

BACKGROUND

The mission of the New York State Education Department standards work is to create a Statewide learning community to enhance science education and improve student achievement of the New York State science learning standards leading to career and college readiness and a scientifically literate population capable of addressing the needs of society, participating in a global economy, and sustaining the physical and living environment.

The vision of the New York State Education Department’s standards work is to ensure the teaching and learning of science for all students by providing equitable access to exemplary teachers, science curriculum programming, instructional practices, and standards-based assessments that are reflective of research and best practices, along with quality resources and support from stakeholders at large.

Department staff in collaboration with various stakeholders in science education across the state have engaged in a process over several years (2010-2016) to develop New York State P-12 Science Learning Standards (NYSLS)

The Statewide Leadership Team, Science Education Steering Committee, and Science Education Consortium have provided formal advisory capacity to Department staff throughout the development process. The Department also gleaned valuable information from two public surveys; summer 2013 compared current state science standards to the NGSS using a set of criteria and a public survey (opened December 8, 2015, closed February 8, 2016) on the draft NYSP12SLS based on the same criteria. In conjunction with the three committees, Department staff worked alongside members to analyze quantitative and qualitative survey data and feedback to determine the necessary changes included in the current revised NYSP12SLS under consideration and posted on the Department’s website.

The NYSP12SLS are based on guiding documents grounded in the most current research in science and learning; and reflect the importance of every student’s engagement with natural scientific phenomenon at the nexus of three dimensions of learning; Science and Engineering Disciplinary Core Ideas, and Crosscutting concepts; A Framework for K-12 Science Education’ and the Next Generation Science Standards

In the recent 2015 report, Revisiting the STEM Workforce by the National Science Board stated that “the STEM workforce is extensive and critical to innovation and competitiveness” and careers in these fields will only grow in the next decade making it essential for accessibility to equitable learning opportunities for all students to benefit. Over the past several decades as well as recently, streams of research studies, reports, and publications also document the under participation and often limited preparedness of many students across the United States in science, limiting inclusive opportunities to enter the Science, Technology, Engineering, and Mathematics (STEM) workforce and college pathways.

It is in this context that the proposed new state learning standards in science are well positioned to strengthen science education in our classrooms for all our students. The development and adoption of these new proposed NYSP12SLS is a significant and an essential first

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| NEW YORK STATE SCIENCE LEARNING STANDARDS IMPLEMENTATION ROADMAP | | Phases |
| Goals/Objectives | Key Implementation Activities | I |

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| NEW YORK STATE SCIENCE LEARNING STANDARDS IMPLEMENTATION ROADMAP | | | |
| Goals/Objectives | Key Implementation Activities | Phases | |
| | | I | III |
| | | Raise Awareness and Build Capacity | Transition and |

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| Goals/Objectives | Key Implementation Activities | I | II |
| | | Raise Awareness and Build Capacity | Transition and Implementation |

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| E. <u>Materials and Resources Support</u> | Goal: Support regular and substantive teaching and learning of core science content, conceptual understandings, and practices for scientific inquiry and authentic engagement with natural phenomena by providing models of effective systems management and provision of science materials. |
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E1.Objective: Build the capacity of local educational agencies, higher education institutions, business and industry partners, and other profit and nonprofit organizations to connect teachers and students to relevant, realworld science applications that are aligned to the new P12 NYS science

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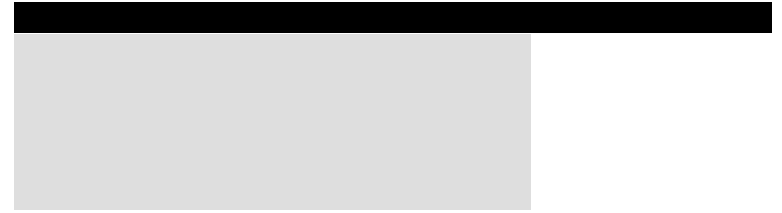
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| PHASE | NEW YORK STATE SCIENCE LEARNING STANDARDS | ROADMAP | Actions |
| Phase I | | | Stakeholder Group, Networks, and Partnerships NYSED Professional Learning Networks Big 5 School Districts, BOCES School Districts, Institutes of Higher Education Partners, Business and Industry Partne |
| Goals/Objectives | Key Implementation Activities | | Phase I 07/2017-08/2019 |



