

## BioEnergy Science Center Education and Outreach - Overview

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<http://bioenergycenter.org>

**Project Goals: The BioEnergy Science Center (BESC) is focused on the fundamental understanding and elimination of biomass recalcitrance. BESC's approach to improve accessibility to the sugars within biomass involves 1) designing plant cell walls for rapid deconstruction and 2) developing multitalented microbes for converting plant biomass into biofuels in a single step (consolidated bioprocessing). Education and outreach to the general public is critical in the acceptance and deployment of bioenergy. In addition to leveraging successful education and training programs already in place at our partner institutions, BESC has developed educational lessons and activities that target elementary and middle school children.**

Our Center has taken a novel approach to education and outreach in that our education efforts begin with 5<sup>th</sup> graders. This is in addition to our efforts to prepare a new generation of scientists for the emerging fields of bioenergy through the interdisciplinary training of graduate students and post-docs. We have developed lesson plans aimed at 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> grades to educate and inform students about the basics of energy production and utilization. They include basic concepts such as the carbon cycle, lignocellulosic biomass as substrate for the production of biofuels as well as technical and economic obstacles to a bio-based fuel economy. These lessons were piloted in schools in Georgia and Tennessee and were made available to schools nationwide in the spring of 2010. We have piloted a series of “science night” programs offered to students and the general public through local schools, museums and community centers and have reached more than 35,000 students, teachers and parents. In addition, we have developed educational programs in the form of games that teach strategies for energy use. Students are allowed to design their own cars and select types of fuel to travel to familiar destinations. The games, exhibited in kiosks to be placed in schools, museums and other educational venues, incorporate lessons to explore fuel efficiency, fuel availability (for example electric and E85 cars) as well as environmental impact. A prototype kiosk has been built and was exhibited at a recent ASTC meeting attracting interest from the Director of Education at the Smithsonian where we hope to have an exhibit next year. A prototype of one of the travel games will be available at the meeting.

The lesson plan is available on the BioEnergy Science Center website at:  
<http://bioenergycenter.org/besc/education/teachertools.cfm>

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