



Curriculum Units by Fellows of the National Initiative
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Mathematics of Energy Efficiency: Use Less, Save More

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Humanity's number one problem for the next 50 years is energy. Solving the energy problem involves a comprehensive approach which includes renewables and energy conservation. Blending the science of energy with Algebra I supports sociopolitical awareness of the energy industry in our students, makes connections to real-world mathematics and exposes students to careers in the energy industry. The curriculum unit provides an overview of the origin of our electricity, the impact of our use on the environment, the potential of wind energy and biodiesel, and the case for energy conservation. Through this unit students will reason algebraically to analyze important environmental and economic impacts of our past and current energy use. Through demonstrations and inquiry-based learning opportunities students will acquire and retain mathematical concepts which include writing, solving and graphing linear equations and inequalities, systems of linear equations and inequalities, and direct and inverse relationships. Students will also analyze data statistically using box-and-whiskers plots, mean absolute and standard deviation, z-scores, and curve of best-fit. Some unit activities are repeated in a chemistry or physical science class; nonetheless, do not feel like you are stealing the science teacher's thunder.

Keywords: coal mining, renewable energy, biodiesel, algebra, inequalities, equations, statistics, energy efficiency, wind, math

(Developed for Algebra I, grades 8-10; recommended for Algebra I, grades 8-9)

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