**Next Generation Science Standards Second Public Draft**

*The questions in Section I require participants to focus on a set of standards. Please specify the standards you are reviewing using the code at the top of the page for each standard.*

**Section I. Taking a Close Look at One Set of Performance Expectations**

**A. Clarity and Specificity**

To answer these questions, think about whether the performance expectations are clear and specific enough for a classroom teacher to understand the outcome expected and assess whether a student has met the outcomes specified. Base your answer on all of the information provided, including the stem, performance expectations, and foundation boxes.

• Do you have clear idea of what students must know and be able to do?

• How open to interpretation are the performance expectations?

• Is it clear what is and is not included?

Discuss with colleagues the similarities and differences to current standards:

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| Performance Expectation | Similarities | Differences | Notes/Needs |
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| Performance Expectation | Similarities | Differences | Notes/Needs |
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**B. Integration of the Three Dimensions in the Performance Expectations**

Each performance expectation contains a scientific or engineering practice, a core idea, and a crosscutting concept. Successful completion of a given performance expectation indicates that a student has achieved the practices, core ideas, and crosscutting concepts that it is based on.

• In what ways can the inclusion of all three components in a single expectation lead to improved learning of the core idea? Be as specific as you can.

• Is there a clear connection between the performance expectations and the practices, core ideas, and crosscutting concepts in the foundation box?

• Is it reasonable to assume that a student who has successfully completed the performance expectations has achieved mastery of the core ideas, practices, and crosscutting concepts?

**C.Coherence of Performance Expectations:** To answer these questions, consider whether all of the performance expectation outcomes would make sense in the same instructional unit. Use examples to clarify your response.

•Is the set of performance expectations conceptually coherent?

•Do they all define a cohesive and related set of ideas or outcomes?

•Are any of the performance expectations out of place?

**D.Achievability and Preparedness**To answer these questions, think about what students need to know and be able to do to be successful in life and also consider the time and effort needed to help all students achieve the stated expectations.

•Would students who achieve the task described in the performance expectations be prepared for success at college and/or in their careers?

•Are the tasks described in the performance expectations reasonable expectations for all students?

•Are the practices described in the foundation box reasonable expectations for all students?

•Are the disciplinary core ideas described in the foundation box reasonable expectations for all students?

•Are the crosscutting concepts described in the foundation box reasonable expectations for all students?

•How much instructional time (days) will be required to meet all the performance expectations in this set?

**E.Instructional Implications of the Performance Expectations**The intent of the performance expectations is to describe what students should be able to do at the end of instruction. They are not meant to specify what students should do as part of instruction. However, some readers have interpreted them that way.

•Do the performance expectations seem to prescribe specific instructional sequences and instructional strategies? Why or why not?

•Do you think that performance expectations should prescribe specific instructional sequences and instructional strategies? Why or why not?

**Section II. Checking for Progression Across All Grades**

The following discussion questions require participants to look across multiple sets of performance expectations at several different grade levels/spans. Skim the standards to find relevant sections and then review those sections in more detail to answer the questions.

**A.Performance Expectations**

For these questions, focus on the sections that deal with a single topic, such as *Structure and*

*Properties of Matter.*

•Do the performance expectations at each grade level build on those of earlier grades and properly prepare students for the performance expectations at latter grades?

•Are the tasks described in the performance expectations at each grade level reasonable expectations for all students at that grade level/span? Should any of the performance expectations move up or down in the progression?

B. **Scientific and Engineering Practices**

For these questions, focus on the sections that deal with a single practice such as *Developing and Using Models.*

• Do the practices at each grade level build on those of earlier grades and properly prepare students for the performance expectations at latter grades?

• Are the practices at each grade level reasonable expectations of all students at that grade level? Should any of the practices move up or down in the progression?

• Are the practices represented with enough frequency in each grade level/span so that students will have the opportunity to master the practice by the end of that grade span?

C. **Disciplinary Core Ideas**

For these questions, focus on the sections that deal with a single topic, such as the *Structure and Properties of Matter*

• Do the disciplinary core ideas at each grade level build on those of earlier grades and properly prepare students for the performance expectations at latter grades?

• Are the disciplinary core ideas at each grade level/span reasonable expectations of all students at that grade level? Should any of the practices move up or down in the progression?

D. **Crosscutting Concepts**

For these questions, focus on the sections that deal with a single crosscutting concept, such as *Patterns*.

• Do the crosscutting concepts at each grade level build upon those of earlier grades and properly prepare students for the crosscutting concepts at later grades?

• Are the crosscutting concepts at each grade level/span reasonable expectations for all students at that grade level? Should any of the crosscutting concepts move up or down in the progression?

• Are the crosscutting concepts represented with enough frequency so that students will understand them as “crosscutting” all the disciplines within science, and not relevant to just some areas of science (life science, Earth science, physical science)?

• Will students recognize and see the pervasive and useful nature of the concept as a result of their inclusion in the instruction?

**Section III. Engineering Design**

The engineering design disciplinary core ideas have been integrated into the other three core ideas. The performance expectations that have been integrated are indicated with \*. For these questions, focus on a particular set of core ideas for physical, life, or earth and space sciences or one or two grade levels as you did in Section I and review those performance expectations that are indicated with \*.

• In examining the draft, is it obvious that the engineering disciplinary core ideas have been incorporated into the performance expectations in life, Earth, and physical science?

• Does incorporating the engineering disciplinary core ideas into sets of performance expectations in life, earth and space and physical sciences—rather than a stand-alone set of performance expectations—make it more likely or less likely that concepts about engineering design will be addressed during instruction in science?

• Does incorporating the engineering core ideas into sets of performance expectations in life, Earth and space, and physical sciences reduce the flexibility (and/or narrow the choices) that teachers have in planning curriculum and instruction?

**Section IV. Nature of Science**

In the review of the May 2012 Public Draft of NGSS, NSTA recommended that:

The NGSS should include a section on *Connections to the Nature and History of Science* in a manner similar to the *Connections to Engineering, Technology, and Applications of Science*.

The nature of science has been included in both the practices and crosscutting concepts.

For these questions, focus on a particular set of core ideas for physical, life or earth and space sciences or one or two grade levels as you did in Section I and review those performance expectations that include nature of science ideas.

• Does the material in the sections on practices and crosscutting concepts adequately address what students should know about the nature of science?

• Is the description of what students are to know about the nature of science at each grade level appropriate for students in that grade?

• In examining the draft, is it obvious that the performance expectations adequately address the nature of science statements in the foundation box?