Depths of Knowledge: Mathematics  
Wisconsin Knowledge and Concepts Examination (WKCE-CRT)

The representative examples for the following Depths of Knowledge categories are intended to reflect student performance expectations with regard to level of mental effort and amounts of information integrated by the student. Items will be targeted at one of four levels of cognitive demand. Each level of demand should include items with a range of difficulty. Assuming grade appropriate vocabulary and test items, these levels are viable and useful across all grades.

Level 1: Recognizing and Recalling  
Level 1 tasks require the student to recognize and recall basic facts, terms, concepts, and definitions of the content and processes of mathematics. Level 1 tasks also include computation with whole numbers, fractions, decimals, and integers.

Level 2: Using Fundamental Concepts and Procedures  
Level 2 tasks require the student to describe or apply basic facts, terms, rules, concepts, and definitions of the content and processes of mathematics.

Level 3: Concluding and Explaining  
Level 3 tasks require the student to demonstrate an understanding of complex ideas, to draw conclusions based on this understanding, and to communicate ideas and conclusions effectively.

Level 4: Evaluating, Extending, and Making Connections  
Level 4 tasks require the student to synthesize skills and techniques from various concepts of mathematics, to solve multifaceted problems, and to justify conclusions using mathematical definitions, properties, and principals. Level 4 tasks also include supporting mathematical arguments with definitions, properties, and principles.

Source: WSAS online (TurnLeaf) reports under “More Info”: The “Depth of Knowledge” (DOK) for each item is listed on reading and mathematics Item Analysis reports. DOK is a measure of cognitive demand required to correctly answer the item. DOK was established for reading and mathematics using a method developed by nationally recognized educational measurement experts, and the input of Wisconsin educators. A DOK of one (1) indicates that the item can be answered using simple methods, such as recall, whereas a DOK of four (4) indicates that the item requires higher-order thinking, such as analysis and synthesis.