

ABSTRACT

Playground Physics: Scaling and Sustaining a Technology-Enhanced Middle-School Physics Program

Type of Grant Requested: Mid-phase

Absolute Priorities: 1-Moderate Evidence and 3-Promoting STEM Education

Number of students to be served: 9,800

Grade levels to be served: 6-8

Definition of high-need students: Eligible for free or reduced-cost lunch and are from groups traditionally underrepresented in STEM careers.

Project Description: 90% of middle-school students do not have adequate opportunities to learn physics—one of the gateway courses to higher-level STEM education. This project proposes to address the need for richer opportunities for physics learning in high-need districts in New York State (NYS) through the implementation of Playground Physics (PP). PP—an iPad app, a curriculum, and professional development activities—is uniquely designed to engage middle-school students in standards-aligned physics activities proven via a randomized control trial in New York City (NYC) to significantly increase physics achievement. The project’s goal is to refine and test a train-the-trainer strategy for scaling and sustaining PP in 50 schools.

Objectives and expected outcomes:

- Develop a train-the-trainer strategy to train 8 coaches and 100 teachers
- Scale PP in classrooms with ongoing support and fidelity
- Test PP’s effectiveness when implemented at scale in diverse contexts to increase students’ knowledge and perceived utility of, engagement with, and interest in physics
- Build capacity for sustainability and further scaling in partner districts

List of sites: PS64Q and IS24 in NYC; Yonkers Public Schools; Fort Ann and Greenwich Central School Districts; and districts in Eastern Suffolk, Questar III, Genesee Valley, Nassau, and Washington BOCES. The NYS’s Education Commissioner supports this project.

List of partners: New York Hall of Science; NYS Department of Education; NYS Computers and Technologies in Education; American Institutes for Research; and above districts.