KidWind Solar Energy Exploration Kit
(Order Code KW-SEEK)

Explore solar energy with this innovative science kit designed to help students investigate energy transformations. A hinged box helps students discover how the angle of photovoltaic panels relative to the sun affects power output. Compare your experimental findings to online sun-angle calculators.

Explore series and parallel circuits with the three included solar panels. Learn about the effect of important variables in photovoltaic systems, such as the effects of shade, temperature, and load on solar panel output. Harness energy from the solar panels to pump water or power a small motor.

NOTE: Vernier products are designed for educational use. Our products are not designed nor are they recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

What's Included

- Sound and Light Board
- Protractor, clear, 4 inch
- Hinged plastic box
- Hook-and-pile fastener sets, 2 inch strips (6)*
- Small water pump
- Solar Panels, 2V/400mA (3)
- Piece of clear, plastic tubing (5'×1/4" ID)
- Chipboard Blade Sheets, 3"×12" (7)*
- Power Output Pack

*This part is a consumable and is excluded from the warranty.

Using the Product

Set up the Solar Panels and the box of the Solar Energy Exploration Kit.

1. Remove all contents from the Solar Energy Exploration Kit box.
2. Attach the three Solar Panels to the lid using the hook-and-pile pieces.
3. Use a piece of chipboard to prop the lid of the box at an angle.
4. Orient the box so the panels are facing directly toward the sun.
   CAUTION: Never look directly at the sun.

For detailed lab instructions see our lab books:

- *Investigating Solar Energy*, **www.vernier.com/elb-solar**
- *Solar Energy Explorations*, **www.vernier.com/msb-solar**

Specifications

Box dimensions	13 1/8"×7 5/8"× 4 1/2"
Maximum power output	1.2 W (6 V×200 mA in series, or 2 V×600 mA in parallel)

Safety

- The Solar Energy Exploration Kit is designed for use outdoors. Teachers and students will potentially be in direct sunlight for most of the class period. Encourage students to drink plenty of water and wear light-colored, loose fitting clothing and/or sunblock, as appropriate. Monitor students for side effects of prolonged exposure to sunlight and heat.
- Warn students against looking directly at the sun during the experiment.
- Remind students that the Solar Panels can have sharp edges and can cause an injury if mishandled or misused.

Repair Information

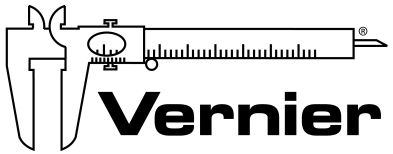
If you have followed the troubleshooting steps and are still having trouble with your KidWind Solar Energy Exploration Kit, contact Vernier Technical Support at **support@vernier.com** or call 888-837-6437.

Accessories/Replacement Parts

Item	Order Code
Go Direct Energy Sensor	GDX-NRG
Vernier Energy Sensor	VES-BTA
Vernier Resistor Board	VES-RB
Vernier Variable Load	VES-VL
KidWind Power Output Pack	KW-POP
KidWind 2V/400mA Solar Panel	KW-SP2V
KidWind Small Water Pump with Tubing	KW-PUMP
KidWind Chipboard Sheets	KW-CB50

Warranty

Vernier warrants this product, excluding consumables, to be free from defects in materials and workmanship for a period of five years from the date of shipment to the customer. This warranty covers educational institutions only. Consumables are clearly marked in What's Included.



Vernier Software & Technology
13979 SW Millikan Way • Beaverton, OR 97005-2886
Toll Free (888) 837-6437 • (503) 277-2299 • Fax (503) 277-2440
info@vernier.com • www.vernier.com

Rev. 7/10/19