

## Wind Energy Curricula, Tutorials, and Teaching Materials

Curricula and teaching materials for both younger and older students available on-line at:

[http://www.eere.energy.gov/windandhydro/windpoweringamerica/schools\\_teaching\\_materials.asp](http://www.eere.energy.gov/windandhydro/windpoweringamerica/schools_teaching_materials.asp)

**New Wind Energy Curriculum from** The National Energy Education and Development Project (NEED)

<http://need.org/curriculum.php#WINDEC>

NEED's new wind energy curriculum, sponsored by the American Wind Energy Association, is now available on four levels with background information and hands-on activities to explore motion, weather, the history of wind, and modern wind technology.

- The primary **Wind Is Energy Kit (Grades K–1)** has a [Teacher Guide](#), student information in a storybook format, and suggested hands-on activities, with pinwheels, bubbles, a mini wind turbine, and a fan.
- The elementary **Wonders Of Wind Kit (Grades 2–3)** comes with [Teacher Guide](#), class set of [Student Guides](#), and equipment to conduct hands-on experiments, including pinwheels, bubbles, materials to construct pinwheels and wind indicators, a mini wind turbine, and fan.
- The intermediate **Energy From The Wind Kit (Grades 4–6)** comes with [Teacher Guide](#), class set of [Student Guides](#), and equipment to conduct hands-on experiments, including a KidWind Turbine, a Genecon, a wind gauge, materials to construct anemometers and wind indicators, materials to explore convection, a fan, and more.
- The secondary **Exploring Wind Energy Kit (Grades 7–12)** comes with [Teacher Guide](#), class set of [Student Guides](#), and equipment to conduct hands-on experiments, including KidWind Turbines, a Genecon, a wind gauge, a fan, multimeters, materials to construct anemometers, and more.
- The KidWind Project is partnering with NEED on the wind curriculum and KidWind Turbines are included in the Energy From The Wind and Exploring Wind Energy Kits. For more information on these turbines and other wind resources visit the [www.kidwind.org](http://www.kidwind.org).

### Additional Resources for Younger Students

- [Alliant Energy](#) - Provides introductory educational materials.
- California Energy Commission - Developed a set of educational materials called "Energy Quest."
  - [Energy Quest: Wind Energy](#)
  - [Measuring the Wind Project](#)
  - [Making an Anemometer Project \(a device to measure wind speed\)](#)
- [Danish Wind Energy Association](#)- "Wind with Miller" provides information in short bits, uses interactive tools (calculators, sliding scales, drop-down lists), and presents information with colorful, moving diagrams. The lessons are short and fun!
- DOE Energy Information Agency  
A web site that provides information and classroom activities on all energy technologies, including wind energy, for kids called [Energy Facts](#). Valuable links are included. The Energy Information Agency's handbook, [Energy Education Resources](#), is a wealth of useful references for teachers. You can order a current edition from the Web site.
- [The Franklin Institute](#)  
A science museum; provides wind educational materials at the Franklin Institute Online.
- [GE Wind](#)  
Provides curriculum and tutorials for kids.
- [Kids Saving Energy](#)  
By the Department of Energy, Energy Efficiency and Renewable Energy.

- [Laurentian Environmental Center](#)  
Provides wind curriculum at a low cost.
- [NOW with Bill Moyers](#)  
Presents brief instructions for building a wind machine as a science project.
- [Energy Education Curriculum Project](#)  
From the University of Northern Iowa.
- [Wind Energy for Educators](#)  
Produced by the Idaho National Laboratory, includes lesson plans for different levels of students.

### **Additional Resources for Older Students**

- [American Wind Energy Association](#)  
The American Wind Energy Association (AWEA) has an on-line tutorial on many key wind topics that it calls the [AWEA Wind Web Tutorial](#). AWEA also publishes fact sheets and the "Wind Energy Teacher's Guide".
- [Energy for Keeps: Electricity from Renewable Energy](#)  
An on-line handbook produced by Educators for the Environment. Look for the sections on wind energy.
- [The Futures Channel](#)  
Produced a video about the Maple Ridge Wind Farm in New York. The video introduces students to three engineers who use everything from algebra to physics and problem solving to statistics to provide clean, renewable energy. It is accompanied by a classroom activity.
- [Horizon Wind Energy](#)  
Has information for teachers, students, and consumers.
- [KidWind Project](#)  
Provides lessons and activities for middle-level students. Find background material, lessons and experiments, PowerPoint lectures, and more. The KidWind organization develops these materials on an ongoing basis, tying the curricula to standard testing protocols. KidWind also provides highly rated teacher training.
- [National Renewable Energy Laboratory](#)  
Published "Research Projects in Renewable Energy for High School Students". This publication describes projects such as:
  - What techniques can be used to measure and compare wind direction and speed?
  - How does a wind propeller affect how much electricity it produces?
  - What is the most efficient spacing of wind turbines for "farming" wind in a given unit of space?
- [Oklahoma Wind Power Initiative](#)  
Provides materials and classes for teachers and students.
- [PBS](#)  
Offers lesson plans for wind curricula.
- [PicoTurbine.com](#)  
A division of Xibokk Research, Inc., provides science project windmill kits.
- [Re-Energy.Ca](#)  
This site provides background information on wind, hands-on learning activities, teacher materials, resources, and links.
- [Texas State Energy Conservation Office Renewable Energy Lesson Plans](#)  
In the middle school lesson plans, see "Testing a Pinwheel Turbine" and "Roping the Texas Breezes." In the high school lesson plans, see "Testing a Windmill Generator" and "Wind Power Basics."
- [Wind Energy for Educators](#)  
Produced by the Idaho National Laboratory (INL), includes lesson plans for different levels of students.