

Sew What? Engineering Fashion in the Classroom



In this video, Senior Fellow Kate Miller describes a wearable electronics unit that she and other teachers implemented at Upward Bound, a summer camp aimed at preparing first-generation and low-income high school students from the Minneapolis/St. Paul area for college. Students engaged with the engineering design process as they drafted, sewed, optimized, and presented a unique garment. Students also learned to program lights to respond to sensory input, and attached these to the clothing itself. The project culminated in a fashion show, both in the light and the dark.

PHOTO CREDIT: UNIVERSITY OF WISCONSIN-RIVER FALLS UPWARD BOUND PROGRAM.

Watch this video to see the project's progression and learn about the teachers' thoughts and reflections, including:

how students' authentic learning is a reflection of the teachers' authentic learning,

a realization of preconceived gender bias around who can do engineering, and how this project has inspired similar ways of teaching and learning in more traditional classroom contexts.

Special thanks to the [University of Wisconsin-River Falls Upward Bound](#) program and the National Science Foundation-supported [IceCube Neutrino Observatory](#) and [PolarTREC](#) for their ongoing support of student learning.

This [summer] project was an example of real, authentic, get-your-hands-messy, make-mistakes, not-quite-sure-where-we're-going-to-end-up sort of learning," and it stuck with the teachers well into the school year."

[Download Article](#)

Kate Miller, a Knowles Senior Fellow, is currently in her fifth year of teaching physics at Washington-Lee High School in Arlington, Virginia. In her free time, Kate enjoys training parkour and Krav Maga. Reach Kate at kate.miller@knowlesteachers.org.