

Booker T. Washington STEM Academy and the University of Illinois: Partnering to Improve STEM Education

Booker T. Washington STEM Academy
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A number of units and projects at the University of Illinois at Urbana-Champaign (*Illinois*) are collaborating with Booker T. Washington STEM Academy (BTW), a Champaign Unit 4 elementary school, to provide its students with stimulating educational programs in the areas of STEM (Science, Technology, Engineering, and Mathematics). Highlighted below are *Illinois* units/projects currently partnering with BTW to provide outreach activities in STEM.

Chemistry

Professor Pat Shapley, with the help of Uni High students, performs weekly chemistry experiments with different grade levels. In a recent Egg Drop lesson, *Illinois* Chemistry undergraduates supervised BTW students who designed and built protective apparatuses for their eggs, then dropped them from a balcony to test their designs.



College of Applied Health Sciences

- BTW Wellness Fair
- Walkathon
- Flash Workout (along with Division of Intercollegiate Athletics)
- Go, Slow, and Whoa: This program uses posters to educate kids about healthy foods they should eat a lot of (Go), foods they can eat sometimes (Slow), and foods they should try to avoid (Whoa).



EnLiST: Entrepreneurial Leadership in STEM Teaching and Learning

EnLiST's professional development in chemistry, physics, and physical sciences provides BTW teachers with cutting-edge content knowledge, pedagogy, and entrepreneurial capacity so they can transform teaching and learning in their classrooms, school, and district.



Entomology

This collaborative lesson about insects involved hands-on learning stations manned by Entomology staff and students. BTW students not only learned about insects, but they got to see them up close and to touch or hold some of them.



Family Resiliency Center

As a part of BTW's health and wellness emphasis, Family Resiliency Center director Barbara Fiese will present food demonstrations on good nutrition. The parental involvement component will look at the economy of food, possibly using BTW's Community Garden.

I-STEM Education Initiative

During BTW's transition to a STEM academy, I-STEM helped with building design and curriculum planning. In 2012, I-STEM will collaborate with BTW on these STEM projects:

- Summer 2012 Science Camp
- Technology Club
- Field trips to *Illinois* STEM projects
- Elementary Science Olympiad team



Nano-CEMMS: The Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems

NanoCEMMS faculty introduced BTW and Urbana Middle School students to nanotechnology: how scientists and engineers work to manipulate matter at the atomic or molecular level. In a recent cutting-edge engineering project, EnLiST teachers and Nano-CEMMS partnered to create a lesson where BTW kindergarteners used polymers to make rubber balls, then did hands-on activities to learn about force, friction, and gravity.



Physics of Living Cells

In this collaboration, *Illinois* staff and students from the Center for the Physics of Living Cells used hands-on learning activities to teach BTW students principles about how microscopes work and how the color spectrum is used in computer monitors.



Technology Night

BTW's Technology Night involved the following *Illinois* projects/units:

- EnLiST
- National Society of Black Engineers
- College of Education: STEM Stations and Activities
- UIUC Astronomical Society: Stargazing with Telescopes

- Big Broadband Project: UC2B Network
- Electric Glove Steering Skateboard