A Class Act

In the hunt for renewable energy resources, researchers around the world are racing to discover photocatalysts—materials that provide efficient methods for making solar fuels from water using energy from the sun. And now, thanks to outreach efforts at the National Science Foundation's Center for Chemical Innovation: Solar Fuels (CCI-Solar)—in which Caltech is a partner—kids across the globe can join the race as well.

The Solar Energy Activity Lab (SEAL) project distributes research kits that allow students in more than 90 middle and high schools around the world to discover inexpensive metal oxide semiconductors that could efficiently split water into hydrogen (to be used for fuel) and oxygen using sunlight.

With the kit, the students make different combinations of the metals listed on the periodic table, placing tiny spots of the mixtures on a glass plate that can act as a conductor of electricity. To test a combination's efficiency as a photocatalyst, the students pulse an LED light at each spot while a detector measures the electrical current in the system.

If a large increase in current is detected, it means that the metal mixture could be a good photocatalyst candidate, and researchers at CCI-Solar can follow up with additional analyses. After performing their experiments, many of the students are invited to present their research at the Southern California Solar Army/SEAL Convention, held each May at Caltech.

SEAL and CCI-Solar's other outreach projects provide a way for young people to learn about chemistry while also contributing to actual research that will change the way we power the world. —*JSC*

To see Caltech's CCI-Solar team in action, check out the video at http://www.nsf.gov/news/special_reports/science_nation/solarfuels.jsp.