

## Webb's DOK - Category 1 as relates to NGSS and Framework-based standards: FAQ

<p><b>Do DOK Category 1 tasks require students to interweave multiple dimensions of the standards to make sense of phenomena?</b></p>	<p>No. A DOK Category 1 task is not multidimensional and does not involve sense-making. Students do not need to engage multiple dimensions to reproduce or recall a response. DOK Category 1 tasks typically separate content from practice. If a practice is at all involved, it is scripted or rote; a reproduction of a response. Although all Performance Expectations are written to incorporate all three dimensions of the standards, related curriculum and assessment tasks must be analyzed to determine if they are one-, two-, or three-dimensional. The dimensionality of a task is related to but different than the complexity of a task and must be evaluated separately. Dimensionality is best evaluated with reference to the foundation boxes for PEs and the corresponding Appendices of the NGSS. A DOK Category 1 task may relate to content that falls outside of the scope of the NGSS, and, therefore, it is possible for a DOK Category 1 task to be “zero-dimensional.”</p>
<p><b>Do DOK Category 1 tasks require sense-making?</b></p>	<p>No. A DOK Category 1 problem cannot be reasoned through or “figured out;” the answer (or defined procedure or steps to find the answer) must be known. By definition, a DOK Category 1 task is one that is <b>not</b> completed via sense-making but instead by a rote or reproduced response. For many DOK Category 1 tasks, “either you know it or you don’t.”</p>
<p><b>Do DOK Category 1 tasks require knowledge-in-use?</b></p>	<p>No. A DOK Category 1 task typically involves knowledge in isolation and, by definition, does <b>not</b> require meaningful application, conceptualization, or integration of content, ideas, practices, or concepts. Any application of content required by a DOK Category 1 task would be nominal to the point of insignificant. For example, an assessment task may present a novel phenomenon but (typically unintentionally) ask students to provide a rote response. For example, a student may be given a diagram of a novel food web and asked to determine the ultimate source of energy for a particular animal’s food. Because the energy in animals’ food was once energy from the sun—no matter which animal and what type of food—the answer to this type of question is typically the same, no matter the context. This overall issue applies in all cases where a student response does not actually require using the information provided. Use of DOK can help educators and other content developers differentiate between complexity, difficulty, cognitive load, dimensionality, etc – to ensure that questions, prompts, and tasks are indeed providing students with opportunities that allow engagement with the intended categories of complexity.</p>
<p><b>Do NGSS and other Framework-based standards expect students to engage with DOK Category 1 tasks?</b></p>	<p>Yes. Some engagement with DOK Category 1 work is expected in the classroom and is understood as a necessary contributing component of the goals of the Performance Expectations. One example given in the NGSS documentation is that although “[n]o part of the NGSS specifies the student outcome of defining a gene – it is...implicit that in order to demonstrate proficiency on MS-LS3-1, students will have to be introduced to the concept of a gene through curriculum and instruction” (NGSS, Appendix B, p. 6). It is important to note that an explicit goal of Framework-based standards is to promote a shift away from DOK Category 1 tasks as ultimate learning goals or summative assessment targets.</p>

## Webb's DOK - Category 2 as relates to NGSS and Framework-based standards: FAQ

<p><b>Do DOK Category 2 tasks require students to interweave multiple dimensions of the standards to make sense of phenomena?</b></p>	<p>Maybe. A DOK Category 2 task could, for example, require students to use a model to characterize a phenomenon in terms of patterns or interpret graphical displays to make sense of cause-and-effect relationships as relates to a phenomenon. DOK Category 2 cognitive engagement does not, however, guarantee that a task requires students to engage science or engineering practices in the context of disciplinary core ideas. Because crosscutting concepts (CCCs) “unit[e] core ideas throughout the fields of science and engineering” (NGSS, Appendix G, p. 1) DOK Category 2 tasks are likely to <i>relate</i> to one or more crosscutting concepts even if the tasks do not necessarily require a student to explicitly invoke a CCC. Although all Performance Expectations are written to incorporate all three dimensions of the standards, related curriculum and assessment tasks must be analyzed to determine if they are one-, two-, or three-dimensional. The dimensionality of a task is related to but different than the complexity of a task and must be evaluated separately. Dimensionality is best evaluated with reference to the foundation boxes for PEs and the corresponding Appendices of the NGSS. It is possible for DOK Category 2 tasks to interweave ideas, concepts, and/or practices that fall outside of the scope of NGSS.</p>
<p><b>Do DOK Category 2 tasks require sense-making?</b></p>	<p>Yes. DOK Category 2 tasks require students to connect science ideas and make sense of relationships and interactions between and among science ideas. Sense-making within DOK Category 2 draws on conceptual understanding of science ideas.</p>
<p><b>Do DOK Category 2 tasks require knowledge-in-use?</b></p>	<p>Yes. By definition, DOK Category 2 tasks involves purposeful application, conceptualization, or integration of content, idea(s), practice(s), and/or concept(s) within context. At DOK Category 2, knowledge is put to use in the context of tasks that involve underlying conceptual understanding. Some DOK Category 2 tasks may require students to consider relationships between and among or to apply ideas from one concept, context, or discipline to another.</p>
<p><b>Do NGSS and other Framework-based standards expect students to engage with DOK Category 2 tasks?</b></p>	<p>Yes. The conceptual understanding emphasized by DOK Category 2 expectations and tasks are a central focus of the goals outlined in the Framework and NGSS documentation. For example, Appendix A conceptual shift number four states that “[t]he NGSS focus on deeper understanding of content as well as application of content” (NGSS, Appendix A, p. 4). Appendix C also underscores this key shift, noting that “the NGSS focus [is] on understanding rather than memorization” (NGSS, Appendix C, p. 6). This, in turn, reflects the Framework committee’s intent to “give time for students to...achieve depth of understanding of the core ideas” (A Framework, p. 11). The language of the Framework and the NGSS, viewed through the lens of DOK – Categories of Engagement, specify a shift away from DOK 1 expectations as the ultimate learning outcomes and a strong emphasis on DOK 2 expectations as learning outcomes, instead.</p>