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| PHASE I NEW YORK STATE P12 SCIENCE LEARNING STANDARDS ROADMAP | | Actions Stakeholder Groups, Networks, and Partnerships NYSED, Professional Learning Networks, Big 5 School Districts, BOCES, School Districts, Institutes of Higher Education Partners, Business and Industry Partners | Phase II 09/2019-08/2023 |
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| Goals/Objectives | Key Implementation Activities | | Transition and Implementation |
| | Next Generation Mathematics Learning Standards (2017) and New York State Next Generation English Language Arts Learning Standards (Revised 2017) strengthen, support, and reinforce the development of scientific literacy. | | |
| C. Professional Development to Enhance Instructional Practice Goal: Initiate, build, and sustain collaborations and partnerships to provide specific and focused professional development to support the teaching and learning of core science content, conceptual understandings, and practices P | | | |
| C1.Objective: Provide opportunities for local educational agencies to collaborate and partner with STEM education stakeholders to develop and implement effective professional development models that are based upon the new P12 NYS science learning standards | C1c Build the capacity of interested business and industry experts to effectively partner with local educational agencies by promoting pertinent professional learning opportunities and resources. | | Also Phase I |
| C2.Objective: Provide opportunities for local educational agencies to collaborate and partner with STEM education stakeholders to develop and implement effective professional development models that are based upon the new P12 NYS science learning standards | C1d Engage local, state, and national professional and science education associations to lead and sustain STEM related professional development opportunities for face-to-face and online collaboration. | | Phase II |

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| PHASE I NEW YORK STATE P12 SCIENCE LEARNING STANDARDS ROADMAP | | Actions Stakeholder Groups, Networks, and Partnerships NYSED, Professional Learning Networks, Big 5 School Districts, BOCES, School Districts, Institutes of Higher Education Partners, Business and Industry Partners | Phase II 09/2019-08/2023 |
|---|--|--|-------------------------------|
| Goals/Objectives | Key Implementation Activities | | Transition and Implementation |
| D2.Objective:Understand and use relevant student achievement data from State science assessments to initiate data-driven professional development, curriculum, instruction, and assessment. | D2aCollaborate with science education stakeholders statewide,regionally, and locally to provide professional development for teachers and leaders that is focused on understanding and analyzing student achievement data for improving science teaching and learning. | | Also Phase I and II |
| | D2bProvide professional development opportunities for teachers and leaders to better understand the intent and design of an assessment system that is aligned to the new P12 NYS science learning standards | | Also Phase I and II |
| | D2cProvide professional development on the use of student achievement data to foster the development of formative assessments at the local and regional levels. | | Also Phase I and II |
| | D2dContinue to develop and administer valid and reliable State science assessments to drive professional development to improve teaching and student achievement. | | Also Phase I and II |

E. Materials and Resources Support Goal:Support regular and substantive teaching and learning of core science content, conceptual understandings, and practices through scientific inquiry and authentic engagement with natural phenomena by providing models of effective systems management and dissemination of science materials.

E1.Objective:Build the capacity of local educational agencies, higher education institutions, business and industry partners, and other profit and nonprofit organizations to connect teachers and students to relevant, realworld science applications that are aligned to the new NYS P2SLS.

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| Goals/Objectives | Key Implementation Activities | | Transition and Implementation |
| the equitable access and implementation of exemplary, cost-effective curriculum programming and instructional materials that are aligned to the new P12 NYS science learning standards | E2c Seek funding opportunities for instructional technologies that support core science and engineering content, conceptual understandings, and practices. | | Phase II |
| | E2d Seek funding opportunities to acquire equipment, materials, and supplies to support the development, implementation, and sustainability of P2 science curriculum and instructional programming at the local and regional levels. | | Phase II |
| F. <u>Administrative and Community Support</u> Goal: Build the capacity to enhance science education and ensure career readiness by involving STEM stakeholder partnerships and all between school districts, institutions of higher education, science education professional organizations, business and informal education organizations, government agencies, and the larger learning communities: local, regional, state, national, international arenas. | | | |

F1.Objective: Identify science education stakeholders to lead the development and continued growth of

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Actions
Stakeholder Groups, Networks, and Partnerships

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| Goals/Objectives | Key Implementation Activities | Stakeholder Groups, Networks, and Partnerships NYSED, Professional Learning Networks, Big 5 School Districts, BOCES, School Districts, Institutes of Higher Education Partners, Business and Industry Partners, | Implementation and Sustainability |

and instructional resources to broaden accessibility.

B3c Build student resources by establishing community based programs that provide relevant STEM

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