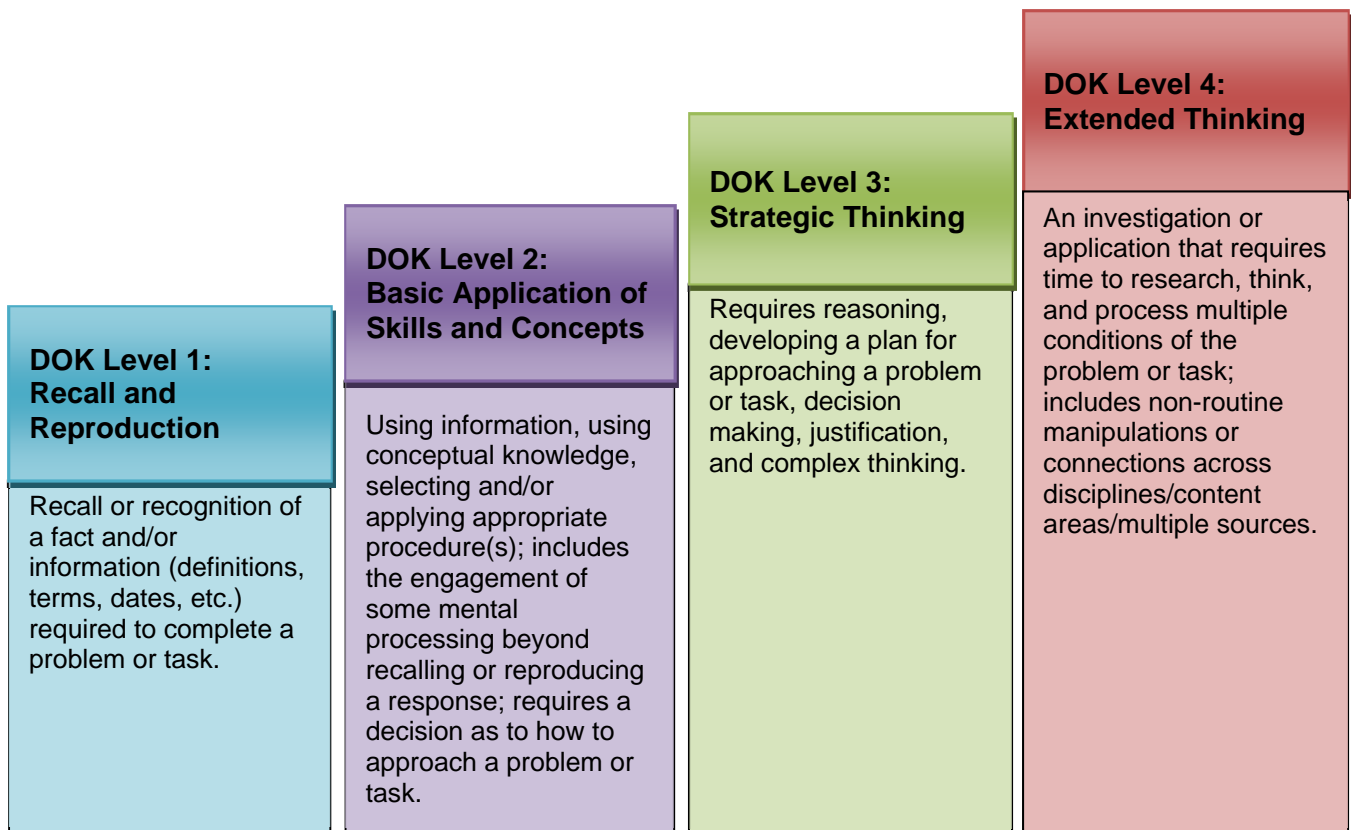## Nevada Definition of Depth of Knowledge

The Nevada Department of Education has adopted and modified Norman Webb's Depth of Knowledge (DOK) levels to replace the present ability levels (A1, A2, and A3) on state assessments.

DOK is a scale of cognitive demand intended to describe the complexity of thinking required to complete a task, answer a question, or solve a problem.

The Department of Education feels the DOK levels not only provide for a greater depth and breadth of learning, but also meet the requirements of academic rigor required by No Child Left Behind by ensuring that assessment items are as cognitively demanding as the expectation of the content standard.

These DOK levels will be incorporated into all of Nevada's state assessments starting in 2010, with field test items leveled to DOK in 2009.

**The Four Levels of Depth of Knowledge
Nevada Definitions**

**DOK Level 1:
Recall and Reproduction**

Recall or recognition of a fact and/or information (definitions, terms, dates, etc.) required to complete a problem or task.

**DOK Level 2:
Basic Application of Skills and Concepts**

Using information, using conceptual knowledge, selecting and/or applying appropriate procedure(s); includes the engagement of some mental processing beyond recalling or reproducing a response; requires a decision as to how to approach a problem or task.

