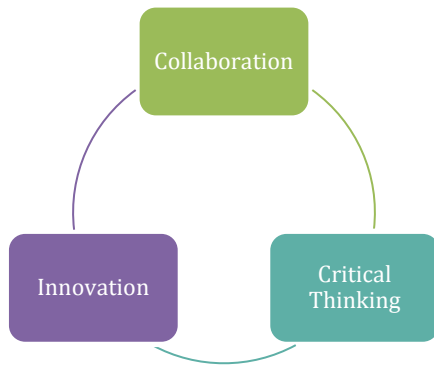


STEM School Chattanooga

11th Grade PBL Unit Plan Template

Unit Quarter: 1st

Title: UTC Off-Grid Charging Station Device



Learning Target Topics

Collaboration: Working with other people on a project or problem to achieve a shared goal.

Critical Thinking: Accessing, using, and applying information and knowledge.

Innovation: Using creative thinking to construct something new and valuable.

Grade Level	11 th Grade	Unit Length	9 Weeks
Industry Partner	UTC <ul style="list-style-type: none"> School of Education – Professor Billy Millican, Professor Susan Millican 		
Unit Overview	STEM student teams will be tasked to design and build a device that converts mechanical energy to electrical energy in order to provide an off-grid charging station for the UTC School of Education and UTC student center. The mechanical energy will be provided as students open and close the doors to the student center. For the project lead, the focus is on the development of a sustainable, renewable energy source for UTC student center patrons. For the STEM School, the focus is on the student teams demonstrating collaborative skills throughout product development.		
Unit Essential Issue	<ul style="list-style-type: none"> Project: <i>Design and build a self-sustaining mobile charging station that stores mechanical energy as electrical power.</i> 		
Kick Off Event	Kick Off: Wednesday, Aug 20th (time TBD) The project leads will come to the STEM school and share a 30 to 45 minute lesson to explain the constraints and goals of the project. The student teams will have access to both project leads via email throughout the project for clarifications as questions arise.		
Culminating Events	The student teams will host the project leads and any staff they choose to bring for the evaluations. The student teams will present their (hopefully) functional prototypes along with digital and/or physical documentation of each iteration of the engineering design cycle they encountered throughout the build. The student teams will receive feedback from the project leads and their panel at the conclusion of the presentations. The panel may choose to install one or more of the prototypes in the School of Education or student center if the quality is to their standard.		
Common Assessment	Students will be scored using the Association of American Colleges and Universities rubric for Collaborative Skills. All 4's will equate to Advanced, scores of 3 and 4 will equate to Proficient, and any scores below a 3 will equate to Below Basic. Items that will be used to score student work: <ul style="list-style-type: none"> Presentation including documentation of the iterative process. Product (functional prototype of the energy conversion and storage device) 		