

Proposal Abstract

Project *Full STEAM Ahead (FSA)* is an innovative initiative of two Bronx schools to integrate concepts in *Science, Technology, Engineering, Art, and Math* across the curriculum for middle school students, and to create opportunities for the students to apply these concepts to real-world issues through collaborative, interdisciplinary projects. Over a three-year period, *FSA* will serve more than 400 6th, 7th, and 8th Grade students at Community School 219, a designated Priority and Renewal school, and at St. Helena's School. The project will also train more than 40 of the schools' teachers to design and implement project-based units of study integrating *STEAM*. The positive shared experience from an earlier NYSED Learning Technology Grant prompted the schools to partner again to serve other continuing shared needs: specifically, to facilitate the development of 21st Century skills, and to build clear pathways for college and career readiness. To do so, *FSA* will use an interdisciplinary, blended learning approach, integrating mobile devices, digital media, cloud-based collaborative spaces, and videoconferencing to engage in shared class projects. The projects will be built on addressing real-world issues, tapping curricular connections of content in science, math, literacy and social studies, consistent with instructional shifts in Common Core Learning Standards (CCLS). Students will be guided to explore creative and innovative responses to current social and environmental problems through a teaching artist residency and routine work in Makerspaces set up in each school. *FSA* will increase teacher effectiveness through the adoption of 21st century teaching and learning strategies, a key component of the Regents Reform Agenda. As a component of their Renewal School Comprehensive Education Plan (RSCEP), CS 219 has committed to rolling out a one-to-one mobile device program over the next three years, beginning with the entire 6th Grade class in 2015-16. *FSA* will leverage this universal student access to enhance the academic program and further motivate students with relevant, engaging projects and meaningful assessments.

The goals of *Full STEAM Ahead* are:

- To improve student academic performance toward mastery of the NYS CCLS.
- To increase the effective use of instructional technology – including mobile devices, cloud-based tools, and Makerspace resources to enhance student learning and foster 21st century skills.
- To improve teacher effectiveness by emphasizing pedagogical best practices in using mobile technologies and cloud-based apps in the classroom and library media center

The major project activities for *FSA* include:

Collaborative, interdisciplinary unit planning and assessment design by grade teams. **Analytical and Applied Reading and Writing** – Students will strengthen their content knowledge in science and social studies using anchor text and reading and writing strategies from Expeditionary Learning and Jr. Great Books, NYC validated literacy curriculum as a model for developing their own writing. (CCLS RI 6.1-6.9, 7.1-7.9, 8.1-8.9). **Writing Process-Understanding of Writing Structures and Language** – Students will be able to understand and apply the stages of writing process including planning, revising, editing and publishing original works. Through an understanding of the peer review process and use of a writing rubric, students will engage in cloud-based activities in peer writing and presenting in Google docs and Blogger with their teachers and with students at their partner school. (CCLS W 6.1-6.10, 7.1-7.10, 8.1-8.10) (CCLS SL 6.4-6.6, 7.4-7.6, 8.4-8.6 ;) **Sharing and Community and Social Skill Building** – Students share their writing and engage in 'Book Talks' via synchronous videoconference with students at other schools. Students share writing via online social network in the form of digital media, audio recordings and text using Google Presentation. (CCLS L 6.1-6.3, 7.1-7.3, 8.1-8.3; SL 6.1-6.3, 7.1-7.3, 8.1-8.3); **Formative Assessment and Evaluation** – Students will video and audiotape their written work and use it in the classroom for feedback to perfect their interpretation for their writing. Student portfolios will be developed each year using Google Drive. Peer review and self-assessment are key components of the *Full STEAM Ahead* staff development program, as emphasized in the NYS Professional Development and NYS Teaching Standard. Schools in this project will apply these strategies.