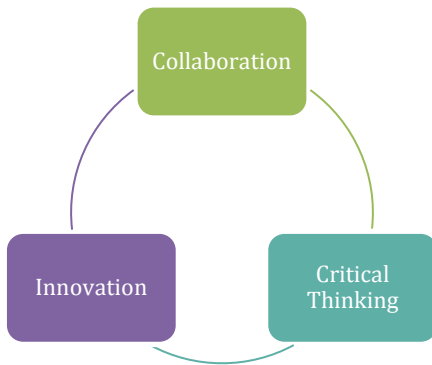


STEM School Chattanooga

11th Grade PBL Unit Plan Template

Unit Quarter: 3rd

Title: Portable Hydroelectric Power Station



Learning Target Topics

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

Creative 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	<ul style="list-style-type: none"> Professor Jenn Pascal, Tennessee Tech University Shayne Champion, Tennessee Valley Authority 		
Unit Overview	<p>STEM student teams will design and fabricate a portable hydroelectric power station. Intended users include recreational campers, peoples in undeveloped countries, and victims of natural disasters in need of power. Users may have various needs ranging from providing light to charging smartphones. For the school partner, the focus is on the use of the engineering design process and modeling of fluid flows to produce a viable power station. For the STEM School, the focus is on the innovation skills demonstrated by the student teams.</p>		
Unit Essential Issue	<ul style="list-style-type: none"> Project: <i>Design and fabricate a portable hydroelectric power station for various users and needs.</i> 		
Kick Off Event	<p>Kick Off: January 12th Professor Pascal will explain the principles of fluid dynamics and modeling of fluid flow as a basis for designing a viable portable hydroelectric power station. Mr. Champion will provide a walk-down tour of the Chickamauga Dam and how it creates electricity.</p>		
Culminating Events	<p>Presentation Day: TBD (March 14th-18th) The student teams will present their functioning hydroelectric power stations to the project sponsors. The project sponsors will evaluate the designs and provide constructive feedback to the teams.</p>		
Common Assessment	<p>Students will be scored using the Association of American Colleges and Universities rubric for Creative Thinking 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.</p> <p>Items that will be used to score student work:</p> <ul style="list-style-type: none"> Assignments (Plans, Weekly Prototype Reports, Design Process Work Products, etc.) Presentation Functioning Prototype 		