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achievement gaps. The challenge is to design instruction that acknowledges the role of language; because language and knowledge are so inextricable.

In summary, today's children live in a society where many of their peers are from diverse backgrounds and speak different languages; one where technology is ubiquitous and central to daily life. They will enter a workforce and economy that demands critical thinking skills, and strong communication and social skills for full participation in society. This new society and economy has implications for today's education system—especially our instruction to foster a .9(deeper ae(en)5.2(-5.9Ih011lT.4(14(s)-)3.2(t a)2.7(u)t)2.3(y)-4.c 0 f Tc gy

Dimension 1: Science and Engineering Practices

Dimension 1, Science and Engineering Practices, describes (a) the major practices that scientists employ as they investigate and build models and theories about the world and (b) a key set of engineering practices that engineers use as they design and build systems. The term "practices" is used instead of a term such as "skills" to emphasize that engaging in scientific investigation requires not only skill but also knowledge that is specific to each practice.

Similarly, because the term "inquiry," extensively referred to in previous standards documents, has been interpreted over time in many ways throughout the science education community, part of the intent in articulating the practices in Dimension 1 is to better specify what is meant by inquiry in science and the range of cognitive, social, and physical practices that it requires. As in all inquiry-based approaches to science teaching, the expectation is that students will themselves engage in the practices and not merely learn about them secondhand. Students cannot comprehend scientific practices, nor fully appreciate the nature of scientific knowledge itself, without directly experiencing those practices for themselves.

The eight science and engineering practices mirror the practices of professional scientists and engineers. Use of the practices in the performance expectations is not only intended to strengthen students' skills in these

The New York State Pskills to be performed but still leaves curricular and instructional decisions to districts, school and teachers. The performance expectations do not dictate curriculum; rather, they are coherently developed to allow flexibility in the instruction of the performance expectations. Learning opportunities and pathways will continue to vary across schools and school systems, and educators should make every effort to meet the needs of individual students, based on their pedagogical and professional impressions and information.

The real innovation in the New York State P-12 Science Learning Standards is the requirement that students are required to operate at the intersection of practice, content, and connection. Performance expectations are the way to integrate the three dimensions. It provides specificity for educators, but it also sets the tone for how science instruction should look in classrooms. When implemented, the New York State P-12 Science Standards will result in coherent, rigorous instruction with students being able to acquire and apply scientific knowledge to unique situations as well as having the ability to think and reason scientifically.

Glossary of Terms:

Assessment Boundary Statements
Grade level endpoints, based on available research, that provide guidance or specify the scope of a performance expectation for a grade level.

Code for Topic Name
An abbreviated, unique identifier that is associated with each Performance Expectation.

Cross-Cutting Concepts
Ideas or themes that provide an organizational framework for connecting knowledge from various disciplines into a coherent and scientifically-based view of the world.

Clarification Statements
Descriptions found in the NGSS System Architecture that supply examples or shed additional light on the performance expectations.

Connection Boxes
Part of the NGSS System Architecture. Identifies science topics that share corresponding DCIs across disciplines at the same grade level, articulation of DCIs across grade levels, and links to ELA and Mathematics Common Core Standards.

Domain
The equivalent of a major content area. Includes Earth & Space Science, Life Science, Physical Science, and Engineering, Technology, and Applications of Science.

Disciplinary Core Ideas
The sum of concepts, that when understood, enable a person to make sense of the natural and designed world.

Dimensions
Three major elements of science and engineering that when properly integrated provide students with a context for the content of science, how science knowledge is acquired and understood, and how concepts that have meaning across the disciplines connect the sciences. Engineering Design A set of systematic practices applied to derive solutions to human problems.

Foundation Boxes
Part of the New York State P-12 Science Standards Architecture. Provide information that expands and explains the performance expectations in terms of the Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts.

Framework for Science Education[1]
Precursor document that offered a vision the key science and engineering ideas and practices that all students should learn by the end of high school. Provided the conceptual foundation for developing the NYSP-12SLS.

Learning Progressions
Descriptions of how students' knowledge and skills develop over multiple years at increasing levels of depth and sophistication. Idea of learning as a developmental progression is the basis for organizing the student performance expectations.

Nature of Science
The shared values, practices, and perspectives that characterize the scientific approach to understanding the natural world. Among these are a demand for explanations supported by empirical evidence that are testable.

Practices
Behaviors and understandings that scientists employ to investigate and build models and theories about the world and routines that engineers use to design and build systems.

Student Performance Expectation
Form in which the New York State P-12 Science Standards are written. Each statement incorporates a Science and Engineering Practice, Crosscutting Concept, and Disciplinary Core Idea.

21st Century Knowledge and Skills
Proficiencies needed by all high school graduates to meet the rigors of college, careers, and citizenship.