Overview
Inquiry Hub is a design research partnership between Denver Public Schools and a multidisciplinary research team that includes experts in mathematics and science education, curriculum design, and educational technology from the University of Colorado Boulder and the University Corporation for Atmospheric Research as well as expert biologists from Denver Parks & Recreation and other groups. In design research partnerships, researchers and educators collaboratively design, build, and test solutions to persistent problems of practice (Coburn, Penuel, & Geil, 2013). With funding from the NSF Cyberlearning Program, we are studying how next generation learning technologies can: (1) provide all students with opportunities to engage in meaningful and personally relevant science learning that reflects the vision of A Framework for K-12 Science Education and (2) expand the agency of participants implementing this vision, namely teachers and students.

Increasing student agency by embedding citizen science into curriculum
An 8-week Ecosystem unit was co-designed and piloted in 7 high school biology classrooms in Denver Public Schools in 2014-2015. A central feature of this unit is a student engineering design challenge, interweaving NGSS disciplinary core ideas in biology with science and engineering practices. In this challenge, students conduct fieldwork to characterize their local urban ecosystem and use their results to make recommendations to the Denver Parks and Recreation Department. Students recommend both the types of trees to be planted and where trees should be planted to enhance the biodiversity of the urban ecosystem. Denver Parks and Recreation acts on these recommendations and plants the trees with the students as part of a broader community planting program. Our research suggests that structuring the unit around a citizen science component that has direct impact on the local community is powerfully motivating to these students. The majority of these students, about 80%, come from non-dominant backgrounds and qualify for free and reduced lunch. Students report that this project is the first time their science projects have had immediate impact on their environment and community.
Students prepare the spot for their tree
Students work to plant their tree

Students with Parks & Rec personnel after a planting session

For more information about this partnership, please visit the partnership website: http://inquiryhub.dls.ucar.edu/