

2012-2015 Learning Technology Grant Program

Abstract

(Abstracts are submitted by the LTG award winners)

PS65 Mother Hale Academy is partnering with MS390 and St. Luke Parochial School, a nonpublic school who share a common goal to improve our students' math performance across our general population with particular attention to two groups, Students with Disabilities (SWD) at PS65 and English Language Learners at MS390. Over 26% of the students in PS65 are SWDs and over 33% in MS390 are ELLs. Each of the groups of students need support developing basic math skills and the academic language of math and higher level analytical skills.

Language development is a fundamental co-requisite for learning mathematical concepts, processes and skills. Math has its own specific terminology e.g. coefficients, variables, or academic vocabulary that, similar to conversational language, needs to be developed through practice. Our proposed program, *Math in the Making*, will focus on enhancing students' math competencies through teacher professional development in the integration of hands-on active making and collaborative peer-learning groups.

Using a student centered approach, the program will immerse students in hands-on active making including electronics, programming, educational video gaming and robotics. In P65 and St. Luke schools, a unit on electronics and circuitry will require students to predict electricity needs of certain devices e.g. LEDs, buzzers, toy motors and to measure voltage generated by various energy sources to make and complete series and parallel circuits. At MS390 students will program robots using mathematical calculations including graphing coordinates to direct robots' movement across the classroom through various obstacles. Students will also use math in Scratch <http://scratch.mit.edu/> programming to create their own video games e.g. successfully navigating a sprite through a maze. The students will post the videos to a common website for students at PS65 and St. Luke to play and critique. Students at MS390 will use the input from students at PS65 and St. Luke to improve their games.

Teachers will receive online instruction from Fordham University and regular visits from professional developers from Knowledge iTrust and Educate LLC who will provide onsite support including lesson and unit planning, materials management and implementation. Teams from each school will be comprised of teachers from grades 3-5 (PS65 and St. Luke), math teachers from grades 6-8 (MS390) and literacy and technology specialists. Goals for the program include improved student achievement including NYS P-12 Common Core Learning Standards through increased teacher use of technology and active learning approaches to increase mathematical competence.