

**Table 1: Examples for each of the DOK Levels in Science, based on Webb (working draft K. Hess, November 2004)**

<b>Level 1</b> <b>Recall &amp; Reproduction</b>	<b>Level 2</b> <b>Skills &amp; Concepts</b>	<b>Level 3</b> <b>Strategic Thinking</b>	<b>Level 4</b> <b>Extended Thinking</b>
<ul style="list-style-type: none"> <li>a. Recall or recognize a fact, term, definition, simple procedure (such as one step), or property</li> <li>b. Demonstrate a rote response</li> <li>c. Use a well-known formula</li> <li>d. Represent in words or diagrams a scientific concept or relationship</li> <li>e. Provide or recognize a standard scientific representation for simple phenomenon</li> <li>f. Perform a routine procedure, such as measuring length</li> <li>g. Perform a <b>simple</b> science process or a set procedure (like a recipe)</li> <li>h. Perform a clearly defined set of steps</li> <li>i. Identify, calculate, or measure</li> </ul> <p><b>NOTE: If the knowledge necessary to answer an item automatically provides the answer, it is a Level 1.</b></p>	<ul style="list-style-type: none"> <li>a. Specify and explain the relationship between facts, terms, properties, or variables</li> <li>b. Describe and explain examples and non-examples of science concepts</li> <li>c. Select a procedure according to specified criteria and perform it</li> <li>d. Formulate a routine problem given data and conditions</li> <li>e. Organize, represent, and compare data</li> <li>f. Make a decision as to how to approach the problem</li> <li>g. Classify, organize, or estimate</li> <li>h. Compare data</li> <li>i. Make observations</li> <li>j. Interpret information from a simple graph</li> <li>k. Collect and display data</li> </ul> <p><b>NOTE: If the knowledge necessary to answer an item <u>does not</u> automatically provide the answer, then the item is at least a Level 2. Most actions imply more than one step.</b></p>	<ul style="list-style-type: none"> <li>a. Interpret information from a complex graph (such as determining features of the graph or aggregating data in the graph)</li> <li>b. Use reasoning, planning, and evidence</li> <li>c. Explain thinking (beyond a simple explanation or using only a word or two to respond)</li> <li>d. Justify a response</li> <li>e. Identify research questions and design investigations for a scientific problem</li> <li>f. Use concepts to solve non-routine problems/more than one possible answer</li> <li>g. Develop a scientific model for a complex situation</li> <li>h. Form conclusions from experimental or observational data</li> <li>i. Complete a multi-step problem that involves planning and reasoning</li> <li>j. Provide an explanation of a principle</li> <li>k. Justify a response when more than one answer is possible</li> <li>l. Cite evidence and develop a logical argument for concepts</li> <li>m. Conduct a designed investigation</li> <li>n. Research and explain a scientific concept</li> <li>o. Explain phenomena in terms of concepts</li> </ul>	<ul style="list-style-type: none"> <li>a. Select or devise approach among many alternatives to solve problem</li> <li>b. Based on provided data from a complex experiment that is novel to the student, deduct the fundamental relationship between several controlled variables.</li> <li>c. Conduct an investigation, from specifying a problem to designing and carrying out an experiment, to analyzing its data and forming conclusions</li> <li>d. Relate ideas <i>within</i> the content area or <i>among</i> content areas</li> <li>e. Develop generalizations of the results obtained and the strategies used and apply them to new problem situations</li> </ul> <p><b>NOTE: Level 4 activities often require an extended period of time for carrying out multiple steps; however, time alone is not a distinguishing factor if skills and concepts are simply repetitive over time.</b></p>