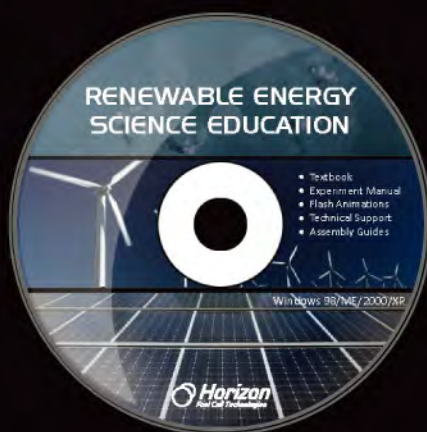


# Clean Energy Education

The future is in your hands.

Horizon's line of educational products demonstrate the science behind renewable energy technologies in a fun and tangible way for all. As technology continues to progress towards carbon-free energy systems, innovation is placed into the hands of our future scientists. A clean energy future starts today in classrooms around the world.







## Fuel Cell Car Science Kit (includes solar cell)

Horizon's Fuel Cell Car Science Kit uses a reversible PEM fuel cell that combines electrolysis and power conversion into one single device. Watch as oxygen and hydrogen gases are formed in two transparent water containers. The car steers independently of the user once in operation: when the car hits a barrier, it will automatically find its way by reversing away 90 degrees. Included in the box is a renewable energy education manual as well as an experiment guide. This fun science kit combines cutting-edge science, education and fun for all!

## Horizon Power Predictor

The Power Predictor is a new breakthrough educational solution to foster excitement for STEM (science, technology, engineering and math) and sustainable energy, preparing our students for an up and coming green energy industry sector.

Set between experimentation/discovery and real-world implementation, the Power Predictor is part of Horizon's renewable energy-focused educational tools that cover an increasingly wide scope of science and engineering topics that would be beneficial for college-bound students to study and investigate.

This innovative system is actually in use by commercial installers of solar and wind power systems, providing real-world insight and skills, as well as technical knowledge essential in preparing students for careers in the clean tech industry. It is a perfect addition in career preparation courses and technical training programs.

Providing materials aimed towards assisting teachers in the assessment of solar and wind energy, while involving students in the development and implementation of real-world renewable energy systems in their school's sustainability programs.



## H-racer 2.0 IR control (& Solar Powered Hydrogen Station)

Discover the automotive technologies of the future by building and driving your own hydrogen fuel cell car. The H-racer 2.0 is a scale model fuel cell car construction kit, with remote controlled steering, and light emitting features. The H-racer received many awards including Time Magazine's "Best Inventions", Business Week IDEA, Metropolitan Home "Design 100", ID magazine annual review, and Business 2.0 Bottom Line Design Awards.

The product includes a solar cell, hydrogen station, remote control, hydrogen fuel cell car assembly parts, as well as a renewable energy education manual and a fun experiment guide.

## Miniature Fuel Cell & Electrolyzers

Horizon also supplies individual fuel cells, electrolyzers, solar panels and accessories for educational purposes. For more information please visit our website.





## Renewable Energy Education Set

The Renewable Energy Science Education Set is a modular experiment set designed to demonstrate the workings of a completely clean energy technology system on a miniature scale.

With this very complete kit, an entire miniature renewable energy system can be constructed for experimentation and demonstration. This set includes a real working miniature wind turbine kit, a solar photovoltaic panel, an electrolyzer, a PEM fuel cell, and hydrogen storage system encouraging users to learn the system step by step, configure the system in different ways, and visualize the workings of clean energy principles from start to finish.



Unique New Design!  
Adjustable Blade 0-55°



## WindPitch Education Kit

WindPitch is a miniature real-working wind turbine (wind power generator) designed for students to evaluate the pitch (angle setting) of the profiled blades. Up to 12 profile blades can be installed for evaluation. Learn how the blade pitch and number of blades affect the power output of the wind turbine to maximize output power. Experimentation also teaches about stalling or reduction of the wind turbine's rotational speed to protect itself under strong wind conditions.

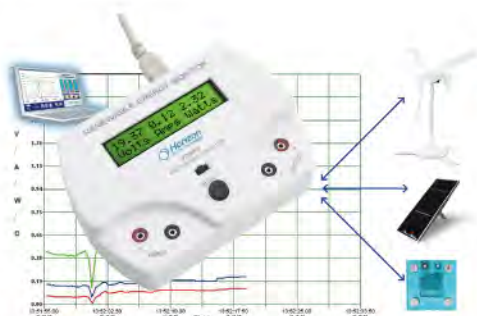
## Hydro-Wind Education Kit

With this set you have the freedom to invent your own clean energy applications using fuel cells and renewable hydrogen created using wind and water. This new set includes a real wind turbine, an optimal tool for inspiration and education in classrooms, as kids get to develop their own applications using a zero-carbon fuel. This set now includes the Wind Pitch Educational Kit inside-a miniature real-working wind turbine (wind power generator) designed for students to evaluate the pitch (setting angle) of the profiled blades.

