



Advanced Science & Technology Workshops Gator Tracks!

At Florida 4-H Congress 2009

Florida 4-H and The Department of Agricultural and Biological Engineering is providing an exciting new learning opportunity for 4-H youth interested in science. Two adventure-packed days of workshops will be offered at 4-H Congress this year. This innovative program is open to all youth ages 14-18 (they do not have to qualify through district events to participate). The goal of this program is to give youth a hands-on experience at the University of Florida's Agricultural and Biological Engineering Labs and to interact with professors. Interested participants should contact their County 4-H Agent and sign up through the State 4-H Congress registration form.

Workshop Descriptions

Solar Energy (Tuesday AM): Students will learn how solar panels produce heat energy and how photovoltaic cells produce electrical energy. They will be taken to our energy park field location to see and operate pilot-scale systems functioning with solar panels and photovoltaic cells, take measurements, and evaluate the performance of these systems, along with instruction in appropriate safety measures.

Wind Energy (Tuesday PM): Students will learn how windmills can produce electricity, as well as work energy. They will be taken to our energy park field location to see and gather performance data from operating windmills (weather permitting), along with instruction in appropriate safety measures. Alternatively, they will accomplish the same objective on a laboratory scale in the presence of an "artificial" wind.

Biogas Production (Wednesday AM): Students will learn how the process of anaerobic digestion can convert organic waste and inedible plant material into methane (natural gas) and useful compost. They will observe laboratory and/or pilot scale reactors in operation, see how the biogas is used as a fuel, and gather operating performance data, along with instruction in appropriate safety measures.

Biodiesel Fuel Production (Wednesday PM): Students will learn how diesel fuel can be made from vegetable oils. The ABE Department has developed a demonstration-sized reactor, where students can produce their own biodiesel from vegetable oil. They will carry out tests to assess feedstock and final fuel quality, view the biodiesel conversion and clean up processes to make the final product, operate an engine on biodiesel and receive safety instruction on handling chemicals, fuel and engine operation. Students should leave with a better appreciation of the energy and resources we use for transportation.