

Table 1: Applying Webb's Depth of Knowledge Levels for Mathematics

**(Adapted from Karin Hess, Center for Assessment/NCIEA
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Webb's DOK Levels			
Recall and Reproduction (DOK 1)	Skills and Concepts/ Basic Reasoning (DOK 2)	Strategic Thinking/ Complex Reasoning (DOK 3)	Extended Thinking/ Reasoning (DOK 4)
<ul style="list-style-type: none"> • Recall of a fact, information or procedure • Recall or recognize fact • Recall or recognize definition • Recall or recognize term • Recall and use a simple procedure • Perform a simple algorithm. • Follow a set procedure • Apply a formula • A one-step, well-defined, and straight algorithm procedure. • Perform a clearly defined series of steps • Identify • Recognize • Use appropriate tools • Measure 	<ul style="list-style-type: none"> • Students make some decisions as to how to approach the problem • Skill/Concept • Basic Application of a skill or concept • Classify • Organize • Estimate • Make observations • Collect and display data • Compare data • Imply more than one step • Visualization Skills • Probability Skills • Explain purpose and use of experimental procedures. • Carry out experimental procedures 	<ul style="list-style-type: none"> • Requires reasoning, planning using evidence and a higher level of thinking • Strategic Thinking • Freedom to make choices • Explain your thinking • Make conjectures • Cognitive demands are complex and abstract • Conjecture, plan, abstract, explain • Justify • Draw conclusions from observations • Cite evidence and develop logical arguments for concepts • Explain phenomena in terms of concepts 	<ul style="list-style-type: none"> • Performance tasks • Authentic writing • Project-based assessment • Complex, reasoning, planning, developing and thinking • Cognitive demands of the tasks are high • Work is very complex • Students make connections within the content area or among content areas • Select one approach among alternatives • Design and conduct experiments • Relate findings to concepts and phenomena

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<ul style="list-style-type: none"> • Habitual response: Can be described; Can be explained • Answer item automatically • Use a routine method • Recognize patterns • Retrieve information from a graph • Includes one step word problems • Do basic computations 	<ul style="list-style-type: none"> • Make observations and collect data • Beyond habitual response • Classify, organize and compare data. • Explain, describe or interpret • Organize and display data in tables, charts and graphs. • Use of information • Two or more steps, procedures • Demonstrate conceptual knowledge through models and explanations. • Extend a pattern. • Explain concepts, relationships, and nonexamples. 	<ul style="list-style-type: none"> • Use concepts to solve problems • Make and test conjectures • Some complexity • Provide math justification when more than one possible answer • Non-routine problems • Interpret information from a complex graph • Analyze, synthesize • Weigh multiple things. 	<ul style="list-style-type: none"> • Combine and synthesize ideas into new concepts • Critique experimental designs
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