## **Webb’s DOK - Category 3 as relates to NGSS and Framework-based standards: FAQ**

<p><b>Do DOK Category 3 tasks require students to interweave multiple dimensions of the standards to make sense of phenomena?</b></p>	<p>Maybe. DOK Category 3 tasks likely require students to engage in science and/or engineering practices in the context of disciplinary core ideas. Because crosscutting concepts (CCCs) “unit[e] core ideas throughout the fields of science and engineering” (NGSS, Appendix G, p. 1) DOK Category 3 tasks are likely to also involve one or more crosscutting concepts. Although all Performance Expectations are written to incorporate all three dimensions of the standards, related curriculum and assessment tasks must be analyzed to determine if they are one-, two-, or three-dimensional. The dimensionality of a task is related to but different than the complexity of a task and must be evaluated separately. Dimensionality is best evaluated with reference to the foundation boxes for PEs and the corresponding Appendices of the NGSS. It is possible for DOK Category 3 tasks to interweave ideas, concepts, and/or practices that fall outside of the scope of NGSS. At DOK Category 3, the scope of work can be completed in a discrete amount of time (i.e., “in one sitting”).</p>
<p><b>Do DOK Category 3 tasks require sense-making?</b></p>	<p>Yes. DOK Category 3 tasks require students to engage deeply in sense-making, involving abstract, analytical, hypothetical, non-routine, and innovative thinking. Sense-making at DOK Category 3 involves crafting reasoned arguments and novel solutions based on evidence.</p>
<p><b>Do DOK Category 3 tasks require knowledge-in-use?</b></p>	<p>Yes. By definition, DOK Category 3 tasks involve purposeful application, conceptualization, and/or integration of content, idea(s), practice(s), and/or concept(s) within contexts that may be non-routine. At DOK Category 3, knowledge is put to use in the context of tasks that involve deep reasoning and development of novel solutions grounded in critical, evaluative, analytical, argumentative, hypothetical, etc. thinking. DOK Category 3 tasks require broad and abstract thinking in order to synthesize diverse ideas, concepts, contexts, and disciplines.</p>
<p><b>Do NGSS and other Framework-based standards expect students to engage with DOK Category 3 tasks?</b></p>	<p>Yes. For example, DOK Category 3 expectations and tasks are reflected in the Framework committee’s intent to “give time for students to engage in scientific...argumentation” (A Framework, p. 11) and support the goal of supporting students as they “discove[r] new knowledge, solv[e] challenging problems, and generat[e] innovations” including addressing “problems not previously encountered” (NGSS, Appendix C, p. 1-2; 5). The language of the Framework and the NGSS, viewed through the lens of DOK – Categories of Engagement, specify an intent for inclusion of DOK 3 expectations.</p>

## **Webb's DOK - Category 4 as relates to NGSS and Framework-based standards: FAQ**

<p><b>Do DOK Category 4 tasks require students to interweave multiple dimensions of the standards to make sense of phenomena?</b></p>	<p>Most likely, yes. Because of the scope of DOK Category 4 tasks, they are almost certainly three-dimensional. At DOK Category 4, the scope of work requires sustained and extended engagement, over days or weeks (or more) rather than in one sitting (DOK Category 3). DOK Category 4 tasks involve authentic and extended engagement with science practices, ideas, and concepts. Although all Performance Expectations are written to incorporate all three dimensions of the standards, related curriculum and assessment tasks must be analyzed to determine if they are one-, two-, or three-dimensional. The dimensionality of a task is related to but different than the complexity of a task and must be evaluated separately. Dimensionality is best evaluated with reference to the foundation boxes for PEs and the corresponding Appendices of the NGSS. It is still possible for DOK Category 4 tasks to interweave ideas, concepts, and/or practices that fall outside of the scope of NGSS.</p>
<p><b>Do DOK Category 4 tasks require sense-making?</b></p>	<p>Yes. DOK Category 4 tasks require students to engage deeply in extended and iterative sense-making, involving abstract, analytical, hypothetical, non-routine, and innovative thinking. Sense-making at DOK Category 4 involves extended and iterative thinking related to crafting reasoned arguments and novel solutions based on research and evidence.</p>
<p><b>Do DOK Category 4 tasks require knowledge-in-use?</b></p>	<p>Yes. Inherent to DOK Category 4 tasks is the purposeful application, conceptualization, and/or integration of content, idea(s), practice(s), and/or concept(s) within contexts that may be non-routine. At DOK Category 4, knowledge is put to use in the context of extended and iterative tasks that involve deep reasoning and development of novel solutions grounded in critical, evaluative, analytical, argumentative, hypothetical, etc. thinking. DOK Category 4 tasks require broad and abstract thinking in order to synthesize diverse ideas, concepts, contexts, and disciplines.</p>
<p><b>Do NGSS and other Framework-based standards expect students to engage with DOK Category 4 tasks?</b></p>	<p>Yes. DOK Category 4 expectations and tasks correspond to the “expectation...that students generate and interpret evidence and develop explanations of the natural world through sustained investigations” and that students “carry out empirical investigations in order to develop or evaluate knowledge claims” (A Framework, p. 255; 252)</p>



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