

Resources to Prepare for the KidWind Challenge

Curricula

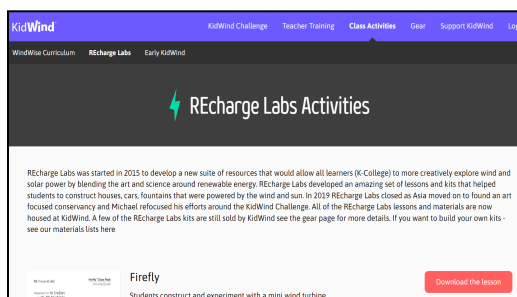


WindWise Education

The WindWise curriculum is available (at no cost) through the national KidWind Project. WindWise is broken into five main topics (energy, wind, turbines, wildlife, and siting). Each unit includes lesson plans, handouts, support, and background materials.

While the lessons are not designed to be completed in any particular order, they do offer some recommended pathways, depending on your subject expertise and the time you want to spend teaching about wind energy.

Link: <https://www.kidwind.org/activities/windwise>



REcharge Lab Activities

These activities are available (at no cost) through the national KidWind Project. REcharge Labs Activities has nine separate lessons exploring wind turbines, windmills, sail cars, and multiple solar projects. Each lesson includes grade levels, the time required, concepts, objectives, material list, content, and the activity procedures. The lessons are not designed to be completed in a certain way. Just choose what works with your classroom and content!

Link: <https://www.kidwind.org/activities/recharge-labs>

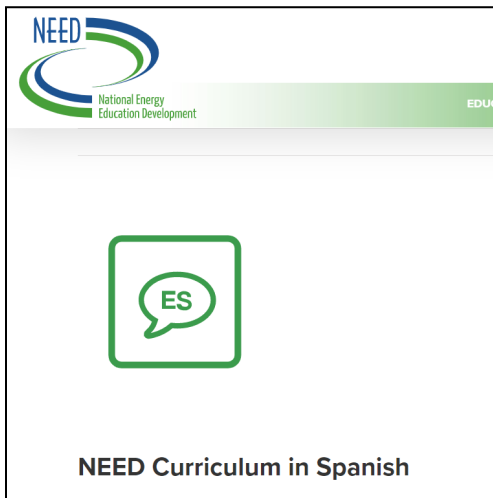


National Energy Education Development (NEED)

NEED has energy curricula broken into four age ranges (primary, elementary, intermediate, and secondary). The link below will take you directly to the units on wind energy, and its site includes a variety of curricula on other energy topics!

There is no cost to download PDFs, but you must add them to your "cart."

Links: [Wind Energy Infobooks](#); [Companion activities](#); [Your Future in Wind Energy](#)



National Energy Education Development (NEED) in Spanish (en español)

Although limited, NEED does have some resources available in Spanish.

Links: [Wind energy educational resources](#) in Spanish

Other helpful curricula links:

- A [K-12 Curriculum using a Wind Turbine](#) (Illinois) Source: <http://www.illinoiswind.org/>

Materials



KidWind Wind Turbine Generator

This is the ONLY item that must be used when competing in the Kansas KidWind Challenge.

These are available for purchase from [Vernier](https://www.vernier.com). The cost is \$7 for a single generator or \$60 for a package of 10. You can also contact the Kansas Energy Program team at ksenergyprog@ksu.edu or 785-532-6026 and we will ship one per team at no cost.



KidWind Basic Wind Experiment Kit

If you're looking to kick-start your turbine building, consider a wind experiment kit, which includes all the components needed to build a wind turbine. Just remember – points are awarded for creativity, so while one of these kits is a good starting point, we definitely recommend branching out when participating in the KidWind Challenge!

These are available to purchase from [Vernier](https://www.vernier.com) (\$129); an [advanced kit](#) is also available (\$169). You can also contact the Kansas Energy Program team at ksenergyprog@ksu.edu or 785-532-6026 – we have a limited number available.

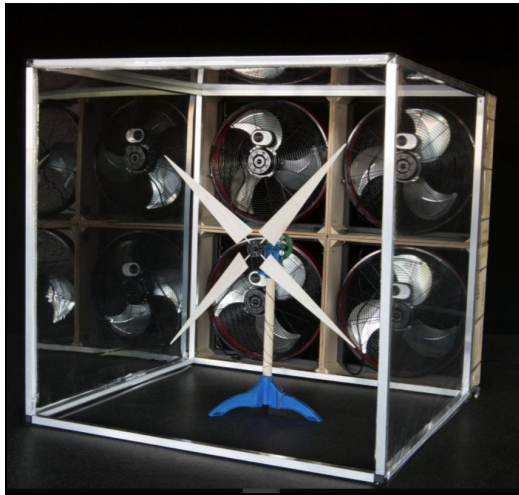


Energy Sensor

Vernier has a few types of sensors for measuring the energy output of a wind turbine. We have found the Go Direct Energy Sensor to be the easiest – it connects by Bluetooth to your computer, phone, or tablet, and has a built-in 30-ohm resistor.

These are available to purchase from [Vernier](https://www.vernier.com) (\$98). You can also contact the Kansas Energy Program team at ksenergyprog@ksu.edu or 785-532-6026 – we have a limited number available for loan.

Materials (continued)



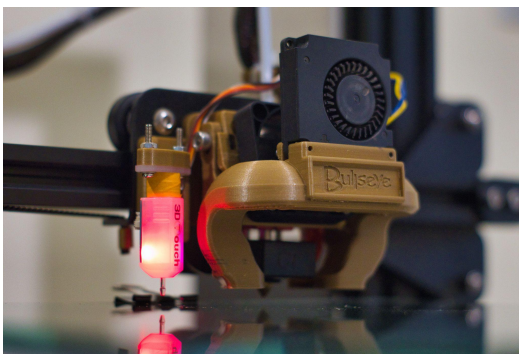
Wind tunnel

The KidWind competition uses a 4' x 4' wind tunnel, available through [Vernier](#) (\$2,500). The Kansas Energy Program team has a limited number of tunnels available for loan, if you would like to use one at your school for testing or internal competition. Two of these will be reserved for the KidWind Challenges, but are otherwise available for loan by contacting us at ksenergyprog@ksu.edu or 785-532-6026.



Build your own wind tunnel

Do you want your own wind tunnel, but can't afford the official tunnel from Vernier? Richard, a REcharge instructor in Wisconsin, has graciously made available the plans and instructions to build your own wind tunnel using a 44" diameter shop/barn fan. Instructions can be found on his blog ([December 2017 post](#)). You can also download a [PDF](#) of the overall plan.



3D Printing

Many teams will 3D print blades, gears, or other components of the wind turbines. If you want to 3D print, but don't have access to a 3D printer, contact the Kansas Energy Program (KEP) at ksenergyprog@ksu.edu. We can coordinate 3D printing through K-State's Hale Library at no cost to schools. You will need to design your own component to be printed and send KEP the file.