., historical, social, economic, cultural) --Analyzes theme, perspectives, authors' craft across multiple pieces of work