

STEM: Science, Technology, Engineering, and Math

December 2013

“Getting Intentional about STEM Learning”

by Michael MacEwan

Overview: In this article, Mr. MacEwan shares lessons learned from implementing STEM programs in informal settings. He is the Director of 21st Century Community Learning Centers and STEM Initiatives at New Jersey’s statewide network for afterschool communities. He notes that successful programs “create a culture of STEM,” where children and youth use STEM inquiry approaches to problem-solve, no matter what traditional “subject” out-of-school time material would traditionally fit. In addition, he shares professional development takeaways from out-of-school time staff tasked with implementing STEM programs.

Where to Find It:

<http://www.sp2.upenn.edu/ostrc/doclibrary/documents/GettingIntentionalaboutSTEMLearning.pdf>

“Using Project-Based Learning to Teach Science”

by Jason Schwalm

Overview: This article outlines tools and strategies to use Project-Based Learning (PBL) to teach Science; specifically, how to incorporate skills like creativity and critical thinking to engineer solutions to problems. In the article, Schwalm discusses two concrete examples of how starting with a Driving Question can lead to endless discovery and intellectual curiosity for students in science, and he provides evidence from Philadelphia OST programs to make his case. Schwalm further explains that Driving Questions are “open-ended enough to sustain many weeks of inquiry, and should feel authentic and relevant to students.”

Where to Find It:

<http://library.constantcontact.com/download/get/file/1102608312958-342/Afterschool+Today+Article+-+Winter+2013+-+by+Jason+Schwalm.pdf>

Featured Information:

“Partnerships with STEM-Rich Institutions”

Summary:

This issue brief uses case studies to show examples of afterschool programs across the United States (including one in Philadelphia) using partnerships with STEM institutions like museums, universities, businesses, and government agencies. The article dives deep into the work of these partnerships to illustrate key benefits diverse sets of collaborators can have on STEM learning for youth:

- By providing professional development and curriculum resources
- By leveraging the expertise of community volunteers as STEM educators
- By establishing connections among potential mentors in higher education and business

This article also notes common themes for successful partnership, including clear communication and program flexibility.

Where to find the full article:

<http://www.sp2.upenn.edu/ostrc/stem/documents/PartnershipwithSTEM-RichInstitutions.pdf>