**DOK Level 3:
Strategic Thinking**

Requires reasoning, developing a plan for approaching a problem or task, decision making, justification, and complex thinking.

**DOK Level 4:
Extended Thinking**

An investigation or application that requires time to research, think, and process multiple conditions of the problem or task; includes non-routine manipulations or connections across disciplines/content areas/multiple sources.

Due to the complexity of cognitive demand, DOK 4 requires an extended period of time and is NOT TESTED ON THE CRT or HSPE.

DOK Level 1 Examples

- Locate or recall facts found in text
- Apply a well known formula
- Use a dictionary to find the meaning of words
- Represent math relationships in words, pictures, or symbols
- Perform a simple science process or a set of procedures

DOK Level 2 Examples

- Identify and summarize the major events, problem, solution, conflicts in literary text
- Explain the cause-effect of historical events
- Predict a logical outcome based on information in a reading selection
- Retrieve information from a table, graph, or figure and use it to solve a problem requiring multiple steps.

DOK Level 3 Examples

- Compare consumer actions and analyze how these actions impact the environment
- Analyze or evaluate the effectiveness of literary elements (e.g. characterization, setting, point of view, conflict and resolution, plot structures)
- Solve a multiple-step problem and provide support with a mathematical explanation that justifies the answer

DOK Level 4 Examples

- Gather, analyze, organize, and synthesize information from multiple sources to draft a reasoned report
- Analyze and explain multiple perspectives or issues within or across time periods, events, or cultures
- Specify a problem, identify solution paths, solve the problem, and report the results
- Write and produce an original play

Depth of Knowledge Questions and Answers

Are DOK levels equivalent to ability levels?
No. Many assessment items, in all content areas, considered to be ability level 3 (A3) on previous state assessments have been recoded to DOK level 2, and many ability level 2 (A2) items have been recoded to DOK level 1.

Does DOK replace Bloom's Taxonomy?
No. The concepts are related, but not exactly the same. Bloom's taxonomy addresses the kind of thinking students will have to do as they approach a task, just ask DOK does. A significant difference is that when determining the DOK of content standards and assessment items, the complexity of thought is considered along with depth of content. Assessment items that ask students to analyze simple concepts will not always be a high DOK just because analysis is involved.

What are the instructional implications for DOK?
As schools continue their conversations about student learning, educators will want to think about the degree to which classroom instruction and assessments are aligned with the demands of content standards. For students to reach the cognitive demands of the content, become strategic thinkers, extend their thinking, solve complex problems, reason, analyze and communicate their understandings, they will need well-constructed standards-based units, lessons and assessments. Classroom instructions and assessments need to require students working at all levels of DOK. *For example, when an assessment item is written at a DOK 2 level, instruction needs to require DOK 3 or 4 depth of content and thinking in order for students to be successful on that item.*

Do all state standards support all four DOK levels?
No. Not all state standards support DOK levels 3 and 4.

What does DOK look like in the classroom?

Content Area	Level 1	Level 2	Level 3	Level 4
Elementary Language Arts	Sort known words as quickly as possible.	Find words in text that illustrate a defined pat-tern. (Word Hunt)	Create an open sort and define the rule and explain.	Illustrate through authentic writing stability in pattern and content of identified stage.
Elementary Mathematics	Collect data on the number of teeth lost by students in one 2nd grade classroom.	Organize these data using a graph or chart (e.g., a line plot).	Using the graph, predict how many teeth would be lost by all the 2nd grade classes in the schools and justify your answer.	Come up with a model to estimate how many teeth are lost by 2nd grade students in the United States in one year. Include the type of data you would need to collect and explain how your model works.
Middle School Science	Define the following terms: electrical generator, electrical mo-tor, magnetic field, and electrical current.	Compare and contrast how an electrical motor operates to how an electrical generator operates.	Design and conduct an experiment to demonstrate that electrical currents produce magnetic forces.	Research and design a system to lift heavy objects using the conversion of electrical energy to mechanical energy. Build a prototype of the system using materials found in the classroom.
U.S. History	Name the U.S. presidents in order.	Using the left and right political continuum, categorize the presidents of the 20th and 21st centuries according to their political standing.	Hypothesize how Dwight D. Eisenhower would react to today's world political situation.	Analyze the strategies and effectiveness of George H. W. Bush's war strategies in the Persian Gulf with the war strategies of George W. Bush in Iraq.
High School Music	Name several com-posers from the Baroque and Classical periods.	Describe differences between the Baroque and Classical periods.	Critique, compare, and contrast pieces of music from the Baroque and Classical periods.	Choose a period and develop a 16 measure piece of music from that style.