

## Project Planning & Overview

<b>Subject/Course:</b>	Physics, Chemistry, Trigonometry	<b>Grade Level:</b>	10-12
<p><b>Content Standards and Learning Outcomes</b>  <i>What content standards will you cover with this unit? Are there other learning outcomes or skills you plan to integrate?</i></p>	<p>Physics</p> <ul style="list-style-type: none"> <li>● Electromagnetic induction and its connection to generators and motors</li> <li>● Project planning skills and prototyping</li> <li>● Energy transfer (mechanical to electrical)</li> <li>● Synthesis of recommendations and data presented by others</li> <li>● Characterize insulators and conductors</li> </ul> <p>Trigonometry</p> <ul style="list-style-type: none"> <li>● Calculate linear and angular velocity</li> <li>● Collect and analyze data</li> <li>● Model data with sinusoidal functions</li> <li>● Interpolate and extrapolate using function model</li> <li>● Apply mathematics to real world problem solving</li> </ul> <p>Chemistry</p> <ul style="list-style-type: none"> <li>● Learn about peak oil, climate change, carbon footprint, carbon credits and cap and trade.</li> <li>● Assess various types of alternative energies</li> <li>● Make feasibility recommendations for complex problems</li> </ul>		
<p><b>Concepts and Skills</b>  <i>What do you want students to know and be able to do as a result of this project?</i></p>	<p>Physics</p> <ul style="list-style-type: none"> <li>● Electromagnetic induction</li> <li>● Generators and motors</li> <li>● Energy transfer</li> <li>● Construction</li> <li>● Collaborative work (21st Century Skills)</li> </ul> <p>Trigonometry</p> <ul style="list-style-type: none"> <li>● Sinusoidal data modeling</li> <li>● Analyze data</li> <li>● Communicate using mathematical reasoning</li> </ul> <p>Chemistry</p> <ul style="list-style-type: none"> <li>● Evaluation of multiple options</li> <li>● Complex decisions making and problem solving</li> </ul>		
<p><b>Project Scenario</b>  <i>What kind of scenario could</i></p>	<p>Students are challenged to work with a group of collaborating mathematicians and chemists (fellow students). To research and develop recommendations, models, and prototypes of wind turbines best suited for use in Thermopolis,</p>		

<p><i>you put students into to engage them, create need-to-knows, and externalize the enemy?</i></p>	<p>WY to offset rising energy prices and carbon emissions.</p>
<p><b>Problem Statement / Driving Question</b> <i>What is the challenge, investigation, scenario, problem, or issue?</i></p>	<p>How can we as... Physicists, Chemists, and Mathematicians</p> <p>Do... understand and build a working prototype, understand the need for and evaluate alternative energies, complete sinusoidal data modeling</p> <p>So That... we can save the whales, stop global warming/climate change, and learn.</p>

**REALITY CHECK!**

<p>Does your project cover important standards for state testing?</p>	<p>Does your project pose an authentic problem with multiple solutions?</p>	<p>Does your project require core subject knowledge?</p>	<p>Have you considered your time frame for this project?</p>
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<p><b>Culminating Products &amp; Performances</b></p>	<p><b>Group:</b> Working prototype and project report, turbine, project website and blog, recording of research findings, gather, analyze and model data, provide recommendations to other courses/students.</p> <hr/> <p><b>Individual:</b> Formative and summative assessment(s), individual concept homework assignments, presentations on alternative energy sources and feasibility, data collection, analysis and modeling, written reports, recommendations and findings.</p>
<p><b>Authenticity &amp; Partners</b> <i>How will you make this project as real-world as possible, and who will help you?</i></p>	<p>Based on local availability and feasibility for alternative energies, presentation to local school board members and school district administrators, local media.</p>

<p><b>Entry Event</b> <i>How will you roll out the project to engage the students?</i></p>	<p><b>Twist (Optional)</b> <i>How will you introduce new facets of the project to deepen the experience and/or rigor?</i></p>
<p>Entry Document - Letter from superintendent of school district requesting former students to assist in determining the feasibility of alternative energy implementation at district sites. Request for specific professionals (students in various courses) to complete specific aspects of the task.</p>	<p>NA</p>

<p><b>Name of Project</b></p>	<p>When The Wind Blows</p>
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