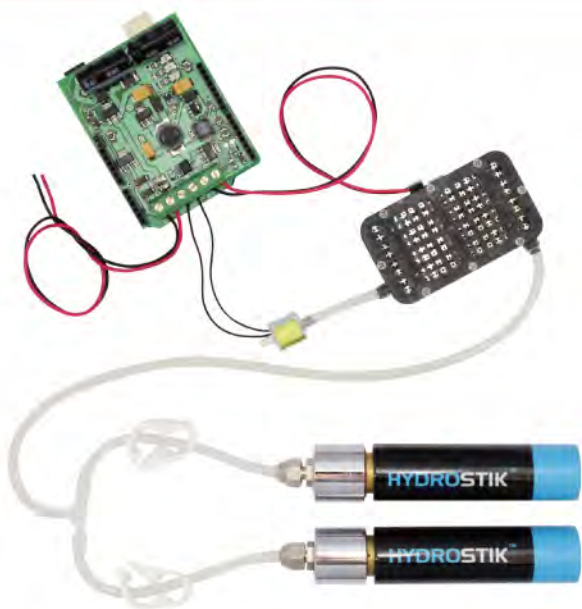


## Horizon Renewable Energy Monitor

The Renewable Energy Monitor is an educational evaluation monitoring device with measurement software for graphical display of performance characteristics on your PC. It offers a 2 line LCD screen for viewing measurements that you cycle through at the push of a button – avoiding the multimeters confusing setup and cumbersome computations. Numerous experiments and evaluation activities for hydrogen fuel cells.







## HYDROFILL H2 cartridge refueler

With HYDROFILL, now every school could access hydrogen without using bottled or pressurized tanks. The system is designed to refuel hydrogen cartridges for use in more technical education solutions, including the programmable H2-MDK makers kit below.



## H2-MDK Open Source Fuel Cell Developer Kit

The new kit was developed by inventors, for inventors to jumpstart further exploration on real device and application development. Hobbyists, students, teachers, and R&D labs around the world can now get their hands on a set of components, complete with hydrogen storage, that can easily be integrated into fun and functioning applications.

## Hydrocar solar hydrogen vehicle

This vehicle coming straight from the year 2099 is running on clean hydrogen fuel using a next generation reversible Polymer Electrolyte Membrane (PEM) fuel cell. Its new design offers a futuristic feel for what transportation could look like in the next decades. Watch as oxygen and hydrogen gases are formed within two transparent containers in the back of the vehicle. The kit's fuel cell unit combines water electrolysis and fuel cell functions into one device. The car steers independently of the user once it hits a barrier, and cool blue LED lights flash from inside the cockpit.



## Solar Hydrogen Education Set

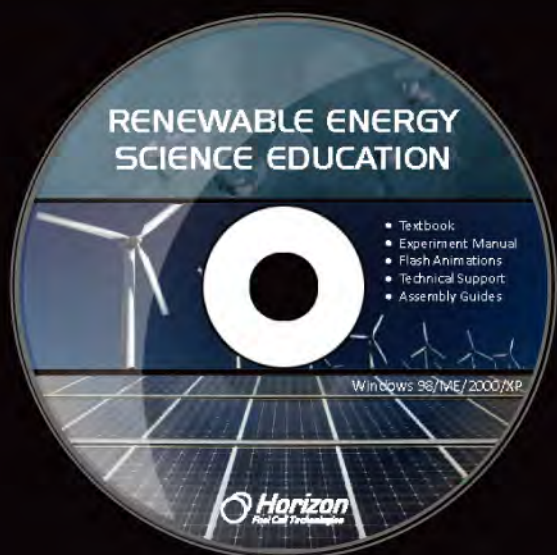
With this new experiment set you have the freedom to invent your own clean energy applications using fuel cells and renewable hydrogen created using solar energy and water. This new set is an optimal tool for inspiration and education in classrooms, as kids get to develop their own applications using a zero-carbon fuel. The kit also comes with a small electric motor and propeller blade as a starting point for motorized applications you can build using your futuristic solar energy storage device.

## Bio-Energy Education Kit

This kit demonstrates the latest in fuel cell technology using ethanol as its fuel source. Currently fuel cells use hydrogen or methanol as fuel. This fuel cell kit directly converts ethanol (alcohol) to electricity silently and without any combustion. The device can run non-stop for hours, providing an amazing demonstration of next-generation bio-fuel cell technology.







# Renewable Energy Education Curriculum

## CD included in ALL Horizon Kits

- Renewable Energy Education Manual
- Horizon Experiment Manual
- Flash Animations
- New Science Kit Assembly Guides
- Technical Support Section with Videos

## Horizon's Renewable Energy EXPERIMENT MANUAL

Designed to be the premier experimentation manual with over 20+ experiments for middle school to high school level sciences. Performs an assortment of informative and relevant experiments using Horizon's science kits as hardware. Introducing students to theory behind renewable energy sciences, basic electronics, data logging software, and contains activities to sponsor new ideas and encourage a next generation of green engineers and designers.

The manual also offers suggestions for further study on specific topics and theory. Written around the Renewable Energy Education Set, Solar Hydrogen Education Kit, and Hydro-Wind Education Kit, this book also includes setup adaptations that allow students to use Horizon car kits to perform a variety of the experiments as well.



## Renewable Energy Science EDUCATION MANUAL

The most complete and informative book available for introducing students to renewable energy. This manual showcases the technologies contained within Horizon's science kits and the latest developments in clean energy. The manual covers an array of topics in 7 chapters

- Global Warming & Climate Change
- Solar Technologies
- Wind Technologies
- Electrolyzers
- Fuel Cells
- Hydrogen Storage
- Basic Electronics





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