

Statewide Strategic Plan for Science

Mission

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.

Vision

Ensure the teaching and learning of science for all P-12 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.

Standards

Goal: Adopt new P-12 NYS science learning standards and 5-year strategic plan.

Objective: Direct the review, revision, and adoption process for identifying new P-12 NYS science learning standards.

Activities:

Develop a 5-year, statewide strategic plan for science for adoption by the Board of Regents.

Develop and post a public survey to gather stakeholder feedback on comparing current NYS science learning standards and nationally developed Next Generation Science Standards (NGSS) to research-based standards evaluation criteria.

Engage science education stakeholders to analyze feedback from the public survey.

Objective: Determine the core science content, conceptual understandings, and practices for all students P-12 that develops scientifically literate citizens who are better prepared to pursue college and/or career pathways.

Activities:

Convene committees of stakeholders to review feedback from the public survey, other pertinent data, and current research in science and science education, as well as other international, national, and state standards documents.

learning standards influenced by the NGSS, or the adoption of the NGSS.

Develop cross-content area benchmarks for use both within and across P-12 grade levels to support horizontal and vertical articulation between the science disciplines and other content areas.

Identify convergences with engineering, technology, the New York State P-12 Common Core Learning Standards for Mathematics, and the New York State P-12 Common Core Learning Standards for English Language Arts and Literacy.

Objective: Implement and sustain the 5-year strategic plan for transitioning to the new P-12 NYS science learning standards.

Activities:

Develop a reasonable timeline for the adoption of and transition to implementation of the new P-12 NYS science learning standards. Secure funding to support and sustain the implementation process at the State, regional, and local levels.

Ensure that the six critical components – Standards, Curriculum, Professional Development to Enhance Instruction, Assessment, Materials and Resource Support, and Administrative and Community Support – of the 5-year strategic plan are addressed concurrently during the implementation process.



Curriculum

Goal: Provide opportunities that are reflective of research and best practices for P-12 students to engage with scientific phenomena through implementation of innovative science curriculum programming that fosters learning, deep understanding, and application of core science content, conceptual understandings, and practices.

Objective: Survey current research pertaining to teaching and learning in science, science education, and cognitive science to develop relevant curriculum guidance and resources.

Activities:

Explore, identify, and provide access to pertinent research.

Develop articulated P-12 guidance to support curriculum development and implementation aligned to the new P-12 NYS science learning standards.

Provide funding opportunities for equitable development and/or adoption of exemplary science curriculum programming.

Provide funding opportunities for equitable implementation and evaluation of exemplary science curriculum programming at the regional and local levels.

Align and incorporate relevant connections to engineering, technology, the New York State P-12 Common Core Learning Standards for Mathematics, and the New York State P-12 Common Core Learning Standards for English Language Arts and Literacy.

Review and update curriculum guidance and resources to be reflective of changes in instructional technology, content, and best educational practices, emphasizing active engagement in STEM.

Objective: Build the capacity of regional centers and local school districts to implement curriculum and instructional programs that are based on the new P-12 NYS science learning standards.

Activities:

Support the implementation of exemplary, data-informed science curriculum programming and instructional materials, using cross-curricular connections from engineering, technology, the New York State P-12 Common Core Learning Standards for Mathematics, and the New York State P-12 Common Core Learning Standards for English Language Arts and Literacy that strengthen, support, and reinforce the development of scientific literacy.

Leverage funding opportunities for partnerships and collaborations of science education stakeholders for the development, dissemination, and implementation of local and regional curriculum programming.

Engage education stakeholders with expertise in various disciplines to support local and regional development, dissemination, and



implementation of curriculum based on the new P-12 NYS science learning standards.

Create opportunities that bring students into contact with working scientists, mathematicians, and engineers through innovative curriculum design, internships, and mentorships with institutes of higher education and/or business and industry partners.

Objective: Incorporate the use of technology to expand the development, dissemination, and implementation of curriculum and instructional resources to broaden accessibility.

Activities:

Leverage existing and seek new funding sources to support the use of technology to develop, disseminate, and implement science curriculum and instructional resources through various delivery platforms.

Utilize multiple platforms to access exemplary curriculum and instructional resources.

Build student resources by establishing community-based programs that provide relevant STEM applications in science curriculum and instructional programs.

Professional Development to Enhance Instruction

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-12.

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 P-12 NYS science learning standards.

Activities:

Establish networks of stakeholders in STEM education to provide professional development that enhances the development, dissemination, and implementation of curriculum, instructional and assessment materials, and other resources.

Engage local, state, and national professional and science

Objective: Obd171ve:

other stakeholders to sustain professional development for teachers and leaders in science.

Promote institutes, courses, and/or workshops that enhance the teaching and learning of the individual disciplines associated with science, technology, engineering, and mathematics and the connections between these disciplines.

Create access to new and/or existing, online, on-demand venues for specific and focused professional development.

Objective: Increase teacher and leader participation and engagement in professional development opportunities that are based upon the new P-12 NYS science learning standards to build subject knowledge and pedagogical-content knowledge in the sciences by leveraging the expertise of science education stakeholders.

Activities:

Design opportunities to coordi

system that is aligned to the new P-12 NYS science learning standards.

Provide professional development on the use of student achievement data to foster the development of formative assessments at the local and regional levels.

Continue to develop and administer valid and reliable State science assessments to drive professional development to improve teaching and student achievement.

Materials and Resource 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.

Objective: Create new and identify existing science material centers (regional, district, school-based) and related resources to support the equitable access and implementation of exemplary, cost-effective curriculum programming and instructional materials that are aligned to the new P-12 NYS science learning standards.

Activities:

Seek funding opportunities to acquire equipment, materials, and supplies to support the development, implementation, and sustainability of P-12 science curriculum and instructional programming at the local and regional levels.

Identify new or use existing funding streams to support facilities planning to provide physical space that is conducive to teaching and learning in state-of-the-art classrooms and laboratories.

Develop collaborations and partnerships to promote and support comprehensive systems for the development, implementation, and sustainability of science materials and resources.

Seek funding opportunities for instructional technologies that support core science and engineering content, conceptual understandings, and practices.

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, real-world science applications that are aligned to the new P-12 NYS science learning standards.

Activities:

Develop partnerships between STEM stakeholders and school districts that collaborate to provide education outreach for science materials and other logistical support.



that are similar to those used in the National Board Certification process.

Re-evaluate the coordination, allocation, and distribution of state and federal funding streams to better support science education.

Identify available grants to sustain the implementation of the new P-12 NYS science learning standards through partnerships within the State's established infrastructure, such as BOCES, museums, STEM Hubs, etc.

Objective: Enhance public relations to heighten the importance and presence of P-12 science education in New York State.

Activities:

Develop a statewide plan for improving communication with science stakeholders and the community at large about the benefits of STEM education.

Develop a plan to build awareness of science education for citizens and readiness for college and/or careers.

Build support and enhance knowledge of the public and private sectors to promote effective implementation of science curriculum programming, instructional practices, standards-based assessments that are aligned to the new P-12 NYS science learning standards.

