Learning Goals for: Energy Resources on Earth, Work, and Power

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| **Big Picture**: Students should understand why alternative energies are important to develop, as well as the benefits and concerns associated with various alternative energies, and how power is produced. | | | |
| **Content Goals** | | **Skills Goals** | |
| Students will know how to:   * Define energy, work, and power * Identify the transformation of energy in a variety of renewable energy sources * Explain that energy is transformed to do work * Describe fossil fuels and how they are produced * Describe the basic production of alternative energy resources such as: nuclear energy, wind energy, solar energy, tidal energy, hydroelectric energy, energy from biomass, biofuels, hydrogen fuel cells, geothermal, ocean waves * Evaluate the positive and negative impacts of various alternative energies and fossil fuels on humans as well as the planet * Calculate the work done by a machine such as a wind turbine * Calculate the power generated by a machine such as a wind turbine | | Students will be able to:   * Choose and use reliable sources to explain a process * Build and modify a wind turbine that can lift a weight * Design a procedure for modifying a wind turbine to increase the work and power capabilities * Present qualitative and quantitative data in well-organized tables * Make and present calculations based on quantitative data * Process and present data in a graph * Summarize results in a conclusion | |
| **Assessment**: How will mastery of content and skills be assessed?  Laboratory behavior and student lab reports will show if students can:   * Work safely in the laboratory * Design a procedure to investigate a process or property * Prepare well-organized data tables * Process data and present it in graphical form   Quizzes and tests will show if students have mastered the content goals. | | | |
| **Key Vocabulary:**  Energy  Fossil Fuel  Turbine  Potential Energy | Renewable energy source  Nonrenewable resource  Work  Power  Kinetic Energy | |  |



