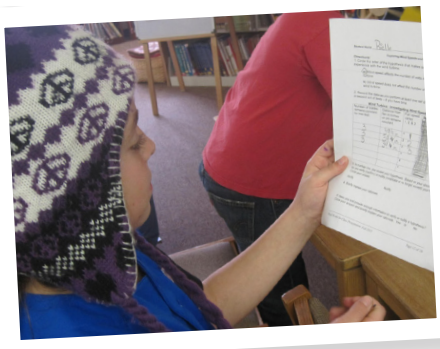
VERMONT ENERGY VEEP EDUCATION PROGRAM

Renewables By Design

An Intro to Energy Engineering



Guiding question, grades 4–5: What should engineers think about when designing solar power, wind power and hydropower?

Guiding question, grades 6–8: What should engineers consider when developing renewable energy and electricity technology?

Guiding question, grades 9–12: What costs, risks, and/or designs should engineers consider when developing renewable energy and electricity technology?

Students are challenged to think like engineers tasked with reducing our dependence on fossil fuels in this NGSS-aligned 90-minute workshop. This workshop helps students develop their understanding of renewable and non-renewable sources of energy and to adapt renewable energy design parameters to produce the greatest amount of electricity and positively affect the environment. Through a series of hands-on wind, solar, and hydro stations, students test variables, collect and analyze data, and start to construct explanations and solutions from the evidence.

At the wind station students investigate blade angle and wind speed in relation to volts of electricity. Size, angle, and other variables of PVs are explored at the solar station and at the hydro station students manipulate water height and amount of water. In addition, this workshop has been differentiated by concepts and skills and is available for grade bands 4–5, 6–8, and 9–12.

Renewables by Design helps students to answer the NGSS Earth and Human Activity standards' essential question of "How do Earth's surface processes and human activities affect each other?" and indirectly supports the NGSS physical science standards by exposing students to models that illustrate energy concepts. It is highly recommended that this workshop be scheduled concurrently or after the teaching of existing physical science energy curriculum.

Contact us at info@veep.org or 802-552-VNRG if you are interested in learning more or bringing this workshop into your class.