

New Jersey and the Next Generation Science Standards

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Science Technology, Engineering and Mathematics (STEM) fields have long been the backbone of American legacy. [Surveys dating back to 1979 show that Americans overwhelmingly endorse the past achievements and future potential of STEM.](#) A 2007 Carnegie Foundation Commission report, *The Opportunity Equation*, drew public attention to the reduction of the United States' competitive economic position, lagging K-12 US math and science test scores in international comparisons, and the need for better preparation of all careers and college-bound students for a STEM literate society.

These statistics, when coupled with existing cultural beliefs and biases, have led policy makers and the scientific education community to create the Next Generation Science Standards (NGSS) for kindergarten through grade twelve nationwide. NGSS employ research-based findings to enable all students to develop a better understanding of and proficiency in STEM. Click here to view a [video addressing the needs for NGSS.](#)

Forming the NGSS

The National Research Council (NRC), the National Science Teachers Association, the American Association for the Advancement of Science, and an organization called Achieve, Inc. led the development of the NGSS which is based on [A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts and Core Ideas.](#) *Frameworks* were developed by a committee of practicing scientists, science education researchers and policy experts and were published after public input in July 2011.

The *Framework* emphasizes the integration of disciplinary core ideas, science and engineering practices, and cross cutting concepts. Using the *Framework*, 26 state teams worked to

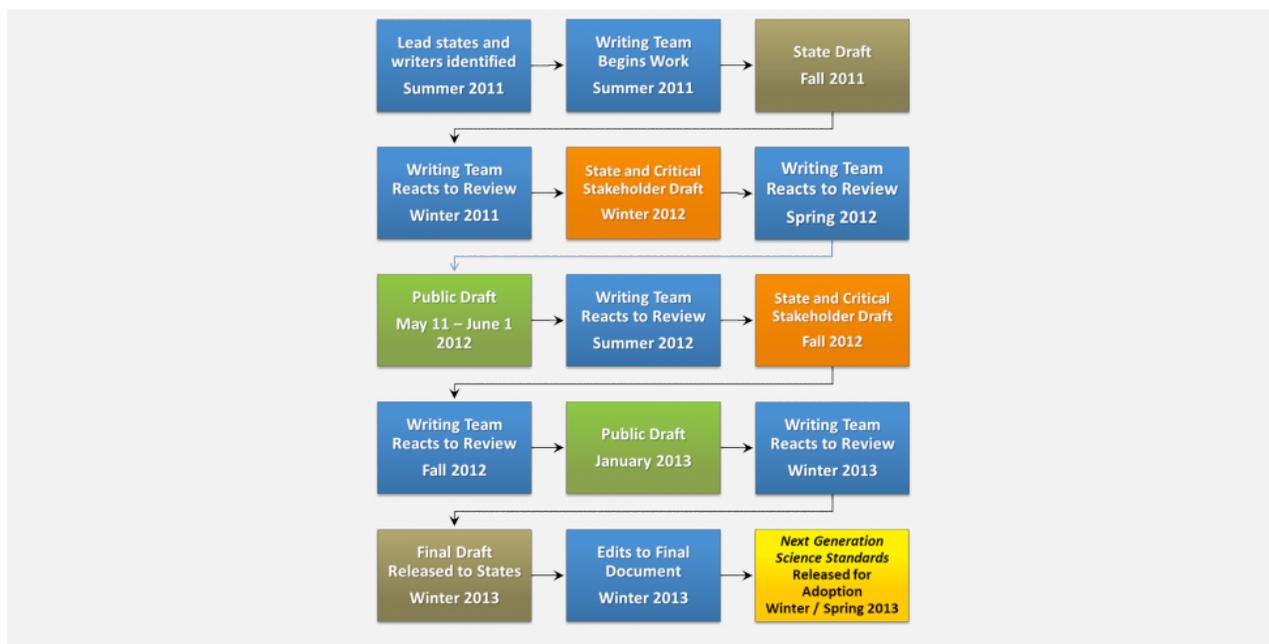
develop the Next Generation Science Standards goals for K-12 science education in public schools, emphasizing two major points:

- “Educating all students in science and engineering.
What all students should know in preparation for their individual lives and for their roles as citizens in this technology-rich and scientifically complex world.
- Providing the foundational knowledge for those who will become the scientists, engineers, technologists, and technicians of the future.”

After allowing multiple opportunities for public comments and revisions, the final document of the Next Generation Science Standards was released April 9, 2013.

Based on researched-based recommendations, the NGSS identify college and career-ready student performance expectations that focus on understanding and applying science knowledge and practices to new problems and situations. The NGSS emphasize the inter-relatedness of three dimensions of science: 1) Science and Engineering Practice; 2) Crosscutting Concepts; and 3) Disciplinary Core Ideas. The NGSS integration of science, technology, engineering and mathematics represents a major shift from traditional inquiry to design and creativity within real world constraints.

Historical NGSS Development Process



Where is New Jersey in the NGSS process?

According to Mike Heinz, NJ Department of Education Science Coordinator, “The Department of Education is in the beginning stages of making a decision regarding the adoption of the Next Generation Science Standards or readopting of the New Jersey Core Curriculum Content Standards for Science (2009). A working group of K-12 teachers of science, higher education faculty, informal educators, and representatives from the majority of the professional education organizations in the state are evaluating the standards, considering the advantages and disadvantages of adoption, considering the advantages and disadvantages of readopting the NJCCCS for Science (2009), and preparing a recommendation to the Commissioner.”

A transition to any new science standards will require critical implementation plans. Should the NGSS be recommended and adopted, the authors anticipate areas of impact will include curriculum, resources, instruction, assessment, and budgets among others. Public school systems will need to coordinate strategic planning to inform the leadership, professional culture and the public. Communication to all stakeholders must be timely, clear and well informed. Teachers, curriculum supervisors, and principals, as well as the public and state-wide science educators will require professional development to assess potential areas of change and to implement NGSS revisions should they be adopted. While considering the costs and benefits of K-12 science standards, our students’ education and preparation for the future must remain our first priority.

Disclaimer: Anne Catena, Ed.D., is a member of the aforementioned NJ Science Standards Adoption Committee that is preparing a recommendation to Education Commissioner Cerf.

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